



OESTERREICHISCHE NATIONALBANK

F O C U S O N A U S T R I A

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This Issue's Special Focus:  
**A New Capital Adequacy  
Framework as Proposed  
by Basel and Brussels**



OESTERREICHISCHE NATIONALBANK

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## STUDIES “ON A NEW CAPITAL ADEQUACY FRAMEWORK AS PROPOSED BY BASEL AND BRUSSELS”

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*Irrespective of its legal structure, every enterprise must hold equity capital, which may take various forms, and record it in its balance sheet. Pursuant to Article 5 para 5 and Article 22 Austrian Banking Act (ABA), credit institutions, too, are required to hold own funds. Article 23 ABA provides a definition of own funds.*

*Credit institutions rank among the economic sectors that are subject to the most stringent regulatory and supervisory provisions. This stringency may be traced to the role credit institutions play as financial intermediaries. After all, the banking system as a whole is key to maintaining national and international confidence in a country's financial market.*

*Supervisory regulations are designed to map the amount of own funds to the risk inherent in the business transactions effected as well as to create an assets buffer to cover potential loss. This paper sheds light on the evolution of capital adequacy legislation, which is again about to change.*

*In light of the building block approach towards regulatory capital requirements and the differentiated use of individual own funds components, the methods applied to the computation of capital ratios differ greatly and the data do not really lend themselves to comparisons. Consequently, a more thorough analysis seems useful.*

Supervisory Review	74
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*Supervisory review (by which is meant the review of the adequacy of capital requirements at an individual bank by the supervisory authority) is an essential part of the new capital adequacy framework, complementing and linking the other two pillars – minimum capital requirements and market discipline. The key innovations proposed by the new capital standards, which are discussed in detail in this study, comprise the possibility of applying differentiated regulatory capital requirements, increased consistency between a bank's capital and its overall risk profile, and the provision for early supervisory intervention, when a bank's capital ratio declines but still exceeds 8%.*

*The central principle of supervisory review is that not even the most comprehensive list of regulations governing minimum capital requirements can adequately cover all potential risks a bank, let alone a complex banking group, is exposed to. Supervisory review is primarily intended to be a practical tool of banking supervision, but by no means an instrument for shadow management by the supervisory authority. It is*

*crucial that a stronger emphasis is being placed on the risk-focused supervisory elements in addition to compliance with quantitative standards. Essential questions remain unanswered and will have to be resolved in cooperation with banks.*

#### Credit Risk

89

*The reform of the capital requirements for credit risks is a crucial part of the first pillar of the new capital adequacy framework. The minimum levels of capital are to be made consistent with the actual credit risk and are to take into account the recent developments in credit risk management. The minimum capital charge for the credit risk is to be assessed by means of a modified standardized approach and an internal ratings-based approach. The modified standardized approach is a gradual refinement of the 1988 Basel Accord. Instead of classifying borrowers in rather crude risk categories, risk differentiation will be provided through ratings by external institutions. Under the internal ratings-based approach, internal risk assessment and valuation systems of banks will be used to assess the capital charge for credit risks. The regulatory recognition and permanent supervision of external rating agencies and internal rating systems of banks require new and comprehensive instruments and procedures.*

#### Critical Evaluation of the Basel Committee's and the European Commission's Proposals on the Treatment of Other Risks in the New Capital Adequacy Framework 104

*The 1988 Basel Accord and the Solvency Ratio Directive are based on a simple approach that should cover not only credit risk but also any other risks. One objective of the new capital adequacy framework is to align regulatory capital more closely with economic capital, the capital necessary to cover the risks incurred. Thus, other risks are no longer covered and have to be made subject to a specific capital charge. This study gives an insight into the present discussion, from both the supervisors' and the practitioners' points of view. Since other risks are primarily defined as a residual, i.e. as all risks other than credit and market risks, it is crucial to identify the risks which should be made subject to capital requirements; operational, legal, and reputational risks are mentioned in this context. The study provides an overview on the various attempts to define other risks, and it compares the proposals put forward in the Basel Committee's and the European Commission's consultative papers. It also gives an insight into current risk management procedures in banks and into first methodologies to quantify and manage other risks.*

#### Interest Rate Risk in the Banking Book

118

*Interest rate risk is the exposure of a bank's financial condition to future, possibly adverse movements in interest rates. Accepting this risk is a normal part of banking and can be an important source of profitability and shareholder value. However, excessive interest rate risk can pose a significant threat to a bank's earnings and capital base. Accordingly, an effective risk management process that maintains interest rate risk within prudent levels is essential to the safety and soundness of banks. The 1999 consultation documents published by the Basel Committee and the EU suggest for the first time additional capital charges for interest rate risk in the banking book. This paper presents these proposals and the pertinent legal provisions and also provides an overview of the different sources and most common management methods of interest rate risk.*

STUDIES

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<p><i>The growth and output differentials between the European and the U.S. economies over the past decade have often been linked with the rapid development of information and communication technology. Yet technological innovation appears to be only one element of the far-reaching changes in the economic framework conditions: Experts have detected a new economic paradigm which has materialized in the U.S.A. but not in Europe. Both the concept and the empirical relevance of this presumed new paradigm are controversial. The 28<sup>th</sup> Economics Conference of the Oesterreichische Nationalbank dealt at length with this phenomenon. The topics of discussion included definitions and possible statistical evidence of the so-called New Economy, economic and monetary implications, aspects of capital markets and growth perspectives. While the question of whether a New Economy in fact existed or not had to be left unanswered, the sessions produced a variety of essential economic interpretations and recommendations. European economic policy is faced with enormous challenges: According to most speakers, the chance that Europe may head towards a period of sustained growth does exist, but the necessary framework conditions are – to a large extent – still lacking. Among other things, the integration of the European market is not advanced enough, an efficient risk capital market has yet to be created, there is no European network for technology and science, and too little is being invested in a knowledge-based economy. As to monetary policy, it is vital to bear in mind that uncertainty – especially about the usefulness of certain economic variables – has undoubtedly increased. Therefore, the ECB’s monetary policy with its two-pillar strategy, which is based on a broad range of indicators and thus gives policymakers a great deal of flexibility in their decisions, seems to be well chosen.</i></p>	

The opinions expressed in the section “Studies” are those of the individual authors and may differ from the views of the Oesterreichische Nationalbank.

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## **On a New Capital Adequacy Framework as Proposed by Basel and Brussels**

For almost two years now the financial press has been abuzz with news about the review of the capital adequacy framework, a topic which has become more vital than ever. Basel's proposals on a new Capital Accord and the adaptation of the pertinent European Union directives target an overhaul of the regulatory framework which has been in place for some ten years as well as the inclusion of new rules to account for the rapid advances of the past few years.

The Basel Committee on Banking Supervision and the European Commission have each drawn up a consultative paper outlining a new capital adequacy framework. Following the first round of consultations in the year 2000, Basel and Brussels are expected to issue updated versions of their consultation documents in early 2001.

Both the Basel Committee and the European Commission have proposed a concept resting on three pillars. The first pillar refers to new minimum capital requirements. It is complemented by supervisory review and new provisions on disclosure to enhance market discipline.

It is important to bear in mind that the new proposals on regulatory capital requirements are still being reviewed, which is why the authors of the capital adequacy focus studies had to pin down a moving target. The authors attempted to provide a snapshot of the discussion at the time of writing and corroborated their findings with pertinent references. They were, however, limited to material that could be quoted without restriction. As little has been published on the strides made over the course of the year 2000, the focus studies in this issue are meant to contribute to the ongoing discussion as well as to provide an overview of the new capital adequacy provisions.

The overhaul of the capital adequacy framework targets a closer alignment of regulatory capital and economic capital by mapping the amount of own funds to the risk inherent in the business transactions effected as well as by creating a capital buffer to cover potential loss. In the paper "Regulatory Capital Requirements for Austrian Banks – A Supervisory Tool Subject to Change," *Johannes Turner* traces the evolution of capital requirements, contrasting them with the stipulations envisaged by the two consultation papers.

*Irene Giuliani* and *Diane Moore* then shed light on the "Supervisory Review," the revolutionary second pillar of the new capital adequacy framework. The central principle of supervisory review is that not even the most comprehensive list of regulations governing minimum capital requirements can adequately cover all potential risks a bank, let alone a complex banking group, is exposed to. Supervisory review is primarily intended to be a practical tool of banking supervision, but by no means an instrument for shadow management by the supervisory authorities.

The review of the regulatory capital requirements applicable to credit risk forms a key part of the first pillar of the new capital adequacy framework. The minimum capital requirement is to be differentiated more strongly by credit risk and to account for industry innovation in credit risk

management. In his paper on “Credit Risk,” *Franz Partsch* discusses the development of the modified standardized approach and the new internal ratings-based approach.

The existing regulatory capital requirements are based on a simple, rather broadbrush approach meant to cover not only credit risk, but also any “other risks.” The new regulatory capital requirements aim at achieving greater consistency between regulatory capital and the economic capital necessary to cover the actual risk. Consequently, the other risks, which are no longer captured by this new approach, need to be treated on their own and made subject to a capital charge. The paper by *Alexandra Hohlec* and *Birgit Leichtfried*, “Critical Evaluation of the Basel Committee’s and the European Commission’s Proposals on the Treatment of Other Risks in the New Capital Adequacy Framework,” presents the current definitions of the residual other risks. It also describes the suggestions made for their supervisory treatment as well as the methods employed for the rather difficult task of assessing other risks.

The discussion of whether and how to apply a capital charge to interest rate risk also in the banking book – in addition to the existing provisions for the trading book – is at the center of the paper “Interest Rate Risk in the Banking Book” by *Gerhard Coosmann* and *Thomas Hudetz*. A delineation of interest rate risk in the banking book is followed by a rundown of today’s methodologies for managing interest rate risk as well as a review of the proposals issued by Basel and Brussels.

Finally, let me draw your attention to the following disclaimer which applies to the authors’ references to the situation in Austria: The opinions expressed in the focus studies are those of the individual authors and may differ from the views of the Oesterreichische Nationalbank. Thus, the opinions expressed should not be interpreted as indicative of the way the regulations will or are to be implemented in European Union directives or transposed into Austrian law, as this is beyond the authority of the OeNB.

Birgit Leichtfried  
Coordinator of capital adequacy focus studies

# R E P O R T S

# Calendar of Monetary and Economic Highlights

## **Austria**

### **August 2000**

- 8 *Austrian Euro Act and Amendment to the Divisional Coinage Act 1988 and the Federal Act on the Oesterreichische Nationalbank 1984 (Federal Legal Gazette I No. 72/2000).*

The Austrian Euro Act regulates the period of dual circulation and the changeover of public administrations to the euro and renders void the monetary provisions which will no longer comply with EU law or will turn obsolete as of January 1, 2002. The amendment to the Divisional Coinage Act is the legal basis for the coining and issuing of euro and cent coins; the amendment to the Federal Act on the Oesterreichische Nationalbank contains a new provision on the security features of banknotes.

### **October 2000**

- 5 In the wake of the *monetary policy decisions* taken by the Governing Council of the ECB on October 5 and earlier on August 31, 2000, the following adjustments take effect in Austria as from October 6, 2000, as required by the euro-related amendment to civil legislation: The *base rate* is raised to 4.25% and the *reference rate* to 6.0%. In both cases this represents a rise by half a percentage point.

Following the monetary policy decisions taken by the Governing Council of the ECB at its meeting on October 5, 2000, and considering the interest rate decisions of the Governing Council of the ECB on August 31, 2000, the *reference rate* is raised by 0.5 percentage point to 6.0% and the *base rate* by 0.5 percentage point to 4.25%, in accordance with the Euro-Related Amendment to Civil Legislation, with effect from October 6, 2000.

### **November 2000**

- 3 NEWEX (New Europe Exchange), the special exchange for Central and Eastern European companies, starts trading. NEWEX is a joint venture of Deutsche Börse AG and Wiener Börse AG.

## **European Union**

### **September 2000**

- 1 At its meeting on August 31, 2000, the *Governing Council of the ECB* agrees to increase the interest rates on the Eurosystem's *marginal lending facility* and *deposit facility* are raised by a quarter percentage point to 5.5 and 3.5%, respectively, from September 1, 2000. Furthermore, the minimum bid rate on the *main refinancing operations* of the Eurosystem is raised by a quarter point to 4.5%, with effect from September 6, 2000.
- 4 Speaking at this year's European Forum in Alpbach, Gertrude Tumpel-Gugerell, Vice Governor of the Oesterreichische Nationalbank, states her preferences for the Dutch model of financial

- supervision, where the banking regulators are under the umbrella of the central bank but operationally independent.
- 5 The *ECB* allots EUR 108 billion to bidders in settling its latest *main refinancing operation* with a maturity of two weeks, carried out as a variable rate tender with a minimum bid rate of 4.50%. The weighted average rate of the operation is 4.57%, and the marginal rate is 4.55%. A total of 637 credit institutions submits bids worth EUR 190.5 billion at rates between 4.50 and 4.80%.  
The *Bank of Greece* cuts its *key interest rates* by three quarters of a percentage point each. The repo rate for its 14-day refinancing operations now stands at 7.5%, the lombard rate at 8.25%, and the overnight rate (to which a single rate now applies) at 6.5%.  
*Danmarks Nationalbank* lowers its lending rate and the rate on certificates of deposits by 10 basis points to 5.0%. The move was prompted by recent developments in the *ECB's* variable rate tender allotments.
- 6 The *European Commission* proposes an employment package for 2000/2001, consisting of the Joint Employment Report 2000, new employment policy guidelines for 2001 for the Community as a whole, and specific recommendations for 2001 addressed to individual Member States.
- 8 Convened for an informal meeting at Versailles, the *finance ministers and central bank governors of the EU* discuss the decline of the euro's exchange rate and the surge in crude oil prices. Furthermore, they demand to play a pivotal role in preparations for the EU's expansion towards the east. Discussions also center around practical issues of introducing euro banknotes and coins, such as frontloading euro cash to banks and retailers prior to the official launch date of January 1, 2002.
- 12 The *ECB* allots EUR 63 billion to bidders in settling its latest *main refinancing operation* with a maturity of two weeks, carried out as a variable rate tender with a minimum bid rate of 4.50%. The weighted average rate of the operation is 4.59%, and the marginal rate is 4.58%. A total of 663 credit institutions submits bids worth EUR 158.3 billion at rates between 4.50 and 4.78%.
- 13 The EU-14 lifts its sanctions against *Austria*.
- 14 As part of the monetary dialogue, *ECB President Wim Duisenberg* addresses the *Economic Affairs Committee of the European Parliament*. Duisenberg argues that, by deciding to increase interest rates on August 31, 2000, the *ECB* made a preemptive move to counter-balance price pressures from the euro exchange rate, oil prices and M3 growth beyond the reference value. Furthermore, he explains the decisions taken by the *Governing Council of the ECB* regarding the introduction of euro banknotes and coins on January 1, 2002. Other topics include efforts to improve the availability of statistical data and to enhance cross-border retail payments.
- 19 The *ECB* allots EUR 104 billion to bidders in settling its latest *main refinancing operation* with a maturity of two weeks, carried out as a

- variable rate tender with a minimum bid rate of 4.50%. The weighted average rate of the operation is 4.58%, and the marginal rate is 4.56%. A total of 658 credit institutions submits bids worth EUR 168.2 billion at rates between 4.50 and 4.85%.
- 26 The *ECB* allots EUR 81 billion to bidders in settling its latest *main refinancing operation* with a maturity of two weeks, carried out as a variable rate tender with a minimum bid rate of 4.50%. The weighted average rate of the operation is 4.68%, and the marginal rate is 4.65%. A total of 659 credit institutions submits bids worth EUR 159.1 billion at rates between 4.50 and 4.90%.  
*Danmarks Nationalbank* raises its *lending rate* and the *rate on certificates of deposits* by 10 basis points to 5.1%. The move was prompted by recent developments in the *ECB*'s variable rate tender allotments.
- 28 The *Danish population* rejects the adoption of the euro in a national referendum. According to the preliminary official result, 53.1% of voters voted against the accession of their country to the European Monetary Union, and 46.9% in favor of joining EMU. In a press statement the Danish central bank declares that it will continue its fixed exchange policy vis-à-vis the euro.
- 29 *Danmarks Nationalbank* raises its *lending rate* and the *rate on certificates of deposits* by 50 basis points to 5.6% to preempt any market uncertainties in the aftermath of the euro referendum.  
The *euro group* discusses, among other things, the Danish euro referendum, the G-7 meeting, the euro exchange rate, the improvement of euro area statistics and the introduction of euro banknotes and coins.  
The main items on the agenda of the *ECOFIN Council meeting* are the fight against money laundering, preparations for a joint meeting of the Council of finance, justice and interior ministers on the issue of financial crimes, the action plan for euro area statistics and the oil price development.

### October 2000

- 5 At its meeting on October 5, 2000, the Governing Council of the *ECB* takes the following *monetary policy decisions*:
1. The minimum bid rate on the main refinancing operations of the Eurosystem will be raised by 0.25 percentage point to 4.75%, starting from the operation to be settled on October 11, 2000.
  2. The interest rate on the marginal lending facility will be raised by 0.25 percentage point to 5.75%, with effect from October 6, 2000.
  3. The interest rate on the deposit facility will be raised by 0.25 percentage point to 3.75%, with effect from October 6, 2000.
- The *Governing Council of the ECB* agrees to raise the *minimum bid rate* on the main *refinancing operations* of the Eurosystem by 0.25 percentage point to 4.75%, with effect from October 11, 2000. The interest rates on the Eurosystem's *marginal lending facility*

- and *deposit facility* are also increased by a quarter percentage point to 5.75 and 3.75%, respectively, with effect from October 6, 2000.
- 6 *Danmarks Nationalbank* raises its discount rate by 0.25 percentage point to 4.75%.
- 13/14 Discussions at the informal *European Council* in Biarritz focus on the reform of the EU Treaty. The future structure of the European Commission turns out to be the most hotly debated topic. The creation of a Charter of Fundamental Rights is less controversial.
- 16 The central topics at the meeting of the *euro group* are the recent development of the euro exchange rate, the recommendation of the European Commission on facilitating transition to the euro, budget policies, the Intergovernmental Conference and the progress of the preparations of the cash changeover. The ministers of the euro group also meet with their EFTA counterparts.
- 17 Discussions at the *ECOFIN Council* center, inter alia, on the tax package, value-added tax in e-commerce, the directives on financial services and UCITS, the employment package, the reform of the tax and social benefits systems to promote employment, the issue of environment and growth, the preparations of the G-20 meeting of ministers in Montreal and the fight against financial crime.

# Economic Background

## Overview

So far, business activity in Austria has been continuing its dynamic development throughout the year 2000. In 1999, real GDP had increased steadily from 1.0% in the first quarter to 3.3% in the fourth quarter (year on year). This upswing continued throughout the first quarter of 2000, with economic growth coming to 3.9% year on year. In the second quarter, at 3.8%, real GDP growth did not flag, but did not rise, either. The cyclical upswing is most powerful in the manufacturing sector, which – as measured by the output index – expanded by 12.4% during the first half of 2000 compared to the previous year. The current economic upturn in Austria is expected to continue uninterrupted over the next few months. The indicators of both the Business Survey commissioned by the Austrian Institute of Economic Research (WIFO) and the EU Consumer Confidence Index continue to point upwards, which proves that business and consumer expectations also reflect the positive prospects for the economy in Austria. In its latest economic forecast, WIFO predicts an economic growth of 3.5% for the entire year 2000 and a growth of 2.8% for the year 2001. In its macroeconomic outlook of spring 2000, the OeNB had expected real economic growth to amount to 3.4% for the year 2000 and to 2.9% for 2001.

The most important pillars of the current economic growth are investment and foreign trade, the latter benefiting, above all, from the robust economy abroad and the weak euro. While real exports (according to the SNA) surged by 9.6% during the first half of 2000, real imports posted only 5.5% growth. According to the current account data on a cash basis available for the first half of 2000, however, the ratio of exports to imports shifted in May and June, to the effect that now – owing to the surge in oil prices – nominal imports are growing much faster than exports. In the first half, gross fixed capital formation expanded by 4.5% year on year, thus providing a basis for stronger growth in potential output. Higher disposable net incomes boosted private consumption by 3.5% in the first half, which contributed essentially to current economic growth.

Fueled by the economic upturn and targeted job policy measures, the situation on the labor market has further improved. The labor force has clearly increased over the first nine months of the current year, with the number of unemployed persons decreasing at the same time, although not quite in proportion to the rise in employment figures. This suggests that the favorable cyclical situation and more part-time job openings prompted new labor market entrants to seek employment. At 5.8% and 3.4%, respectively (January to September 2000), both the unemployment rate (national definition) as well as the unemployment rate calculated in line with the EU concept were considerably lower than the benchmark figures of the previous year (6.7% and 3.9%). This clearly indicates that current economic growth far surpasses the employment threshold value – that is, the critical value of GDP growth that would keep unemployment at a constant level.

Starting from 1.6% in May, the rate of inflation as measured by the Harmonized Index of Consumer Prices (HICP) jumped to 2.4% year on year in June. Values of 2.0% in July and 1.9% in August, however, again

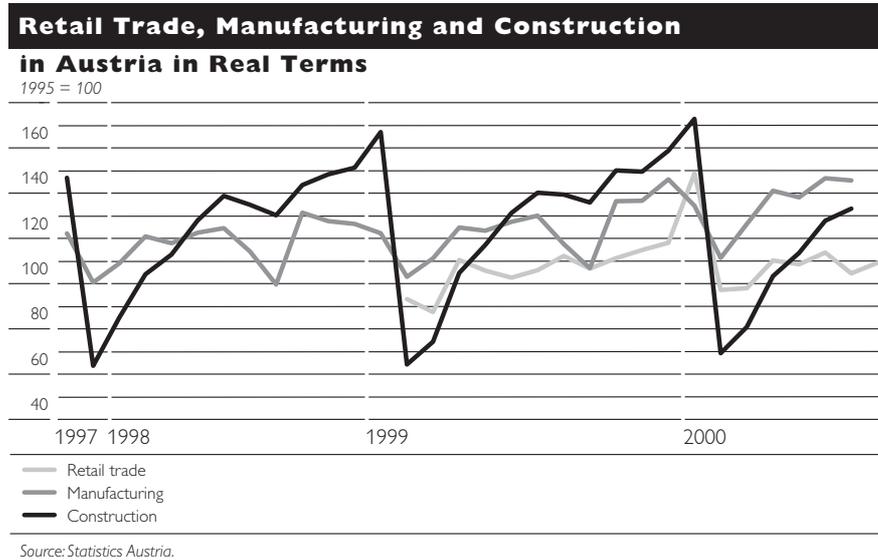
reflected a slight downward tendency. The latest wave of price increases can be attributed mainly to the sharp rise in gasoline prices, the introduction of an energy charge on electricity as per June 1, as well as to a series of increases in public service charges. On the other hand, further price reductions in telecommunications services eased the pressure on prices. In the past few months, the CPI (national definition) has been following a path parallel to that of the HICP – with the exception of July 2000 when, unlike the HICP, the CPI still went up to 2.8% from 2.7% in June, to fall back to 2.7% again in August. The fact that these two rates of inflation have been developing in opposite directions lately is basically due to the different baskets of commodities used to calculate the HICP and the CPI (for example, HICP does not reflect the considerably higher motor vehicle-related insurance tax). In addition, vacations abroad and games of chance, which together contributed 0.3 percentage point to the CPI rate of inflation in August, are not included in the HICP, either.

### **Upturn in Manufacturing Bypasses Construction Sector**

The secondary and service sectors profited most from the pronounced expansion of GDP on the back of dynamic exports. Thus, in the second quarter of 2000 (according to SNA data provided by WIFO), the gross value added of the manufacturing sector gained 7.7% in real terms compared to the previous year and to 7.5% year-on-year growth in the first quarter, while in commerce the gross value added widened by 3.4%. Within the service sector, aside from commerce, “transport and communications” stood out as gross value added climbed by 5.2% during the second quarter of 2000 compared to the previous year. According to the cyclical statistics presented by Statistics Austria, the monthly output index of the manufacturing sector (working-day adjusted) has been continuing on its dynamic course since the beginning of this year, featuring two-digit growth rates since February and peaking at a year-on-year 13.6% so far in 2000 in May. As a result of strong external demand, powerful manufacturing growth has also been reflected in mostly double-digit growth rates in orders on hand and order bookings over the last few months. The output growth in the manufacturing sector translated exclusively into a considerable increase in productivity, but employment did not benefit: Although labor productivity (output per hours worked) climbed by 18.8% in June 2000 year on year and by 13.4% in the second quarter year on year, employment in the first half of 2000 remained at the same level as in 1999.

Outsized manufacturing growth hinged on the increasing demand for exports and investments, and, to a lesser extent, private consumer demand. The subindex capital goods mounted by 11.4% in the first quarter of 2000 compared to the same period in the previous year and advanced by no less than 14.5% in May 2000, the most recent month reported on. The output index of consumer goods, on the other hand, edged up by just 2.0% in the first quarter and picked up by 10.4% in May.

The favorable economic situation has also lifted business confidence. According to the WIFO Business Survey of July 2000, both expectations about future production and the volume of orders in industry have been on



the up and up over the last few months. The quarterly economic survey of the Federation of Austrian Industry of June largely confirms this positive trend, with the Federation's business cycle barometer – a combination of several questions – continuing to point upwards.

The construction sector, however, did not succeed in joining this generally favorable development. Although the output index for construction services still augmented by 4.2% in the first quarter of 2000 compared to the previous year, a trend reversal of –1.3% was registered as soon as in March. The negative trend in the building sector continued in April and May, so that construction slumped by 3.0% in the second quarter of 2000. If this trend continued, construction would become fully disconnected from the general economic trend. Construction is probably in the doldrums because public investment was slashed in the wake of the government's austerity program and because residential building is suffering from a saturation of the market for new apartments.

### **Investments and Private Consumption as Pillars of Economic Activity**

The composition of real GDP growth also reflects the boom in investment and private consumption. After advancing by a modest 2.2% in the fourth quarter of 1999, real gross fixed capital formation markedly speeded up to 4.6% in the first quarter of 2000 and to 4.4% year on year in the second quarter. A 3.6% growth rate of private consumption in the second quarter of 2000, echoing that of the two previous quarters, confirms that private consumption continues to play a significant role as a pillar of economic activity. The tax reform that entered into force at the beginning of 2000, the family tax benefits and the rise in employment figures all had positive effects on consumer demand: Higher disposable net incomes further stimulated retail sales, which climbed by 4.0% in real terms in the second quarter of 2000 and picked up to 4.4% in the first half of 2000. Next to commerce, continued solid domestic tourism helped boost domestic

consumer demand. The number of overnight stays climbed by 2.5% in the period from January to July 2000 compared to the analogous 1999 period, with the number of domestic tourist bednights growing faster (4.0%) than overnight stays by foreigners (2.0%).

In the second quarter, private consumption contributed 1.8 percentage points to the overall growth of real GDP (3.8%), gross fixed capital formation added 0.7 percentage point. Hence private consumption and investment stayed the most important pillars of economic development among domestic demand components. As a consequence of fiscal consolidation, public consumption, on the other hand, edged up only by 0.5% in the second quarter compared to the previous year, contributing 0.13 percentage point to real GDP growth.

Consumers remain sanguine about the economic outlook, even if the EU Consumer Confidence Indicator declined slightly in the second quarter of 2000 compared to the previous quarter. While consumers expect the economy to perform very well over the next 12 months, they also believe that the anticipated budget cuts will worsen their financial situation.

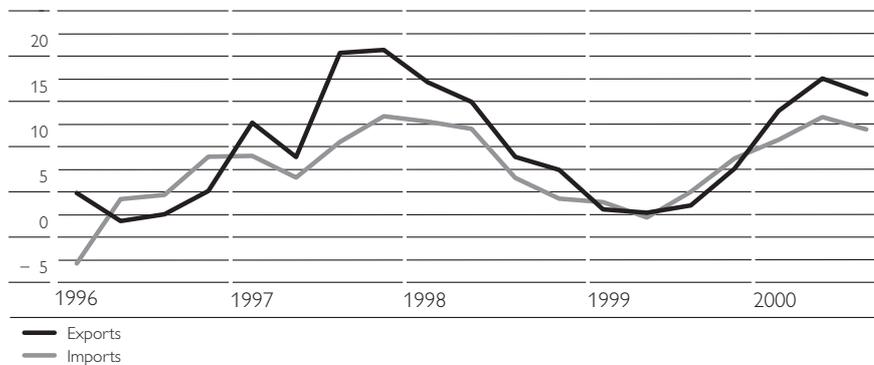
### **Continued Dynamic Development in Foreign Trade**

Another important pillar of the current recovery is foreign trade. In 1999, Austria's foreign trade growth picked up from quarter to quarter year on year, finally reaching its preliminary peak in the first quarter of 2000. A considerable increase can be observed in both directions, with exports, however, augmenting faster than imports. Thus, (according to the foreign trade statistics published by Statistics Austria) nominal merchandise export growth in the first half of 2000 (16.7%) was outpacing nominal merchandise import growth (12.6%). The quarterly foreign trade statistics for the current year reflect a similar growth pattern, with growth figures of 17.6% and 13.3% for exports and imports, respectively, in the first quarter of 2000 slightly exceeding the results of the second quarter, when exports advanced by 15.8% and imports rose by 11.9% compared to the previous year. Expensive crude oil in combination with the high exchange rate of the dollar are likely to be at the heart of the rise in nominal imports. Trade with the CEECs (+23.4% of nominal imports) also surged. Exports, on the other hand, mainly profited from the favorable international economic situation and the exchange rate of the euro.

Dynamic export growth goes hand in hand with Austria's improved price competitiveness vis-à-vis its trading partners. The real effective exchange rate for manufactured goods has devalued steadily since mid-1999, by 4.0% in the first half of 2000 compared to the first half of the previous year. Better capacity utilization raised overall economic productivity (GDP per economically active person) by 2.4% in the second quarter of 2000 compared to the second quarter of 1999, while negotiated standard wages, on the average, went up by 2.0% in the period from January to August 2000. Improved productivity also went hand in hand with a favorable development of unit labor cost and, above all, of relative unit labor cost (in manufacturing) vis-à-vis Austria's trading partners. In 1999, unit labor cost

### Austria's Foreign Trade

Change on previous quarter in %



Source: Statistics Austria.

vis-à-vis the trading partners had gone down by 1.4%. In its latest forecast, WIFO expects unit labor cost to decline by 3.3% in the current year.

### Current Account Deficit Burgeons

The picture of Austria's foreign trade based on the development of the current account deficit over the past few months is not quite as positive as the one resulting from the previously mentioned foreign trade statistics. In the first half of 2000, merchandise exports (on a transaction basis) were still expanding by 16.9% compared to merchandise imports, which gained no more than 12.6%. In the first half of 2000, therefore, the merchandise deficit was ATS 14.2 billion lower than in the same period of the previous year. This positive development was offset, however, by a reduction by ATS 29.7 billion in the services surplus in the first half of 2000. The shortfall of -ATS 18.0 billion on income was almost as high as in the first half of the previous year (-ATS 18.6 billion). At ATS 40.2 billion in the first half of 2000, Austria's total current account deficit on a transaction basis surpassed the shortfall of the first half of 1999 by ATS 14.3 billion.

The Austrian current account for the period from January to July 2000 is not only available in the form of transaction-based data, but also on a cash basis (payment flows), according to which the current account deficit of ATS 50.1 billion for this period is ATS 21.4 billion higher than in the same period of the previous year. This pronounced widening of the deficit may be pinpointed mainly to a deterioration in the merchandise payments subaccount and to a decreased surplus in the balance on services. Over the first seven months of the year 2000, the deficit in merchandise payments deteriorated by ATS 19.3 billion compared to the same period of the previous year from May and June. Taking only these two months into consideration, the deficit in merchandise trade more than tripled compared to the same period of the previous year. The decisive factor for this development is a clear increase in imports by value (+19.2% in the first half versus +17.0% in exports) which, in turn, is attributable to a cyclically higher demand for imports and the high oil price in combination with the more expensive exchange rate of the dollar. Above all, higher travel

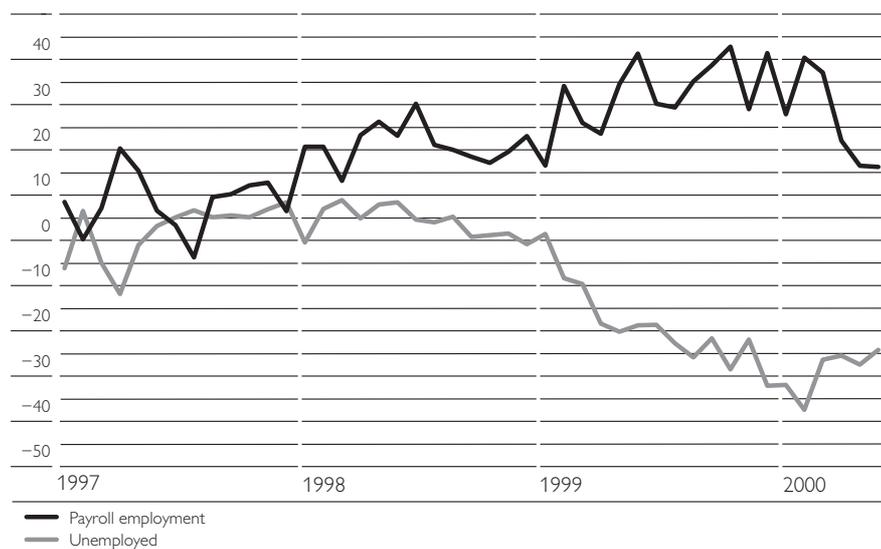
expenditure of Austrians abroad – which had been growing much faster (by 7.3%) than income (3.3%) – eroded the surplus on services in comparison with the previous year. Attractively priced holiday flight packages and higher net incomes prompted Austrians to spend more on travel abroad.

### Further Relaxation of the Labor Market Situation

The cyclical upturn, animated private consumption and robust export demand all helped to boost labor force figures substantially in 2000; at the same time, the number of unemployed persons contracted sharply. According to the Association of Austrian Social Security Institutions, 3.176 million persons were dependently employed and 153,600 were registered as unemployed in Austria at the end of September. This means that in the third quarter of the current year, the number of dependently employed persons was 19,400 higher than in the like period of 1999 and the number of unemployed had dropped by 25,900. In the entire period from January to September 2000, employment climbed by 0.9% on the same period of the previous year, with the jobless rate falling by 12.6% at the same time. The rise in employment focused on private services, in particular on economic services and the technological sectors (telecommunications, etc.), where the number of registered jobs in the second quarter of 2000 exceeded that of the previous year by 31,500, while jobs were lost in the manufacturing and construction sectors. Women account for approximately four fifths of the new jobs, most of which are part-time. The decline in unemployment figures can, in part, also be attributed to enhanced training activities provided by the Austrian Public Employment Service (AMS). In the first half of 2000, an average of 55,000 job seekers were taking part in training programs and were therefore not registered as unemployed in the statistics.

#### Labor Market

Year-on-year change in 1,000



Source: Association of Austrian Social Security Institutions, Austrian Public Employment Service.

The seasonally adjusted unemployment rate calculated in line with EU criteria came to 3.4% for the period from January to September 2000 and was thus  $\frac{1}{2}$  percentage point lower than the comparable figure in the previous year. According to the national definition, the unemployment rate for the same period came to 5.8%, 0.9 percentage point below the value measured in the same period of the previous year. In September the unemployment rate also maintained a relatively stable level of 4.6% compared to the previous months. In September 1999, it had still stood at 5.4%.

### **Inflation Rises Sharply**

The increase in consumer prices has been accelerating continuously since fall 1999. In June 2000, the rate of inflation – as measured by the HICP – passed the 2% threshold, reaching 2.4% (year on year) after having stood at no more than 1.6% in May. At 2.0% and 1.9%, respectively, the HICP rate of inflation eased slightly again in July and August, with the price of nonenergy industrial goods declining most (–0.4% in August). Further price cuts in telecommunications services, however, also helped dampen inflation. For the period from January to August 2000, the HICP rate of inflation ran to 1.8%, 1.5 percentage points higher than in the first eight months of 1999.

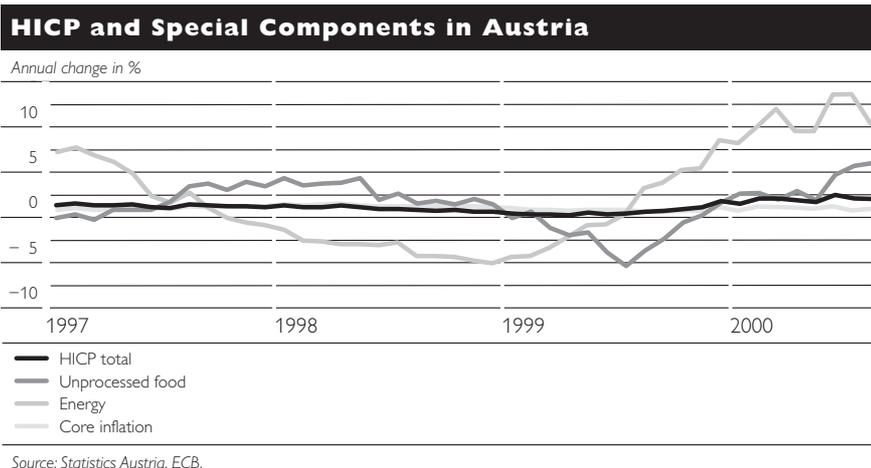
Above all, the oil price-induced rise in energy prices, the increase of various taxes and charges for public services and the rise in prices for seasonal goods (fruit) pushed up inflation from 1999 levels. Thus, the 10.2% increase in energy prices alone is responsible for 0.8 percentage point of the overall HICP rate of inflation in August 2000. The increase of the energy tax on electricity introduced at the beginning of June as well as the doubling of the passport issuing fee also added to inflation. Furthermore, a 35% increase in fruit prices compared to the previous year contributed 0.3 percentage point to the August rate of inflation. Along with cheaper telecommunications services, the moderate wage settlements of last fall – standard wages only went up by 2.0% during the first eight months of 2000 – still help to keep inflation in check. HICP core inflation adjusted for energy and unprocessed food stood at 0.8% in August; even so, inflation climbed by 0.2 percentage point compared to July. Nevertheless, inflation is still for the most part caused by transitory and fiscal influences.

The prime input for energy prices is the crude oil price, which almost doubled between the beginning of last year and August 2000, with the unfavorable development of the exchange rate of the dollar against the euro further intensifying this effect. Since the situation on the oil market appears unlikely to relax anytime soon, it can be expected that the price-boosting effect of skyrocketing oil prices will continue throughout the remaining months of the current year. As the base effects of the most recent price increases will not peter out until next year and public services prices will be lifted again as of January 1, 2001, the rate of inflation is hardly likely to lessen over the next few months.

In contrast to the HICP, the CPI still continued to climb in July to a year-on-year value of 2.8% in July, following 2.7% in June. In August, the

CPI edged down to 2.7% again year on year. Basically, the CPI is subject to the same price-boosting factors as the HICP, but unlike the HICP, it also contains the motor vehicle-related insurance tax, which was raised as of June 1 and which is, in itself, responsible for 0.3 percentage point of the CPI rate of inflation. The remaining difference between the HICP and CPI rates of inflation results from different methods used for data collection and calculation. The CPI rate of inflation for the period from January to August 2000 came to 2.1%, 1.7 percentage points higher than the comparable figure of the previous year. A similarly high CPI inflation rate was last recorded in 1994 to 1995.

Considering the large weight of energy price increases and rises in taxes and public charges in the rate of inflation, inflation is currently predominantly triggered by costs, i.e. we are dealing with cost-push inflation – a fact which is also confirmed by the currently relatively low core inflation. However, if the current upturn continues as generally expected, demand-pull factors could gain more importance.



**Development of Selected Economic Indicator**

	1997	1998	1999	2000 <sup>1)</sup>	2001 <sup>1)</sup>	Last recently available period		
						1998	1999	2000
<i>Annual change in %</i>								
<b>Economic output</b>						<i>2nd quarter</i>		
<b>real GDP at 1995 prices</b>								
GDP	+ 1.2	+ 2.9	+ 2.1	+ 3.5	+ 2.8	+ 2.8	+ 1.4	+ 3.8
Gross capital formation	+ 2.1	+ 6.0	- 0.1	+ 5.3	+ 4.5	+ 7.5	+ 1.7	+ 2.8
Private consumption	+ 0.1	+ 1.5	+ 2.7	+ 2.8	+ 2.0	+ 2.3	+ 1.9	+ 3.3
Public consumption	- 0.4	+ 2.0	+ 1.0	+ 0.0	+ 0.0	+ 2.2	+ 1.2	+ 0.5
Exports	+10.1	+ 8.7	+ 3.5	+ 8.1	+ 5.3	+ 3.6	+ 6.3	+ 8.5
Imports	+ 9.4	+ 6.9	+ 1.9	+ 7.3	+ 4.2	+10.7	- 2.5	+ 4.3
GDP per employee	+ 0.7	+ 1.9	+ 0.7	+ 2.8	+ 2.2	+ 1.7	+ 0.3	+ 2.4
<b>Industrial output</b>						<i>1st half year</i>		
Output index incl. construction	+ 6.8	+ 9.6	+ 4.7	x	x	+10.2	+ 3.3	+ 9.1
Productivity per hour	+ 5.4	+ 3.2	+ 3.6	+ 4.6	+ 4.8	x	x	x
<b>Labor market</b>						<i>January to September</i>		
Payroll employment	+ 0.3	+ 0.7	+ 1.0	+ 0.9	+ 0.7	+ 0.7	+ 0.9	+ 0.9
Registered unemployment	+ 1.2	+ 1.9	- 6.8	-11.6	- 9.2	+ 2.4	- 5.5	-12.9
<i>in %</i>								
<b>Unemployment rate</b>								
EU concept	4.4	4.5	3.8	3.5	3.4	4.6	3.9	3.4
National concept	7.1	7.2	6.7	5.9	5.3	7.1	6.7	5.8
<i>Annual change in %</i>								
<b>Prices</b>						<i>January to August</i>		
National CPI	+ 1.3	+ 0.9	+ 0.6	+ 2.3	+ 1.5	+ 1.0	+ 0.4	+ 2.1
HICP	+ 1.2	+ 0.8	+ 0.5	x	x	+ 1.0	+ 0.3	+ 1.8
Wholesale price index	+ 0.4	- 0.5	- 0.8	x	x	+ 0.0	- 1.6	+ 3.3
<b>Wages</b>								
Negotiated standard wage rate index	+ 1.8	+ 2.2	+ 2.5	+ 2.0 <sup>2)</sup>	+ 2.6 <sup>2)</sup>	+ 2.3	+ 2.5	+ 2.0
<b>Unit labor cost</b>								
General	+ 0.3	+ 1.3	+ 1.8	- 0.5	+ 0.6	x	x	x
Manufacturing industry	- 4.0	- 0.7	- 0.5	- 2.3	- 1.8	x	x	x
<b>Relative unit labor cost<sup>3)</sup></b>								
Vis-à-vis major	- 3.5	+ 0.4	- 1.4	- 3.1	- 0.4	x	x	x
Vis-à-vis Germany	+ 1.3	+ 1.5	- 0.1	+ 0.0	+ 0.0	x	x	x
<b>Foreign trade</b>						<i>1st half year</i>		
<b>(Statistics Austria)</b>								
Imports, in nominal terms	+10.9	+ 6.6	+ 6.7	+13.4	+ 8.1	+ 9.2	+ 3.6	+12.6
Exports, in nominal terms	+16.8	+ 8.4	+ 7.0	+15.4	+10.2	+11.8	+ 3.1	+16.7
<i>ATS billion</i>								
<b>Balance of payments<sup>4)</sup></b>						<i>January to July</i>		
Current account	-79.2	-64.5	-75.1	-84.8	-70.4	-31.2	-28.6	-50.1
Goods	-52.0	-45.3	-46.7	-36.7	-19.8	-41.2	-42.9	-62.2
Services	+12.0	+29.2	+33.0	x	x	+30.4	+41.2	+38.6
Travel	+10.8	+20.7	+24.2	+21.9	+21.8	+15.4	+22.0	+28.0
<i>in %</i>								
<b>Interest rates</b>						<i>September</i>		
EONIA	x	x	2.74	x	x	x	2.43	4.59
Secondary market yield (government bonds <sup>5)</sup> )	5.68	4.71	4.68	5.60	5.60	4.31	5.27	5.57
<i>Annual change in %</i>								
<b>Effective exchange rate of the euro</b>								
Nominal	x	x	x	x	x	x	x	-11.3
Real	x	x	x	x	x	x	x	-11.0
Indicator of Austria's price competitiveness <sup>6)</sup>	- 3.4	- 0.2	- 1.5	- 2.5	+ 0.7	<i>June</i>		
						- 0.5	- 1.7	- 1.4
<i>in % of GDP</i>								
<b>Budget</b>								
Net government debt <sup>7)</sup>								
Central government	- 2.6	- 3.0	- 2.4	- 2.1	- 1.5	x	x	x
General government	- 1.9	- 2.5	- 2.0	- 1.6	- 0.8	x	x	x

Source: OeNB, Statistics Austria, WIFO, AMS Austria, Association of Austrian Social Security Institutions.

<sup>1)</sup> WIFO forecast of December 1999.

<sup>2)</sup> Change in gross earnings per employee.

<sup>3)</sup> Manufacturing industry, calculated in uniform currency.

<sup>4)</sup> Annual figures are based on transactions, last recently available period on cash balances.

<sup>5)</sup> Ten-year federal government bonds (benchmark).

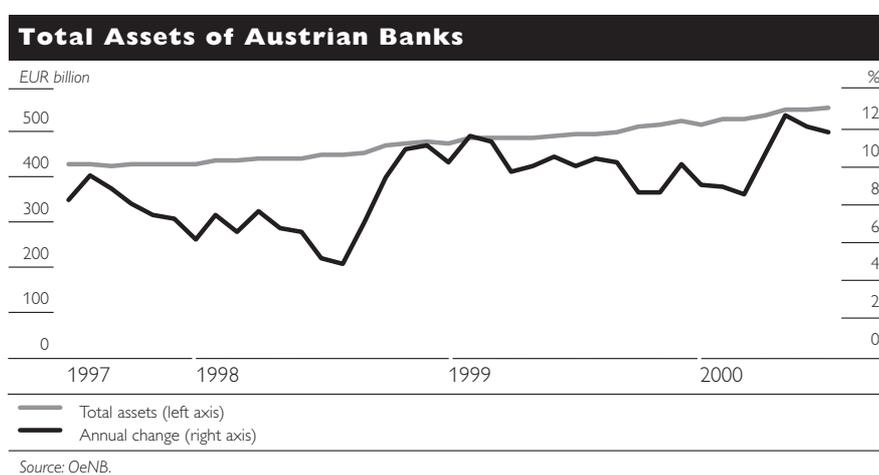
<sup>6)</sup> Until December 1998: real effective exchange rate of the Austrian schilling.

<sup>7)</sup> According to Statistics Austria; ESA 95-based calculation.

# Money and Credit in the First Half of 2000

## First Half 2000 Marks Highest Asset Growth in a Decade

In the first six months of this year, the total volume of assets held by banks operating in Austria grew almost twice as fast as in the same period last year, namely by EUR 37.42 billion or 7.1% over EUR 21.59 billion or 4.5% in the corresponding period of 1999. This is, in fact, the best first-half result in virtually a decade. Somewhat more than half of the volume increment was funded by international operations. On the domestic side, interbank business and a marked rebound in bank lending – mostly in foreign currencies, as before – were the main driving forces behind asset growth. Liability growth was likewise primarily driven by interbank business, and to a lesser extent by the sale of direct domestic securities, which were in somewhat greater demand than deposit products.



By sectoral groupings of the banking industry, Raiffeisen credit cooperatives reported the biggest percentage gain in total assets, notably 9.8%. The runners-up were the special purpose banks (+7.3%) as well as joint-stock banks and savings banks (+6.8% each). Building and loan associations, by contrast, lagged behind with a mere 0.8% increase; while they expanded their loan portfolios, they tended to issue fewer building and loan investment contracts and thus had to rely more heavily on interbank refinancing. Austrian banks' foreign branches, finally, augmented their assets by an impressive 16.8% (with the number of branches remaining unchanged).

In June 2000, the top ten credit institutions accounted for approximately 58.8% of Austrian banking sector assets, 1.2 percentage points more than at the beginning of the year.

## Number of Banking Offices Still Declining

In the six months ending June 30, 2000, the number of banking offices shrank by a total of 21 outlets, two thirds of which were affiliated to the savings bank sector (see table). During this period, the number of head offices dropped to 947, and that of branch offices and bureaux de change to 4,559.

	Joint-stock banks and bankers		Savings banks		State mortgage banks		Raiffeisen credit cooperatives		Volksbank credit cooperatives		Building and loan associations		Special purpose banks		Total		Sum of head and branch offices
	H	B	H	B	H	B	H	B	H	B	H	B	H	B	H	B	
Dec. 31, 1999	64	746	71	1,421	9	155	648	1,737	70	475	5	37	84	5	951	4,576	5,527
June 30, 2000	63	746	71	1,407	9	154	646	1,737	70	474	5	34	83	7	947	4,559	5,506
Change	-1	-	-	-14	-	-1	-2	-	-	-1	-	-3	-1	+2	-4	-17	-21

Source: OeNB.

H = Head office.

B = Branch offices and bureaux de change.

With respect to geographical allocation, 8 banking offices were newly established in Vienna, 5 in Styria, 4 in Upper Austria, and 3 each in Tirol and Carinthia. Conversely, 19 facilities were closed down in Vienna, 7 in Salzburg, and 6 each in Upper Austria and Tirol, 4 in Carinthia, and 2 each in Upper Austria and Styria. The number of branches that Austrian banks operate abroad remained unchanged in the review period.

### Interbank Business Continues to Drive Asset Growth

Roughly one fourth of the asset growth registered since the beginning of the year can be attributed to domestic interbank business, and another 29% to lending to foreign credit institutions. In other words, more than half of the asset increase continued to result from interbank business (including transactions within banking groups and across sectoral groupings). The share of interbank business in total liability growth was even higher: Liabilities against domestic banks contributed roughly one quarter, and foreign interbank business as much as 34% – or 59% in total – to the expansion of the liabilities balance.

As the table on “Intersectoral Interbank Business (net)” illustrates, the network of savings banks was the biggest source of financing for all other sectors (note that this includes the intra-group flow of funds) as at the end of June 2000.

### Intersectoral Interbank Business (net)

	Joint-stock banks and bankers	Savings banks	State mortgage banks	Raiffeisen credit cooperatives	Volksbank credit cooperatives	Building and loan associations	Special purpose banks	Total
<i>EUR million</i>								
501 Joint-stock banks and bankers	x	-2,178	+145	+255	+ 66	-183	+455	-1,440
503 Savings banks	+2,178	x	+ 98	+ 82	+ 12	+244	+475	+3,089
504 State mortgage banks	- 145	- 98	x	- 40	+ 36	- 56	-592	- 895
505 Raiffeisen credit cooperatives	- 255	- 82	+ 40	x	+158	-654	+984	+ 191
506 Volksbank credit cooperatives	- 66	- 12	- 36	-158	x	- 55	+ 69	- 258
507 Building and loan associations	+ 183	- 244	+ 56	+654	+ 55	x	-	+ 704
508 Special purpose banks (excl. OeKB)	- 455	- 475	+592	-984	- 69	-	x	-1,391

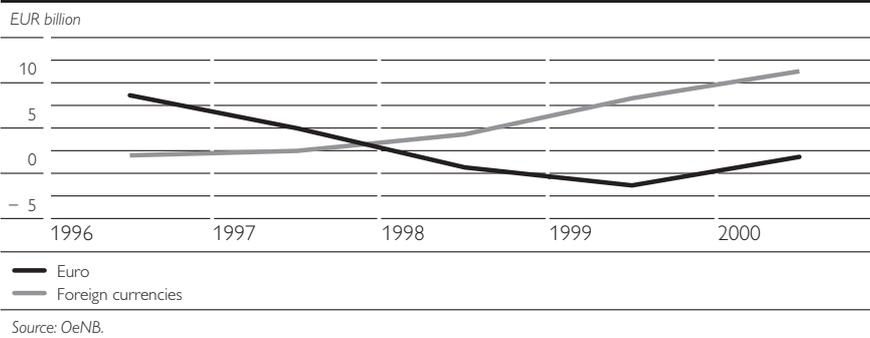
Source: OeNB.

### Bank Lending on the Rebound

Demand for loans increased substantially in the first six months of 2000, namely by EUR 4.72 billion or 2.2%, compared with EUR 1.74 billion or 0.9% in the same period last year. Interest payable on those amounts did not rise by the same proportions, partly because borrowers tended to go for lower-cost foreign currency loans.

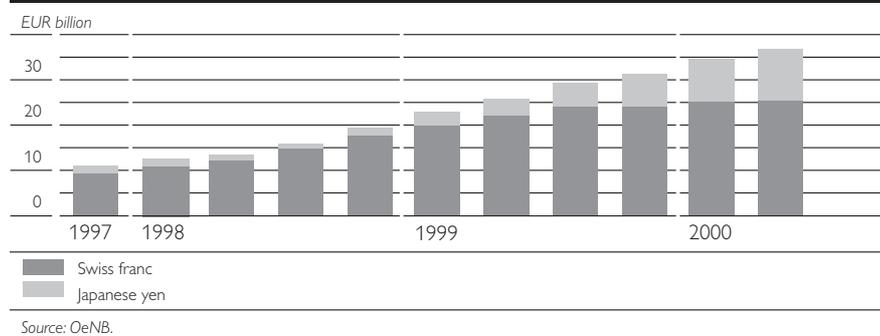
The share of *foreign currency loans* in the total loan balances came to 17.9% by midyear, up from 17.3% in March. April and June saw euro-denominated loans accelerate more strongly than foreign currency loans, though. In June, for instance, the latter climbed EUR 0.45 billion, well below the EUR 1.58 billion by which euro-denominated loans increased.

#### Annual Changes in Euro and Foreign Currency Loans



Virtually all of the asset growth registered within the foreign currency loan segment can be traced to *loans denominated in Japanese yen*, a development that was, however, reinforced by the appreciation of the yen.<sup>1)</sup> *Loans in Swiss francs* grew by a mere EUR 1.3 billion in the first six months of the year, compared with EUR 4.4 billion in the same period of 1999.

#### CHF and JPY Loans to Domestic Nonbanks



1 While the Japanese yen appreciated by 2% since the beginning of the year, yen-denominated lending expanded by approximately 6%.

Roughly three quarters of the expansion of the loan balances are attributable to single, closed-end loans, one third of which were extended in the form of short-term *euro cash advances*. Current account loans, the major driving force in the corresponding period of 1999, accounted just for a rough quarter of asset growth in the first half of 2000. Both *outstanding loans and discount credits*, which have generally lost importance, shrank by 0.5 and 10.4%, respectively, since the beginning of the year.

By sectoral groupings, building and loan associations reported the biggest percentage gain in total assets, notably 6.3%. The runners-up were Volksbank credit cooperatives (+3.4%) and joint-stock banks and bankers (+3.2%). The addition to foreign currency loans was biggest among special purpose banks (+29.9%), Raiffeisen credit cooperatives (+22.7%) and Volksbank credit cooperatives (+16.7%).

Unlike in the first half of 1999, the *public sector* increased its loan exposure in the first six months of 2000. While government authorities did scale back long-term loans by 1%, they took out 46.5% more short-term bank loans. The biggest borrowers were social security funds, which stepped up their borrowing by EUR 0.8 billion or 86.2%, followed by the regional and local authorities, which increased their exposure in practically equal proportions by EUR 0.33 billion and EUR 0.39 billion, respectively. By June 2000 the general government's exposure to Austrian credit institutions totaled EUR 30.27 billion. About 42% thereof are the central government's share, while the regional authorities accounted for 19%, the local authorities for 33%, and social security funds for 6%. In other words, the weight of the exposure shifted from the central government to the states and municipalities. Both regional and local authorities (particularly the former) opted primarily for foreign currency loans. At the end of June, the newly contracted local-authority loans carried an *average interest rate*<sup>1</sup> of 4.86%, or 0.63 percentage point more than six months earlier.

Buoyed by livelier aggregate demand and brighter international framework conditions,<sup>2</sup> *businesses* became much more inclined again to take out loans above all in the second quarter of 2000: In June 2000 alone their demand for loans increased by EUR 1.34 billion or 1.2%, after they had scaled back their loan exposure in June 1999. The *average interest rate* for commercial loans increased by 0.66 percentage point to 6.43% in the review period.

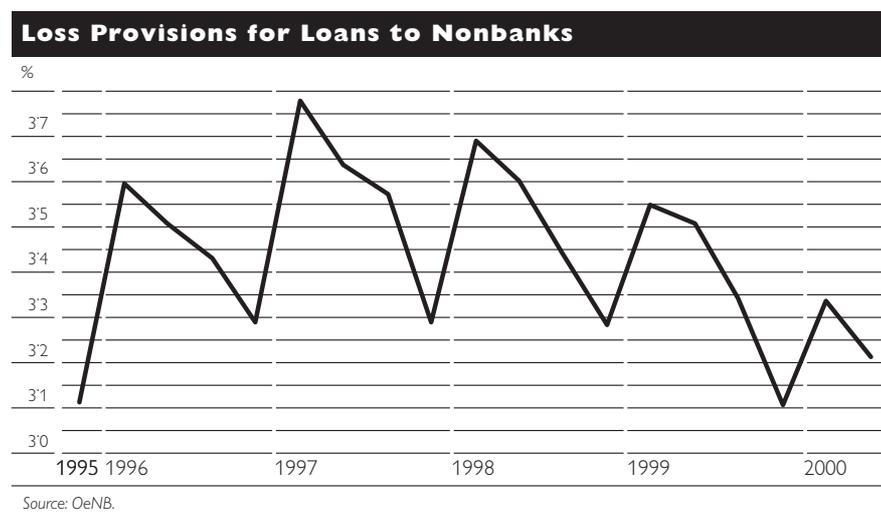
The Austrian Institute of Economic Research, WIFO, expects consumption growth to markedly exceed the long-term average this year. Over the first six months of the year, households' demand for credit in fact jumped 5.3% (1999: 3.0%). Almost 80% of this increment is due to long-term loans, which implies livelier demand for durable consumer goods. More than three quarters of all loans taken out by *households* were foreign currency loans.

1 The interest rate is based on a representative sample of 40 banks.

2 According to the WIFO's monthly review 7/2000 industrial corporations intend to increase their capital spending by a two-digit rate in the year 2000.

The *interest charges* for private loans increased by 0.72 percentage point to 7.44% in the first six months of the year. Home and home improvement loans were lifted by a comparatively wide margin – 3.5% compared with 0.93% in 1999 – since January 2000. Over the same period, the *interest rates* for such loans climbed from 5.33 to 5.95%, and those for mortgage loans from 5.20 to 5.71%.

*Loss provisions* of Austrian credit institutions – for loans to nonbanks – dropped to 3.21% in the first half of 2000, from 3.51% in the corresponding period of 1999.



Also in the *securitized lending* segment, banks reported a markedly better performance than in the same period last year, namely a rise by EUR 0.55 billion or 2.2%. Typically, the foreign currency category played a tiny role, as it accounted for just 1.0% of the total volume. First-half growth this year was largely driven by federal Treasury bills and notes, which advanced by a marked EUR 1.16 billion, while debt issues by other public entities shrank by EUR 0.98 billion. Bonds and other debt securities augmented by 24.3%.

### Deposit Growth only Slightly above First-Half 1999 Results

*Domestic nonbank deposits* climbed by EUR 2.74 billion or 1.6% in the first six months of 2000, which is slightly better than the percentage increase in the same period of 1999. The volume increase is attributable in roughly equal parts to an 8% rise in sight deposits and a 14.3% rise in time deposits. Savings deposits contracted by EUR 2.36 billion or 1.9%, after having risen but moderately in 1999.

Turning to the performance of the individual sectors of the banking industry, building and loan associations recorded a significant rise in loan sales that, however, went hand in hand with a drop in the deposits. Hence, they had to rely more heavily on interbank refinancing.

Broken down by investor sectors, some 43% of *euro-denominated deposits* were held by businesses in June 2000, which corresponds to a rise by 6.5%.

Households, which held some 45% of *sight deposits*, increased their balances even by 9.5%, which is, however, a marked deceleration compared with the same period last year.

Asset growth continued to shift toward short-term products also within the *time-deposit* segment: Across the board, the public sector, businesses and households increased above all their short-term time deposits. Roughly one third of the increment was in foreign currencies.

While the contraction of *savings deposits* was fairly pronounced at 1.9%, this is put into perspective by the fact that the interest earned on savings locked in for 12 months or more was just 2.95% on average against a projected average inflation rate of approximately 2%.

The decline in savings was more than compensated by the sales of *Austrian mutual fund shares* alone, which rose by some EUR 8 billion in the first half of 2000. The breathtaking pace at which the mutual fund business had expanded over the previous years, thus, lost hardly any steam in the first half of 2000.

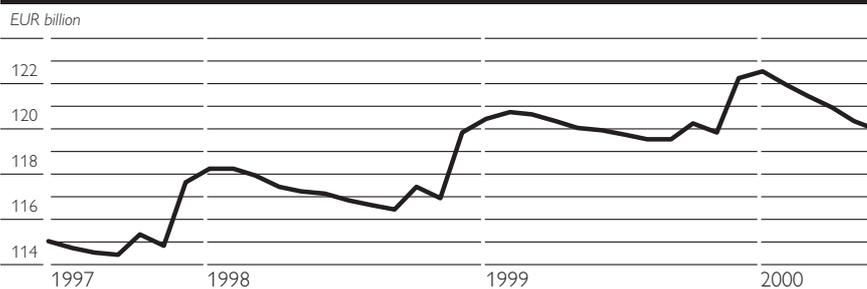
Conversely, the number of savings accounts held with Austrian credit institutions continued to decline, much as in previous years.

#### Savings Accounts as at June 30, 2000

Deposits on savings accounts	Number of accounts	Change in the first half 2000 %
up to ATS 100,000	19,951,798	-3.24
between ATS 100,000 and ATS 500,000	3,217,108	-1.44
between ATS 500,000 and ATS 1 million	379,757	-3.68
between ATS 1 million and ATS 5 million	160,818	-5.86
more than ATS 5 million	7,364	-3.45

Source: OeNB.

#### Savings Deposits by Domestic Nonbanks

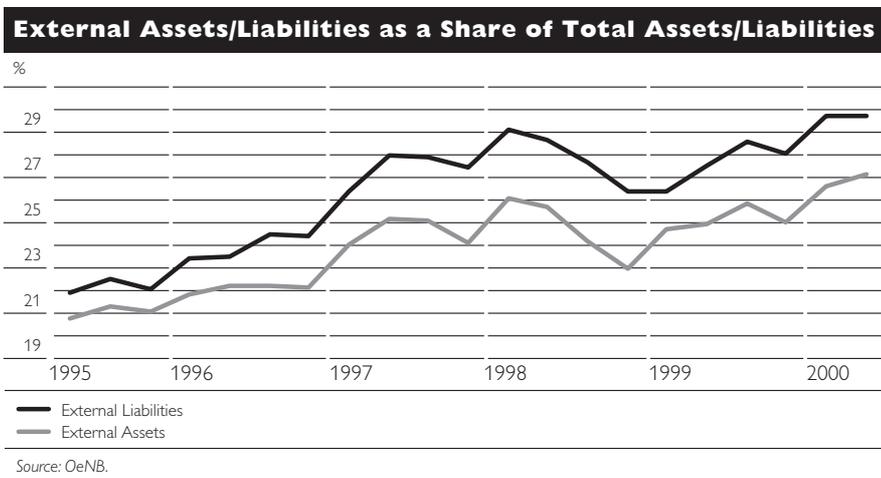


Source: OeNB.

At a rate of 6.2%, sales of direct *domestic issues* clearly outperformed the intake of deposits, but fell short of the rise in the same period last year (+10.2%). Euro-denominated paper attracted some 70% of the new investments. Contrary to the first two quarters of 1999, when bonds were the main driving force, sales of other securitized liabilities more than doubled in the review period.

### External Business

International operations have continued to play an ever bigger role for Austrian banks in 2000. For the first time since the relevant data series has been compiled, the share of *external liabilities* in total liabilities came within close reach of 30%, while external assets accounted for 27% of total assets. External operations are particularly dominant in the business of the savings banks and special purpose banks, with portions of 45.7 and 58.8%, respectively. The business of the special purpose banks has, of course, traditionally been strongly influenced by the activities of the Oesterreichische Kontrollbank.



Banks' *external assets* expanded by 16.2% in the first six months of the year, and their external liabilities at a somewhat slower rate of 13.6%. Both figures surpassed the corresponding first-half results of 1999 by a wide margin.

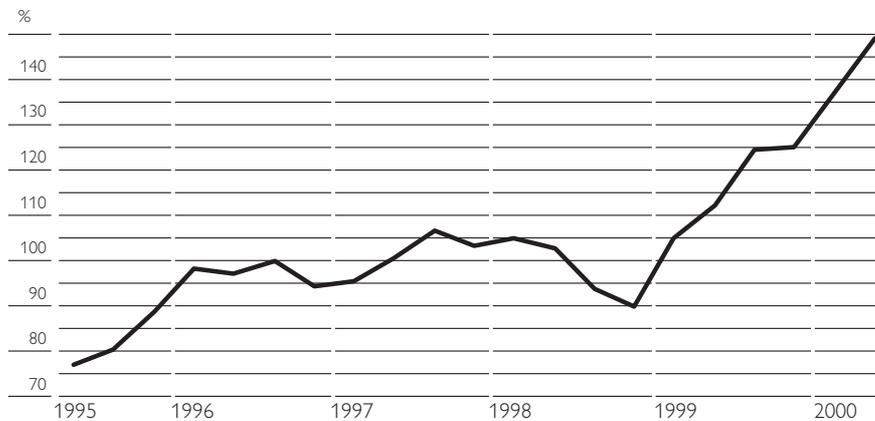
Roughly half of the increment in external assets can be traced to interbank business, which accelerated by 16.1%. Claims against foreign customers expanded more or less as in 1999. With regard to external liabilities, 64% of the rise is attributable to interbank business. Banks' direct foreign issues surged by a marked 12.9% (1999: -1.3%).

Approximately a third of the expansion of the external business volume was generated by the *foreign branches* of Austrian banks. Whereas their balances of loans to nonresidents grew only 1.0% due to a sharp decline in June, their stock of foreign bonds and other foreign debt securities soared by 27.2%. On the liabilities side of their balance sheet, the foreign branches massively expanded their intake of deposits from nonresident customers.

### Special Off-Balance-Sheet Financial Operations

The ratio of special off-balance-sheet financial operations to total assets jumped to a new record high – approximately 150% – in the reporting month of June 2000, from 125% at the beginning of the year. This category is typically dominated by interest rate contracts, which increased by 34.2% in the six months to June.

### Special Off-Balance-Sheet Operations

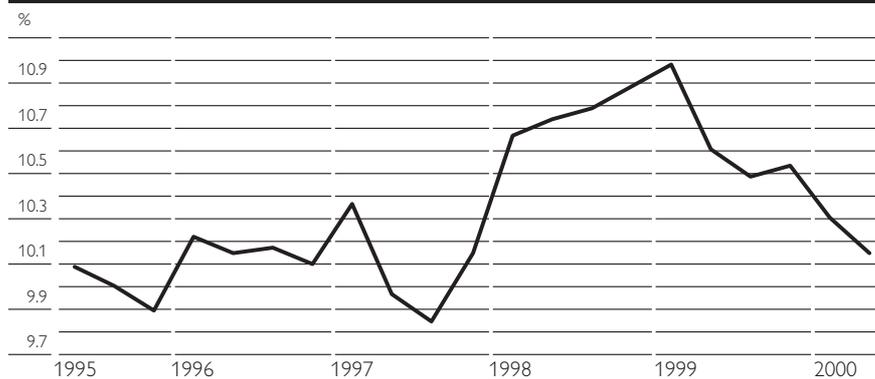


Source: OeNB.

### Solvency/Capital

At the reporting date the *capital* of the Austrian banking industry amounted to EUR 37.10 billion, which corresponds to a rise by 5.5% in six months. As a percentage of the calculation base, which grew more strongly than the capital base, banks' unconsolidated capital dipped to 13.75%, though. Core capital (tier I capital) – which expanded by 3.4% since January – accounted for two thirds of the overall increase in capital. Supplementary capital (tier II capital) went up by 9.3%, and tier III capital by 4.5%. During the six-month review period the tier I capital ratio<sup>1)</sup> dropped to 10.2% (from 10.5% at the beginning of the year, or from 11% in March 1999). This gradual decline notwithstanding, the ratio comfortably exceeds the required 4% mark.

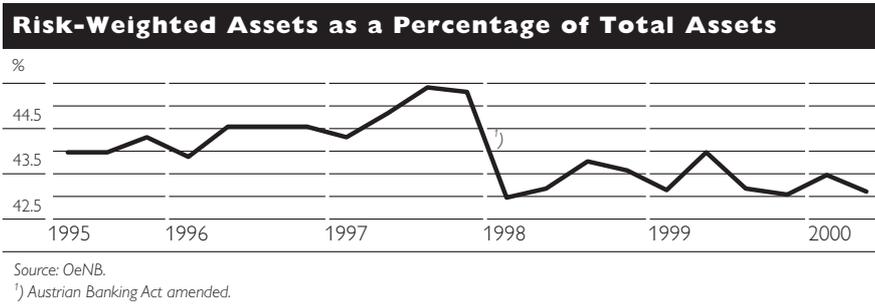
### Tier I Capital Ratio



Source: OeNB.

The ratio of risk-weighted assets to total assets reached 43.1% at the reporting date, compared with 44.0% in the corresponding month of 1999.

<sup>1)</sup> Total tier I capital expressed as a percentage of total risk-weighted assets.



# Balance of Payments in the First Quarter of 2000<sup>1)</sup>

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*In the course of harmonizing balance of payments statistics in Europe, two conceptual changes took effect as of the review period of January 2000. The balance on the OeNB's TARGET transactions is no longer posted under liabilities, but under assets arising from other investment by monetary authorities. Balances on interest rate derivatives, which so far had been entered on income, are now also represented in the financial account under financial derivatives. The quarters concerned have been recalculated retroactively.*

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## **I Current Account**

At EUR 420 million, the current account deficit on a transaction basis (see table 1) was slightly higher in the first quarter of 2000 than in the first quarter of 1999. Like all through 1999, the widening of the gap was mainly attributable to the rising deficit on the income balance. In the quarter under review, however, the unfavorable development of the goods and services subaccounts also contributed to the increase in the current account deficit.

The deficit vis-à-vis the countries of the euro area amounted to EUR 540 million in the review period, compared to EUR 510 million in the corresponding quarter of the previous year. The surplus against countries outside the euro area stood at EUR 120 million, compared to EUR 275 million in the analogous quarter of 1999.

All in all, the year-on-year surplus on the goods and services subaccounts decreased by EUR 130 million, while the deficit on the income balance went up by EUR 220 million compared to the first quarter of 1999; improvements were only recorded in the current transfers subaccount, with the deficit shrinking by EUR 160 million.

In the following, the subaccounts of the Austrian balance of payments in the first quarter of 2000 will be described in more detail.

### **1.1 Goods**

Calculations by Statistics Austria show that Austrian foreign trade kept up its extremely dynamic pace during the first months of the year, thus continuing a trend which has been observed since mid-1999.

According to the foreign trade statistics of Statistics Austria, exports posted stronger growth (+13.4%) in the review period than imports (+8.5%). Export revenues and import payments recorded by the OeNB signal even higher growth rates (+16.6 and +17.8%, respectively), with a considerably wide gap between the rates of growth of imports and import payments.<sup>2)</sup> The results are provisional in both cases; like in the past, a revision of the data sources is expected to lead to greater consistency.

<sup>1</sup> Based on transactions. Editorial close: August 4, 2000. As of 1999, the Austrian balance of payments figures published in "Focus on Austria" are presented in euro (irrevocable euro conversion rate EUR 1 = ATS 13.7603). For the Austrian balance of payments statistics given in both euro and schillings, refer to the OeNB web site at <http://www.oenb.at>, Focus on Statistics, chapter 7.

<sup>2</sup> According to the Austrian balance of payments concept, the difference between goods exports and imports based on foreign trade statistics and merchandise payments is booked in the services subaccount under "unclassified transactions" (see section 1.2.2).

Economic researchers also expect foreign trade to expand considerably in 2000. According to its June forecast, the Austrian Institute of Economic Research (WIFO) projects real goods exports to climb by 10%, while the Institute for Advanced Studies (IHS) predicts a 9% rise. Real goods imports are expected to gain 9% (WIFO) and 13.5% (IHS), respectively.

Broken down by *regions*, imports from countries outside the euro area showed considerably stronger growth (+15.9%) during the review period than imports from the euro area (+4.4%). In this context, the strengthening of the U.S. dollar and the rise in crude oil prices can be regarded as essential factors of influence. On account of the economic upturn in many of the countries concerned, extraordinary growth rates were registered for goods shipments both to the euro area (+11.5%) and to countries outside the euro area (+15.9%) (see table 2).

Broken down by *major categories of goods* (see table 3), the energy deficit increased most, namely by EUR 350 million. The manufactured goods balance, on the other hand, improved by EUR 840 million.

## 1.2 Services

The total services surplus fell by EUR 770 million to EUR 1,330 million in the first quarter of 2000.

### 1.2.1 Travel

The relatively favorable development in tourism continued in the first quarter of 2000. The number of foreign *arrivals and overnight stays* climbed by 4.7% this year (see table 5) despite the fact that the Easter holidays did not fall into the first quarter. Figures of more than 29.1 million foreign bednights – like in the first quarter of 2000 – had only been recorded three times before: in the first quarters of 1989, 1993 and 1994. An increase in the number of guests was recorded from almost every country of origin during the quarter under review; a decrease of more than 10,000 bednights was posted only for such heterogeneous countries as France, Poland, Japan and Spain. With a plus of 4.5%, *travel receipts* developed along parallel lines, climbing to EUR 3,480 million – EUR 150 million more than in the comparable period of the previous year (see table 4). Income from international passenger transport (which is no longer included in travel) surged by 18.7% to EUR 385 million.

After a decrease in Austrians' *travel expenses* in 1998 and 1999, a marked upswing began in the fourth quarter of 1999 and continued through the first quarter of 2000. Expenditure climbed by 14.4% to slightly under EUR 1,770 million. Expenses for passenger transport also increased at two-digit growth rates (by 23% to EUR 185 million).

Owing to the sharp rise in expenses, the surplus on the travel balance (including passenger transport) fell by EUR 50 million to EUR 1,910 million in the first quarter of 2000.

### 1.2.2 Other Services Items

In the first quarter of 2000, the surplus on other services items dropped by EUR 690 million year on year, with unclassified transactions accounting

for most of this decrease. Unclassified transactions are calculated from the difference between the figures for goods and merchandise payments – based on the foreign trade statistics of Statistics Austria – and are posted under services in line with the Austrian balance of payments concept. The balance, however, improved for a number of items, such as transportation (+EUR 90 million), royalties and license fees (+EUR 110 million) and other business-related services (+EUR 60 million).

### 1.3 Income

In the first quarter of 2000, the deficit on the income subaccount augmented by more than EUR 220 million to approximately EUR 860 million compared to the same period in 1999. While this rise in the income deficit partly reflects an increase in Austria's net debtor position, it can also, in part, be attributed to a considerable one-time effect. This quarterly figure corresponds to approximately 34% of the 1999 total.

While both in 1999 and 2000 income on *compensation of employers* resulted in a surplus in the first quarter (1999: EUR 130 million, 2000: EUR 140 million), the balance on *investment income* was negative. In the first quarter of 2000, this deficit stood at EUR 990 million, compared to EUR 760 million in the analogous period of 1999 (see table 6). Gross investment income represents some 10% of the current account balance, which means that its share is approximately the same as that of the travel subaccount. An analysis of net investment income by regions shows that the euro area accounts for EUR 820 million (83%).

A breakdown by major subaggregates showed net deficits of EUR 320 million in direct investment income, of EUR 620 million in portfolio investment income and of EUR 50 million in income on other investment.

The fact that foreign *direct investment* in Austria still clearly surpasses Austrian direct investment abroad and that, in addition, inward investment is more profitable in the long run (not least owing to longer average maturities) results in a shortfall on the direct investment income balance. At EUR 290 million, profits made by Austrian residents in the first quarter of 2000 reached only around half the amount of outflows, which came to EUR 610 million.

On account of massive cross-border security acquisitions effected by domestic investors abroad and by foreign investors in Austria over the past few years, *portfolio investment* income plays a central role in investment income. Income on this type of outward investment climbed to EUR 950 million in the first quarter of 2000 and was clearly surpassed by expenses of EUR 1,570 million resulting from Austria's level of debt against other countries in the same period. As Austrians bought more foreign securities last year, however, income on portfolio investment did not deteriorate much further; the already negative net balance stabilized at a relatively high level instead.

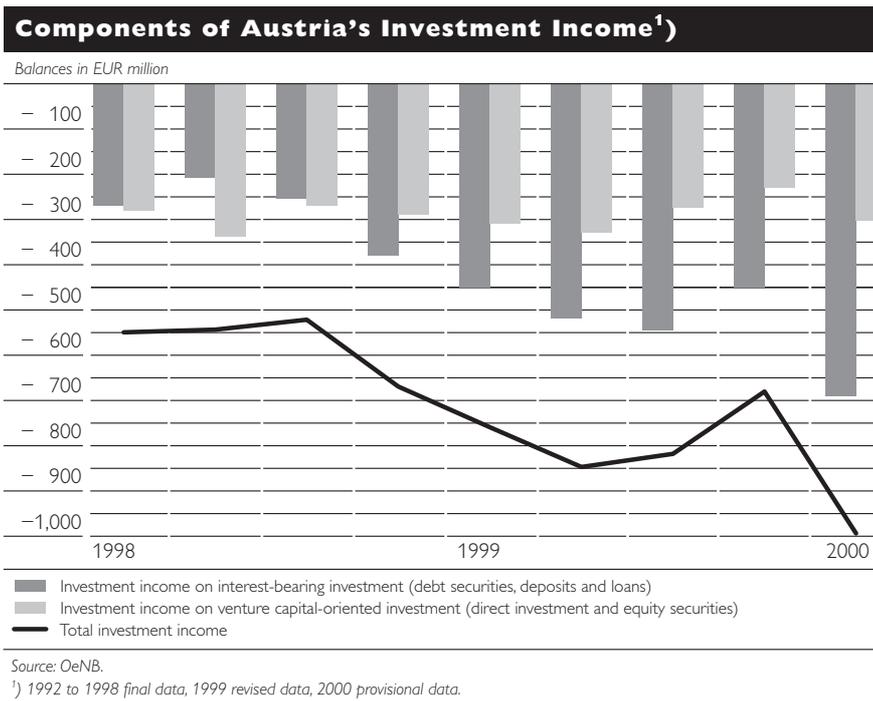
In contrast to the surplus on other investment income registered in the first quarter of 1999, a deficit of EUR 50 million was recorded for the first quarter of 2000.

This year's relatively poor result of cross-border income on other investment can primarily be attributed to two factors:

- Enterprises accrued extraordinary net revenues to the amount of EUR 100 million in the first quarter of 1999, which is considered to be a *one-time effect*.
- A *structural effect* in the banking sector, as banks are faced with higher refinancing costs after having continuously stepped up primarily deposit-taking in 1999.

When investment income is split into the two separate investment categories of income on venture capital-oriented investment<sup>1)</sup> and income on interest-bearing financial assets,<sup>2)</sup> the first category posted a deficit of EUR 300 million in the first quarter of 2000, while the deficit in the second category came to EUR 690 million.

A comparison of quarterly results since 1998 shows that income on interest-bearing financial assets has become more and more important (climbing from a 50% share to 70%), while risk capital-oriented investment has been declining proportionally.



The definition of investment income was changed as of the first quarter of 2000 to the effect that financial derivatives are no longer represented in this subaggregate.

- 1) Comprising all income on investment made in the form of equity capital and equity securities.
- 2) Comprising income on debt instruments (debt securities, deposits and loans, without regard to whether they are included in the functional categories of direct investment, portfolio investment, other investment or reserve assets).

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*In line with ECB requirements, financial derivatives based on interest rate contracts are posted under the financial derivatives item as of the review period of the first quarter of 2000; thus, they are no longer recorded in the current account, but in the financial account. The financial derivatives item was recalculated for the period from 1992 to 1999 to include interest rate derivatives. This recalculation is presented in section 3.4 of this report.*

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#### **1.4 Current Transfers**

At EUR 330 million in the first quarter of 2000, the deficit on current transfers was EUR 160 million lower than in the same period of 1999.

Transactions with the EU dominate current transfers of –EUR 270 million in the public sector. During the review period, Austria's contributions to the EU amounted to EUR 630 million, while its receipts (excluding EU contributions to infrastructure projects) came to EUR 440 million, resulting in a net payment of EUR 190 million (compared to EUR 350 million in the first quarter of 1999).

At EUR 60 million, the deficit on private transfers remained almost unchanged.

### **2 Capital Account**

The capital account closed the reviewed quarter with a negative balance of –EUR 60 million, EUR 20 million less than in the first quarter of the previous year.

The *government's* capital transfers in kind comprise, above all, receipts from the EU which are earmarked for infrastructural measures and are thus not part of current transfers. These transfers amounted to EUR 50 million in the first quarter of 2000, compared to EUR 30 million in the analogous quarter of 1999.

The *private sector's* capital transfers in kind recorded a deficit of EUR 90 million, down from EUR 110 million; this is largely due to higher remissions of debts in the first quarter of 1999.

Capital transfers *in cash* play a minor role in Austria's balance of payments statistics in terms of volume.

### **3 Financial Account**

With *capital imports* of EUR 270 million in the first quarter, Austria's financial account (see table 7) mirrored the current account deficit, causing a slight deterioration in net external assets and liabilities. In addition, capital imports worth EUR 210 million were also posted under errors and omissions.

These relatively low net values once again contrasted with considerably high gross values. Austria's *net new investment* abroad as well as foreign net new investment in Austria both reached transaction values of EUR 17 billion.

Both in cross-border investment and foreign refinancing, Austrians targeted their strategies according to the respective region:

On the one hand, the euro served as an expanded “home market” in order to effect a broader diversification of investments while avoiding foreign exchange risks and, on the other hand, it was used for refinancing. This strategy was chosen in particular for additional investments in debt securities and for the acquisition of foreign mutual funds shares as well as for investments made in the form of deposits and loans. Stepped-up cash pooling in the euro area also played an important role in this context.

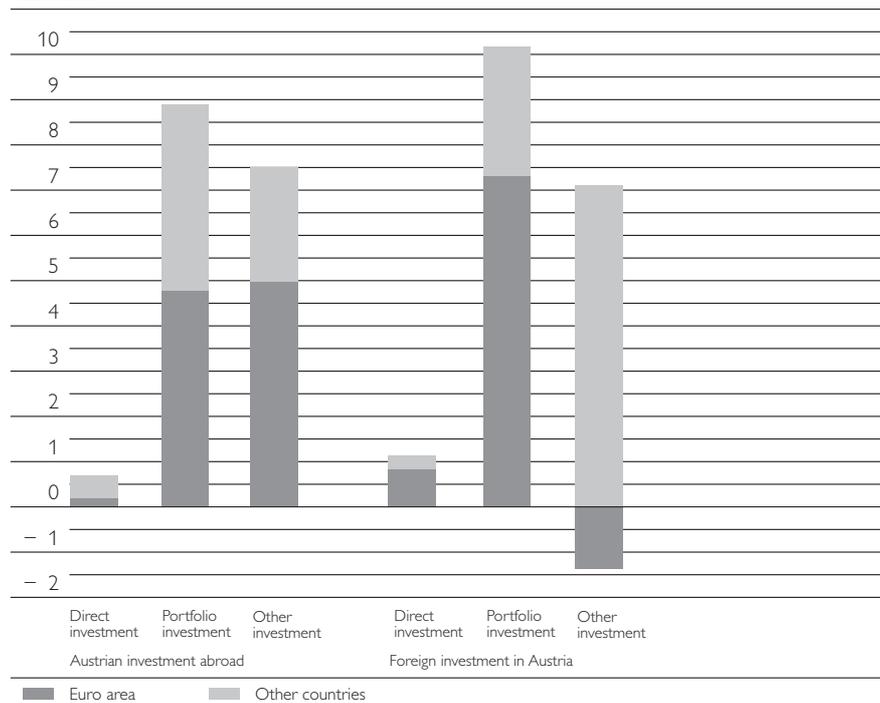
On the other hand, domestic investors purchased financial assets outside the euro area, opting in particular for U.K. and U.S. shares. At the same time, securities issued by domestic banks and by the government were designed for investors who were mainly interested in investing in the U.S. dollar.

The first quarter results thus reflect the following developments: Austrian investors’ claims on other Member States of the euro area augmented by EUR 9,880 million (60% of total investment abroad), while liabilities climbed by EUR 6,550 million (40%). Claims on and liabilities to non-euro-area residents climbed by EUR 6,910 million and EUR 10,510 million, respectively. On balance, Austria thus recorded a *net inflow from countries outside the euro area* of EUR 3,600 million (see table 8). Altogether, the euro area countries registered a capital inflow of EUR 47,800 million in the first quarter of 2000.

### Austria's Financial Account

#### with Countries in and outside the Euro Area (Selected Net Subaccounts in the First Quarter of 2000)<sup>1)</sup>

EUR billion



Source: OeNB.

<sup>1)</sup> Provisional data.

A comparison with the first quarter of 1999 shows that the powerful rise in financial transactions which went hand in hand with the introduction of the euro cannot be regarded as a one-time effect. In fact, the introduction of the euro added momentum to cross-border activities, causing more and more investors to regard the euro area as their “home market.” As a result, “cross-border” investment has become less important (from a national point of view).

It can be expected that already *in the runup to the accession of Greece as the twelfth Member State to the European Monetary Union*, there will be direct effects on Austria’s entire cross-border capital movements – in particular in securities transactions. In the first quarter of 2000, Austria posted a net capital inflow of EUR 190 million against Greece, compared to a capital outflow of EUR 700 million (associated with higher assets) for the entire year of 1999.

The swift rise in cross-border investment which has been observed over the last two years is likely to continue in the year 2000.

The volume of investment in *interest-bearing financial assets* continued to drive this development in the first quarter of 2000. These investments were made in equal shares in the form of deposits and loans and in the form of debt securities and accounted for just under 80% of Austria’s total cross-border capital movements; this category accounted for more than 90% of foreign investment in Austria. On balance, Austria’s transaction-induced foreign debt rose by EUR 2,740 million in the first quarter of 2000.

In this context, short-term financing instruments, which since the fourth quarter of 1999 had become even more attractive owing to a flattening yield curve, played a decisive role in Austria’s assets and liabilities. Furthermore, the buying and selling of repos led to additional short-term transactions on a larger scale.

To a relatively large extent, Austrian investors opted for *risk capital-oriented financing* in the first quarter of 2000, investing in particular in foreign mutual funds shares as well as in direct investments and shares. Foreigners investing in Austria concentrated predominantly on equity capital, which highlights Austria’s attractiveness as an investment location.

The 1999 development of total Austrian investment abroad and total foreign investment in Austria is expected to continue on the same path in 2000. An analysis of the *financial account by sectors* shows once more that, with a volume of EUR 6,690 million (mainly from the sale of Austrian securities abroad), the *government* has the highest share in net capital inflows, while the other sectors (in particular nonmonetary financial corporations such as investment and insurance companies) invested in further external assets to the amount of EUR 7,770 million. The *nonbanks sector* thus posted total net outflows of EUR 1,080 million in the first quarter. With Austrian banks granting more loans to domestic nonbanks, not least motivated by the economic upturn, *banks* refinanced themselves abroad in the first quarter of 2000 to the net amount of approximately EUR 1,360 million, while the analogous quarter of 1999, by contrast, had posted capital outflows. Banks’ additional external liabilities arose both from the collection of foreign deposits and from the sale of securities issues abroad.

Based on longer-term observations, the result of the first quarter of 2000 may be used as an *indicator for the development over the whole year.*<sup>1)</sup> If the trend reflected by the data for the first quarter of 2000 continues, cross-border investment activities are likely to increase in 2000. The Austrian Institute of Economic Research<sup>2)</sup> also projected a similar uptrend.

### 3.1 Direct Investment

Investment activities were dynamic in the first quarter of 2000. At EUR 700 million, outward direct investment matched the level of the previous year, which had marked a historic peak. Inward direct investment surged by as much as 25%, thus producing a net inflow in excess of EUR 1,120 million. This result is in accordance with statements of the Austrian Business Agency, the Austrian government's investment promotion organization, according to which more foreign companies set up business in Austria in 2000 than ever before.

*Outward direct investment* consisted of equity capital worth EUR 450 million and reinvested earnings of EUR 150 million, with loans to affiliated enterprises accounting for another EUR 100 million. Equity capital contains gross new investments of EUR 620 million (EUR 90 million of which for land acquisition) and disinvestments of EUR 170 million. The EU (Germany in particular) and Eastern Europe (above all, Poland, Hungary and Croatia) each accounted for one quarter of direct investment, with Switzerland (13%) and the U.S.A. (16%) playing a major role as well. Broken down by sectors, investments were well diversified, comprising e.g. banks, insurance, commerce, building material, mechanical engineering, and paper.

*Inward direct investment* amounted to EUR 1,120 million, including EUR 640 million in equity capital, with gross new investment accounting for approximately EUR 720 million (EUR 120 million of which for land acquisition) and disinvestment reaching EUR 80 million. Expected reinvested earnings (EUR 430 million) are also of significant influence, whereas lending, on the other hand, hardly played a role in inward direct investment (EUR 50 million). More than 90% of the capital invested came from the EU, with Germany in the first place with investments of EUR 600 million, followed by the Netherlands (EUR 180 million) and Sweden (EUR 160 million). Together, these three countries accounted for 84% of total inward direct investment in the first quarter of 2000. The sectors that attracted most investment were the telecommunications sector and the chemical and motor manufacturing industries.

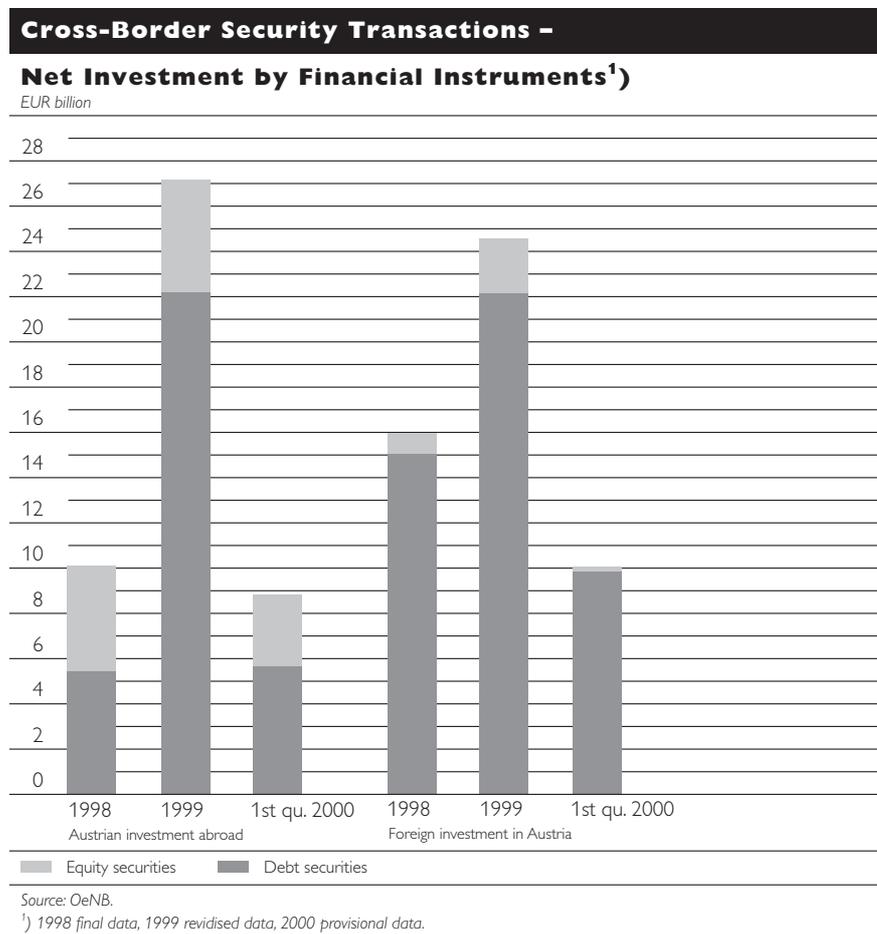
1 *As a weighted average over the period from 1992 to 1999, Austria's cross-border investment abroad and foreign investment in Austria in the first quarter held a share of 45 and 35%, respectively, in all-year investment.*

2 *See the 1999 report on federal debt (Bericht über die Finanzschuld des Bundes 1999), section on Austria's flow of funds; <http://www.staatsschuldenausschuss.at>.*

### 3.2 Portfolio Investment

On balance, cross-border securities transactions resulted in capital imports of EUR 1,260 million in the first quarter of 2000, in contrast to capital exports of EUR 2,440 million in the comparable period of the previous year. This trend reversal can primarily be attributed to a clear rise in acquisitions of short- and long-term debt securities by foreign investors.

Domestic investors bought foreign securities of EUR 8,840 million (market value). Compared to the last two years, shares accounted for a rather large portion (36%) in total net new investment. Aside from listed shares, domestic institutional investors concentrated mainly on foreign mutual funds shares from balanced funds and equity funds in particular. In the first quarter of 2000, Austrians purchased mutual funds shares totaling EUR 1,750 million and foreign shares worth EUR 1,430 million (predominantly shares from issuers outside the euro area). Changes in the legal framework for funds-of-funds as well as in fund managers' investment strategies likely induced the recent development in mutual funds shares. In the face of fluctuating share prices on the international major stock exchanges and an altogether moderate rise in important stock market indices (changes in the first quarter of 2000: EuroStoxx +6%, S & P 500 +2%), investors mapped up a relatively high amount of foreign shares



(primarily technology, telecommunications and industrial shares) compared to the previous year. Domestic investors thus continued to shift their portfolios towards shares. At the same time, their investment in foreign debt securities declined year on year. In this context, changes in particular in international interest rates and the related performance changes in combination with a rise in issuing and sales figures following the introduction of the euro, may have had an influence on the year-on-year result of the first quarter 2000. Nonetheless, the introduction of the euro is not supposed to have triggered only a one-time effect. On the supply side, the “euro-denominated securities market” has since then been growing steadily, equaling the U.S. dollar’s absolute growth in terms of international placements. At the same time, both domestic banks and investment companies have been opting largely for foreign investment, in particular for securities from other issuers in the euro area.

With issuers from outside the euro area accounting for a large portion of share acquisition, domestic investors were left with a much smaller share (just under 50%) in euro area issues than in 1999 (just under 75%). In the first quarter of 2000, Austrian investors purchased Greek securities (mainly government bonds) of a transaction value of EUR 240 million, lifting them to about the same position in the foreign securities acquisition chart as Belgian shares.

All in all, not least owing to a renewed upswing in offers, domestic investors purchased mainly foreign bonds issued by the central government sector as well as by banks and other financial corporations.

Like in the previous year, sales of domestic federal government bonds and ATBs abroad dominated foreign investors’ portfolio investment in Austria, in particular owing to large-scale sales of reopened or newly issued bonds to foreign banks under tender and debt issuance programs.

Against the backdrop of growing insecurities regarding the interest rate development on international capital markets and the fact that issues are designed for investors who are mainly interested in U.S. dollar investments, the short-term ATBs issued by the Republic of Austria sold well abroad. Altogether, capital inflows from the sales of domestic securities issued by public sector entities amounted to EUR 7,340 million in the first quarter of 2000. In addition, banks were able to sell securities through direct issuance of a market value of EUR 3,110 million to foreign investors.

**Government Bond Syndication and Tender Offers  
in the First Quarter of 2000<sup>1)</sup>**

	ISIN	External transactions EUR million
5.5% Federal government bond 1999–2010/4	AT0000384938	1,963
5.5% Federal government bond 2000–2007/144A	AT0000384953	3,579
3.4% Federal government bond 1999–2004/3	AT0000384862	151
Total		5,693

Source: OeNB.

<sup>1)</sup> Transactions values: + = sale abroad.

In terms of volume, capital movements in domestic shares continued to be of minor importance. It seems that the tightness of the Austrian equity market, among other factors, prevents stronger sales abroad. In this context, positive stimuli are expected from the linkup to the German electronic trading platform. All in all, foreigners effected net sales (in particular of shares in the financial sector, the utilities and industrial sectors) to the amount of EUR 130 million, while domestic mutual funds shares were sold successfully abroad (EUR 350 million net).

### 3.3 Other Investment

Other investment is dominated by the *banking system*. As expected, the OeNB and banks considerably expanded both external assets and liabilities in the form of deposits and loans during the first quarter of 2000. The corresponding capital exports on the assets side and capital imports on the liabilities side climbed to EUR 5,340 billion and EUR 6,120 billion, respectively, in the first quarter of 2000, resulting in capital imports of EUR 780 million on balance.

Like in securities acquisition, banks concentrated on external business when making new investments in deposits and loans in the first quarter of 2000. This had a considerable influence on the growth of banks' total assets, which expanded even more strongly than in 1999.

Both the OeNB and banks focused on the short end, with original maturities of up to one year. Domestic banks invested at a rate of 65% with foreign banks and foreign nonbanks located in the euro area. Aside from deposits, genuine repurchase agreements played a sustainable role. Refinancing abroad took place almost exclusively with foreign banks, the majority of which were headquartered outside the euro area. On balance, domestic banks posted a net inflow of EUR 5,430 million from nonresidents of the euro area, attracting additional liquidity to the euro area.

*Nonfinancial enterprises* invested heavily abroad by means of short-term investments and/or loans. In the first quarter of 2000, the net outflow recorded in the other sectors reached a transaction value of EUR 2,015 million, posted almost entirely against other countries in the euro area and against the United Kingdom. One of the main reasons for this development, which has become more and more important over the past few years, is the fact that enterprises have started to grant short-term loans by means of cash pooling.

The fact that the method for recording the OeNB's TARGET balances was changed in the first quarter of 2000 must be taken into account when analyzing gross capital inflows and outflows in other investments.

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*As of the review period of the first quarter of 2000, the balances resulting from TARGET payments are posted under assets, currency and deposits, monetary authorities, as required by the ECB. Prior to this change, TARGET transaction balances had been recorded under liabilities. The 1999 balances were retroactively included on the assets side.*

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### 3.4 Financial Derivatives

The financial derivatives item mainly comprises options, futures contracts and swaps, which may be based on capital products (e.g. foreign exchange assets, securities) and on interest rate products. The transaction values recorded refer to the sales and acquisitions of securities-based financial derivatives and transactions resulting from option payments (including premiums) in the course of OTC deals and/or from variation margin payments for futures contracts as well as from swap payments.

Up to the publication of the 1999 balance of payments annual figures, financial derivatives only included derivatives which were not based on interest rate contracts. Interest rate derivatives were recorded under investment income and used to calculate the current account.

Owing to the harmonization of balance of payments statistics in the euro area, financial derivatives based on interest rate contracts are included in the financial derivatives item – and thus in the financial account – as of the review period of the first quarter 2000. In order to facilitate the transition to the new concept, interest rate-based derivatives are posted as a memorandum item in table 6. In addition, the financial derivatives item has been recalculated for the period from 1992 to 1999 to include interest rate-based derivatives as shown in the following table:

<b>Financial Derivatives – Balance</b>			
	Capital derivatives	Interest rate-based derivatives <sup>1)</sup>	Total financial derivatives
	EUR million		
1992	11	-100	- 89
1993	- 17	137	120
1994	- 71	43	- 28
1995	- 96	309	213
1996	158	157	315
1997	35	794	829
1998	-439	631	193
1999	-351	271	- 80
1st quarter 2000	-236	589	353

Source: OeNB.

<sup>1)</sup> Sign convention:

Before the conceptual change, a plus sign signified a credit entry in the current account.

Since the change of the system, a plus sign signifies foreign capital inflows and thus capital imports.

In the first quarter of 2000, the financial derivatives item closed with a capital inflow of EUR 350 million, resulting, on balance, from capital exports of derivatives based on financial assets (EUR 240 million) and capital imports of interest rate-based financial derivatives (EUR 590 million). Like in the past, the transactions under this item were largely determined by derivatives not based on securities, with swap operations of banks and the central government mainly responsible for this development.

### 3.5 Reserve Assets

Augmenting merely by EUR 10 million through transactions, Austria's reserve assets hardly changed during the first quarter of 2000. The biggest changes in the structure of reserve assets took place in deposits and debt securities. Deposits with monetary authorities decreased by EUR 665

million, while deposits with banks climbed by EUR 370 million and debt securities mounted by EUR 345 million.

Despite the low level in transaction-induced changes, reserve asset holdings<sup>1)</sup> rose from EUR 18.9 billion to EUR 19.5 billion in the first quarter of 2000, which is traceable largely to value adjustments (securities) to the tune of EUR 340 million.

#### 4 Annex

Table 1

<b>Balance of Payments Summary</b>			
	1st quarter 1999 <sup>1)</sup>	1st quarter 2000 <sup>2)</sup>	Annual change
EUR million			
<b>Current Account</b>	- 231	- 422	- 192
<b>Goods, services and income</b>	+ 260	- 90	- 349
<b>Goods and services</b>	+ 895	+ 767	- 128
<b>Goods</b>	-1,198	- 559	+ 639
<b>Services</b>	+2,093	+1,326	- 767
Travel	+1,785	+1,711	- 74
Other services items	+ 308	- 385	- 694
Transportation	+ 295	+ 381	+ 86
<i>thereof international passenger transport</i>	+ 174	+ 200	+ 26
Construction services	+ 68	+ 63	- 5
Financial services	+ 128	+ 30	- 98
Royalties and license fees	- 166	- 57	+ 109
Other business services	+ 162	+ 220	+ 58
<i>thereof merchanting</i>	+ 280	+ 258	- 22
Other services	+ 68	+ 33	- 35
Unclassified transactions	- 248	-1,056	- 808
<b>Income</b>	- 635	- 856	- 221
Compensation of employees	+ 125	+ 138	+ 13
Investment income	- 760	- 994	- 234
<b>Current transfers</b>	- 490	- 333	+ 158
General government	- 422	- 269	+ 153
Private sector	- 68	- 63	+ 5
<b>Capital and financial account</b>	- 533	+ 213	+ 746
<b>Capital account</b>	- 77	- 61	+ 16
General government	+ 29	+ 48	+ 19
Private sector	- 106	- 86	+ 20
Acquisition/disposal of nonproduced, nonfinancial assets	+ 0	- 23	- 23
<b>Financial account</b>	- 457	+ 274	+ 731
Direct investment	+ 186	+ 415	+ 229
Portfolio investment	-2,435	+1,258	+3,693
Other investment	- 238	-1,741	-1,504
Financial derivatives	+ 183	+ 353	+ 170
Reserve assets <sup>3)</sup>	+1,846	- 11	-1,857
<b>Errors and omissions</b>	+ 764	+ 211	- 553

Source: OeNB.

<sup>1)</sup> Revised data.

<sup>2)</sup> Provisional data.

<sup>3)</sup> OeNB: Gold and foreign exchange, reserve position in the Fund, SDRs, etc.: increase: - / decrease: +.

1 See "Data Template on International Reserves and Foreign Currency Liquidity" on the OeNB's web site:  
[www.oenb.at/sdds/template](http://www.oenb.at/sdds/template).

Table 2

**Merchandise Exports and Imports**  
**as Recorded in the Foreign Trade Statistics**  
**Goods by geographic area<sup>1)</sup>**

1st quarter 2000						
	Exports		Imports		Balance	
	Annual change	Share of total exports	Annual change	Share of total imports		Annual change
	%				EUR million	
EU	+13.2	64.0	+ 4.7	67.0	-1,164	+674
Euro area	+11.5	56.7	+ 4.4	61.6	-1,429	-481
thereof:						
Germany	+ 8.2	34.6	+ 7.2	41.1	-1,458	- 48
Italy	+21.7	8.9	- 0.1	7.2	+ 193	+254
France	+13.2	4.5	+ 0.1	4.6	- 59	+ 83
Non-euro area countries	+15.9	43.3	+15.9	38.4	+ 386	+ 55
thereof:						
Switzerland						
and Liechtenstein	+19.5	6.5	+ 2.0	3.1	+ 501	+158
CEECs <sup>2)</sup>	+15.5	15.6	+27.9	13.0	+ 286	-144
U.S.A.	+17.7	4.6	+ 7.5	5.4	- 172	+ 47
Japan	+22.8	1.2	+21.9	2.8	- 292	- 51
Total	+13.4	100.0	+ 8.5	100.0	-1,043	+536

Source: Statistics Austria.

<sup>1)</sup> Geographic areas as defined by WIFO.

<sup>2)</sup> Central and Eastern European countries: Albania, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovenia, Ukraine, Yugoslavia.

Table 3

**Merchandise Exports and Imports**  
**as Recorded in the Foreign Trade Statistics**  
**Goods by commodity category**

	Exports			Imports			Balance	
	1st quarter 2000	Annual change	%	1st quarter 2000	Annual change	%	1st quarter 2000	Annual change
	EUR million			EUR million			EUR million	
Foodstuffs	687	+ 87	+ 14.5	810	- 56	- 6.4	- 123	+143
Raw materials	748	+ 168	+ 28.9	1,655	+ 537	+48.0	- 907	-369
thereof: energy (SITC 3)	215	+ 113	+109.9	994	+ 466	+88.4	- 778	-353
Semimanufactured goods	2,243	+ 156	+ 7.5	2,074	+ 210	+11.3	+ 169	- 54
Manufactured goods	12,127	+1,414	+ 13.2	12,288	+ 578	+ 4.9	- 161	+836
Capital goods	4,068	+ 423	+ 11.6	4,118	+ 266	+ 6.9	- 50	+157
Consumer goods	8,058	+ 991	+ 14.0	8,169	+ 312	+ 4.0	- 111	+678
Miscellaneous manufactured articles	43	x	x	64	x	x	- 21	x
Total	15,848	+1,867	+ 13.4	16,891	+1,330	+ 8.5	-1,043	+536

Source: Statistics Austria.

Table 4

<b>Travel and International Passenger Transport</b>				
	1st quarter 1999 <sup>1)</sup>	1st quarter 2000 <sup>2)</sup>	Annual change	
	EUR million		%	
<b>Travel</b>				
Receipts	3,334	3,484	+ 150	+ 4.5
Expenses	1,549	1,773	+ 224	+14.4
Balance	1,785	1,711	- 74	- 4.1
<b>International passenger transport</b>				
Receipts	324	385	+ 61	+18.7
Expenses	151	185	+ 35	+23.0
Balance	174	200	+ 26	+14.9
	1,000		%	
Foreign tourist bednights	27,824	29,140	+1,315	+ 4.7

Source: Statistics Austria, OeNB.  
<sup>1)</sup> Revised data.  
<sup>2)</sup> Provisional data.

Table 5

<b>Foreign Tourist Bednights by Country of Origin</b>				
	1st quarter 2000			
	Overnight stays	Annual change	Share	
	1,000	%	%	
Germany	18,098	+ 477	+ 2.7	62.1
Netherlands	3,990	+ 531	+15.3	13.7
United Kingdom	1,028	+ 66	+ 6.9	3.5
Belgium, Luxembourg	889	+ 69	+ 8.4	3.1
Switzerland, Liechtenstein	826	+ 40	+ 5.1	2.8
Danmark	485	+ 37	+ 8.4	1.7
Italy	439	- 5	- 1.1	1.5
France	375	- 17	- 4.4	1.3
Sweden	319	+ 46	+16.9	1.1
Spain	48	- 15	-23.8	0.2
Poland	455	- 12	- 2.6	1.6
Hungary	342	+ 25	+ 8.0	1.2
Czech Republic	330	+ 17	+ 5.3	1.1
Croatia	159	+ 10	+ 6.8	0.5
Commonwealth of Independent States	146	+ 17	+12.8	0.5
Slovenia	120	+ 1	+ 0.9	0.4
Slovakia	60	+ 2	+ 4.2	0.2
U.S.A.	250	- 1	- 0.3	0.9
Japan	79	- 10	-11.7	0.3
Other Countries	702	+ 37	+ 5.6	2.4
<b>Total</b>	<b>29,140</b>	<b>+1,315</b>	<b>+ 4.7</b>	<b>100.0</b>
Memorandum item: Austrian tourists	8,104	302	+3.9	x

Source: Statistics Austria,

Table 6

Investment Income	1st quarter	1st quarter	Annual change
	1999 <sup>1)</sup>	2000 <sup>2)</sup>	
	EUR million		
Net investment income <sup>3)</sup>	- 760	- 994	-234
Investment income receipts	2,117	2,488	+371
Investment income payments	2,878	3,483	+605
Net direct investment income <sup>3)</sup>	- 286	- 321	- 35
Income on direct investment abroad	199	287	+ 88
Income on direct investment in Austria	485	608	+123
Net portfolio investment income <sup>3)</sup>	- 666	- 624	+ 42
Income on foreign equity securities	18	44	+ 26
Income on domestic equity securities	36	22	- 14
Income on foreign bonds and notes	643	889	+246
Income on domestic bonds and notes	1,273	1,493	+220
Income on foreign money market instruments	21	13	- 8
Income on domestic money market instruments	39	54	+ 15
Net other investment income <sup>3)</sup>	+ 192	- 50	-242
Income on other investment, assets <sup>4)</sup>	1,236	1,256	+ 20
Income on other investment, liabilities	1,044	1,305	+261
Investment income on foreign interest-bearing investment <sup>5)</sup>	1,907	2,164	+257
Investment income on domestic interest-bearing investment <sup>6)</sup>	2,357	2,855	+498
Investment income on foreign venture capital-oriented investment <sup>7)</sup>	210	325	+115
Investment income on domestic venture capital-oriented investment <sup>7)</sup>	521	628	+107
Memorandum item: Financial derivatives based on interest rate contracts, net <sup>8)</sup>	74	589	+515

Source: OeNB.

<sup>1)</sup> Revised data.

<sup>2)</sup> Provisional data.

<sup>3)</sup> Income on outward foreign investment less income on inward foreign investment.

<sup>4)</sup> Income on deposits, credits and reserve assets.

<sup>5)</sup> Income on debt securities, deposits, loans and reserve assets.

<sup>6)</sup> Income on debt securities, deposits and loans.

<sup>7)</sup> Income on direct investment and equity securities.

<sup>8)</sup> Included in the financial account, financial derivatives.

Table 7

<b>Financial Account</b>				
	1998 <sup>1)</sup>	1999 <sup>2)</sup>	1st quarter 1999 <sup>2)</sup>	1st quarter 2000 <sup>3)</sup>
	EUR million, net			
<b>Financial account</b>	+ 5,531	+ 4,938	- 457	+ 274
Assets	-16,049	-34,623	-11,876	-16,794
Liabilities	+21,580	+39,561	+11,420	+17,068
<b>Direct investment</b>	+ 1,609	+ 14	+ 186	+ 415
Direct investment abroad	- 2,469	- 2,622	- 703	- 701
Equity capital	- 2,098	- 2,410	- 500	- 444
Reinvested earnings	- 347	- 368	- 124	- 153
Other capital	- 24	+ 156	- 78	- 104
Direct investment in Austria	+ 4,078	+ 2,637	+ 889	+ 1,116
Equity capital	+ 3,191	+ 1,192	+ 242	+ 641
Reinvested earnings	+ 879	+ 1,377	+ 598	+ 427
Other capital	+ 7	+ 68	+ 50	+ 48
<b>Portfolio investment</b>	+ 5,902	- 2,603	- 2,435	+ 1,258
Portfolio investment in foreign securities	-10,116	-27,246	- 9,440	- 8,844
Equity securities	- 4,672	- 4,957	- 1,558	- 3,176
Bonds and notes	- 5,775	-22,131	- 7,579	- 4,858
Money market instruments	+ 331	- 158	- 303	- 810
Portfolio investment in domestic securities	+16,018	+24,643	+ 7,005	+10,102
Equity securities	+ 908	+ 2,409	+ 385	+ 222
Bonds and notes	+14,806	+18,699	+ 6,004	+ 7,875
Money market instruments	+ 304	+ 3,535	+ 616	+ 2,005
<b>Other investment</b>	+ 742	+ 5,643	- 238	- 1,741
Assets	- 825	- 6,545	- 3,722	- 7,448
Trade credits	+ 641	- 263	- 129	- 266
Loans	- 3,836	-11,668	- 843	- 3,353
Currency and deposits	+ 2,401	+ 5,453	- 2,794	- 3,611
Other assets	- 30	- 67	+ 44	- 218
Liabilities	+ 1,566	+12,189	+ 3,485	+ 5,707
Trade credits	- 266	+ 97	+ 68	- 10
Loans	+ 59	+ 1,776	+ 587	- 118
Currency and deposits	+ 1,465	+ 9,809	+ 2,987	+ 6,104
Other liabilities	+ 308	+ 507	- 158	- 269
<b>Financial derivatives</b>	+ 193	- 80	+ 183	+ 353
<b>Reserve assets<sup>4)</sup></b>	- 2,914	+ 1,963	+ 1,846	- 11
<i>Memorandum item:</i>				
<i>Interest-bearing investment</i>	+ 8,022	+ 7,332	+ 274	+ 2,737
Assets	- 8,579	-27,254	- 9,921	-13,040
Liabilities	+16,601	+34,586	+10,195	+15,777
<b>Breakdown by sectors</b>				
<b>OeNB and banks</b>	- 1,372	+ 7,269	- 905	+ 1,359
Assets	- 6,485	-12,010	- 4,814	- 7,976
Liabilities	+ 5,113	+19,279	+ 3,909	+ 9,335
<b>General government</b>	+10,987	+14,908	+ 6,729	+ 6,686
Assets	- 397	+ 285	+ 404	- 475
Liabilities	+11,384	+14,623	+ 6,325	+ 7,161
<b>Other sectors</b>	- 4,083	-17,239	- 6,282	- 7,772
Assets	- 9,165	-22,899	- 7,468	- 8,343
Liabilities	+ 5,082	+ 5,660	+ 1,186	+ 571

Source: OeNB.

<sup>1)</sup> Final data.

<sup>2)</sup> Revised data.

<sup>3)</sup> Provisional data.

<sup>4)</sup> OeNB: Gold and foreign exchange, reserve position in the Fund, SDRs, etc.; increase: - / decrease: +.

Table 8

	Investment in/ from the euro area			Investment in/ from non-euro area countries		
	1999 <sup>1)</sup>	1st quarter 1999 <sup>1)</sup>	1st quarter 2000 <sup>2)</sup>	1999 <sup>1)</sup>	1st quarter 1999 <sup>1)</sup>	1st quarter 2000 <sup>2)</sup>
	EUR million, net					
<b>Financial account</b>	- 198	- 9,563	-3,328	+ 5,136	+9,106	+ 3,602
Assets	-19,852	-12,745	-9,882	-14,772	+ 868	- 6,912
Liabilities	+19,654	+ 3,182	+6,554	+19,907	+8,238	+10,514
<b>Direct investment</b>	+ 1,319	+ 383	+ 630	- 1,305	- 196	- 214
Direct investment abroad	- 413	- 181	- 200	- 2,209	- 522	- 501
Direct investment in Austria	+ 1,732	+ 563	+ 829	+ 904	+ 326	+ 287
<b>Portfolio investment</b>	- 5,066	- 3,284	+2,506	+ 2,463	+ 849	- 1,248
Portfolio investment in foreign securities	-20,458	- 7,335	-4,753	- 6,789	-2,105	- 4,092
Portfolio investment in domestic securities	+15,392	+ 4,051	+7,258	+ 9,252	+2,954	+ 2,844
<b>Other investment</b>	+ 3,237	- 7,325	-6,296	+ 2,406	+7,088	+ 4,554
Assets	+ 598	- 5,451	-4,946	- 7,143	+1,729	- 2,502
Liabilities	+ 2,639	- 1,874	-1,349	+ 9,550	+5,359	+ 7,056
<b>Financial derivatives</b>	+ 157	+ 509	- 168	- 237	- 326	+ 521
<b>Reserve assets<sup>3)</sup></b>	x	x	x	+ 1,963	+1,846	- 11

Source: OeNB.

<sup>1)</sup> Revised data.

<sup>2)</sup> Provisional data.

<sup>3)</sup> OeNB: Gold and foreign exchange, reserve position in the Fund, SDRs, etc.; increase: - / decrease: +.

# Austria's International Investment Position in 1999<sup>1)</sup>

## The External Sector of the Financial Account

Austria's International Investment Position (IIP) records the financial assets (direct investment, securities, deposits and loans) held by Austrians abroad and the assets held by nonresidents in Austria. The IIP thus reflects the external sector of the financial account.

### I Austria's External Assets

Austria's financial claims on the rest of the world (external assets) ran to EUR 218.1 billion at yearend (as at the reference date of December 31, 1999), which marks an increase by 31% compared to last year's reference date (see table 1a).

The introduction of the euro prompted Austrian investors to diversify their portfolios into euro area currencies, which – from a national point of view – resulted in an expansion of their assets abroad. These allocations of financial instruments were reflected in the balance sheets of banks and in the assets of other financial institutions (including investment funds, insurance companies and pension funds). As at the reference date of 1999, the share of foreign assets in the banks' total assets amounted to approximately 21% (1998: 18%) and the share of foreign assets in institutional investors' assets in Austria came to 35% (1998: 25%). Institutional investors have, thus, markedly strengthened their roles as financial intermediaries. Together, banks and other financial institutions accounted for some 70% of Austria's total external assets on December 31, 1999; with external claims of EUR 23 billion, the OeNB's share in Austria's total external assets came to 10% (see table 6).

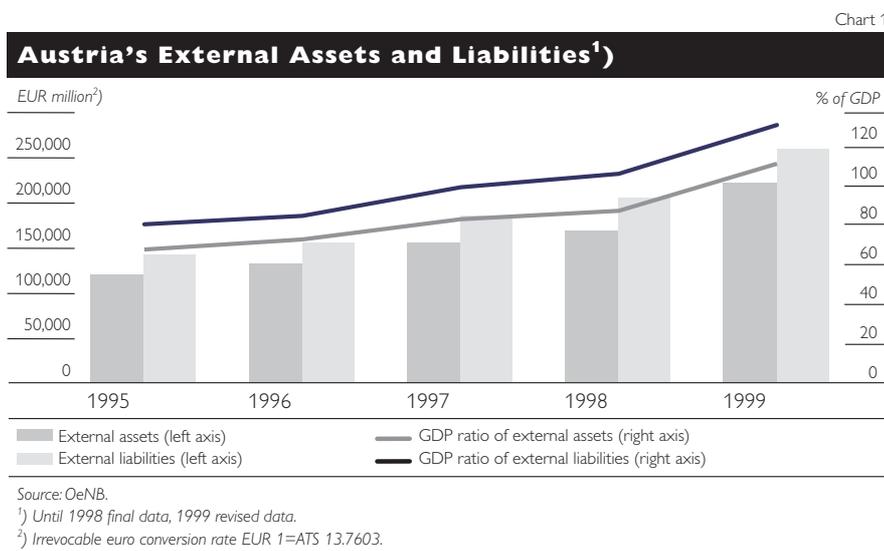
The private sector, which comprises nonfinancial corporations and households (including non-profit institutions serving households), did not enhance its activities abroad as much as the public sector, but as direct investment remained high, Austrian direct investors continued to strengthen their foothold abroad. Households, which, according to preliminary calculations, augmented their financial wealth by EUR 12.4 billion in 1999,<sup>2)</sup> invested some 70% in domestic mutual funds shares and in funds placed with insurance companies, thus considerably contributing to the increase in Austria's external assets in an indirect way.

Broken down by financial instruments, foreign securities (included in the positions portfolio investment and reserve assets) accounted for the largest share (46%) in total external assets (see table 1b).

As required by the ECB, the net balance resulting from the settlement of TARGET payments on the assets side is shown under currency and deposits held with monetary authorities. Since the TARGET balance for Austria is negative (EUR –5.3 billion), the position currency and deposits shows a negative value of EUR 2.0 billion.

1 Cut-off date: August 11, 2000: Since the beginning of 1999, the IIP data published in the OeNB's "Focus on Austria" have been given in euro (irrevocable conversion rate: EUR 1 = ATS 13.7603). In the OeNB's German-language statistical monthly "Statistisches Monatsheft," the data are given in both euros and schillings.

2 See report on federal debt 1999 (Bericht über die Finanzschuld des Bundes 1999), chapter 4.4.1, table 32; <http://www.staatsschuldenausschuss.at>.



## 2 Austria's External Liabilities

Like external assets, external liabilities and venture capital-oriented investment in Austria by nonresidents also augmented. At yearend 1999, external liabilities had climbed to EUR 256 billion (a 27% increase compared to 1998). According to preliminary calculations, external liabilities roughly equaled the financial wealth of households on December 31, 1999.<sup>1)</sup>

The banking system (which comprises the OeNB and the banks classified as MFIs) took advantage of the larger “home market” without foreign exchange risks to refinance themselves by collecting deposits and selling direct issues abroad. Sales of securities issued by the federal government (“central government” according to the ESA 95) increased. The sale of both euro-denominated government bonds (by way of syndication and tender procedures) and short-term Federal Treasury bills – together with the international high demand for short maturities – pushed up the foreign debt.

The growth in external liabilities is mirrored in the banks' balance sheets and in the report on federal debt at yearend 1999.

Of the banks' total liabilities, 27% (1998: 23%) were external liabilities. Furthermore, 50% of debt securities outstanding were held by nonresidents at yearend. On December 31, 2000, their share had been 40%.

Of the Austrian federal government's total debt of EUR 128.2 billion,<sup>2)</sup> liabilities to nonresidents ran to EUR 61.2 billion (nominal amount). Securities accounted for the largest share, of which 53% were held by nonresidents.

1 Financial Accounts 1998 in accordance with ESA 95 (OeNB); Report on the federal debt 1999 (Bericht über die Finanzschuld des Bundes 1999), OeNB.

2 Federal financial debt (including intermediary funding by the central government before currency-swap operations).

### Selected Benchmark Bonds Held by Nonresidents<sup>1)</sup>

As at December 31, 1999

Maturity	ISIN	Name	Volume outstanding (principal)	Yield	Price	Duration	Held by nonresidents <sup>2)</sup>
years			EUR million <sup>3)</sup>	%		years	EUR million <sup>3)</sup>
30	AT0000383864	6,25% gov. bond 1997-2027/6	3,257	6.027	102.90	13.61	2,385
15	AT0000384748	4,125% gov. bond 1999-2014/1	1,320	5.672	85.30	10.15	565
10	AT0000384938	5,5% gov. bond 1999-2010/4	2,760	5.454	100.35	7.89	1,952
9	AT0000384821	4% gov. bond 1999-2009/2	5,500	5.459	89.34	7.86	1,829
6	AT0000384524	3,9% gov. bond 1998-2005/3	6,186	4.952	94.79	5.24	4,405
5	AT0000384862	3,4% gov. bond 1999-2004/3	4,415	4.901	93.70	4.46	2,506
4	AT0000384359	4,3% gov. bond 1998-2003/2	7,455	4.680	98.75	3.29	4,489
Total			30,893				18,131

Source: OeKB, OeNB.

<sup>1)</sup> Benchmark bonds that were issued or reopened by way of tender and syndication procedures in 1999.

<sup>2)</sup> Revised data.

<sup>3)</sup> Irrevocable euro conversion rate EUR 1 = 13,7603.

The banking sector and the public sector accounted for 80% of Austria's total external liabilities at yearend (see table 6).

At the same time, nonresidents had claims on the private sector (mostly on nonfinancial corporations), of EUR 46.5 billion. This is mainly attributable to the high amount of foreign direct investment and corporate foreign debt.

Foreign holdings of Austrian securities had a market value of EUR 138.2 billion at yearend (54% of total external liabilities).

### 3 Key Positions

The cross-border assets on December 31, 1999, are the basis for the following key positions (see table 2).

#### 3.1 Internationalization Degree

The internationalization degree, i.e. the relation between cross-border assets and Austria's total output, amounted to 112% of GDP on the assets side and 131% of GDP on the liabilities side. In 1998, these measures were 88% on the assets side and 106% on the liabilities side.

#### 3.2 Net International Investment Position

Austria's net international investment position corresponds to the net financial assets held by nonresidents in Austria; it is the difference between the total value of Austria's financial assets and liabilities. Austria has a negative net international investment position, in other words, Austria's external liabilities outweighed assets by EUR 37.8 billion (1998: EUR -35.5 billion).

#### 3.3 Self-financing Ratio

The self-financing ratio is a measure to assess the amount of foreign debt that could (theoretically) be covered by export proceeds. In 1999, total exports covered 41% of the total foreign debt (1998: 50%).

#### 4 Financial Integration in the Euro Area

The deep economic integration that Austria has achieved with the other participants of the European Economic and Monetary Union (EMU) is also evidenced by the momentum that cross-border financial investment developed even in the runup to the introduction of the euro. The share of euro area assets in Austria's external assets rose from roughly 33% at yearend 1997 to 36% by the end of 1998, and further to 40% on December 31, 1999 (see table 4). Foreign securities issued by other euro area countries made up as much as 58% approximately of the stock of Austrian portfolio investment assets at the end of 1999.

A currency breakdown shows that Austrian investors had "euroized" their portfolios before the euro was in fact launched. From 1996 onwards, roughly 60%<sup>1</sup>) of Austria's external assets were denominated in the legacy currencies of the euro, with the Austrian schilling and the Deutsche mark accounting for the biggest parts thereof (88% on average between 1996 and 1998). As at December 31, 1999, the share of euro-denominated assets stood at 61%.

Those results are mirrored to a large extent on the liabilities side (nonequity liabilities of Austrians vis-à-vis nonresidents): In the 1996 to 1999 period, 53% on average of the external debt of Austrians were denominated in euro or in constituent currencies of the euro; at the reporting date of 1999, this share was close to 55%.

#### 5 The Components of Change

The changes in the stock of external assets are attributable to transactions and to other changes in assets that result from foreign exchange fluctuations, changes in the price of financial instruments and reclassifications (see table 3).

The transaction value of net new acquisitions of foreign assets by Austrians was EUR 33.9 billion in the year 1999. Nonresidents, by comparison, spent EUR 39.4 billion net on additional Austrian financial assets. Overall, 65% of the expansion of external assets and 73% of the rise in external liabilities were transaction-based changes.

Apart from new investments, valuation changes shaped the developments in external assets to a considerable extent; generally, though, the scope for potential exchange rate changes has been narrowed by the high share of euro-denominated assets.

Next to the euro, the U.S. dollar made up the biggest share of cross-border assets both on the assets side (25%) and on the liabilities side (21%). The biggest changes on both sides of the balance sheet can, accordingly, be traced to the dollar segment. The balance of assets and liabilities – the net investment position – was influenced particularly by the development of the euro's exchange rate against the Japanese yen, whose share in overall external liabilities was fairly high at 8% in 1999. On a lesser scale, gains in stock prices in international stock markets and at the Vienna stock exchange

<sup>1</sup> Measured as a percentage of all nonequity assets excluding reserve assets.

as well as changes in the yield of debt securities had an impact on the development of cross-border assets.

Since the exchange rate and price effects were positive on balance, the negative net investment position improved by EUR 7.2 billion on the back of those valuation changes.

Turning to conceptual changes in the IIP, one reclassification was made on the assets side in the reporting year 1999: Reserve assets were redefined to comprise only external financial assets that are denominated in non-euro currencies and that are claims on non-euro area residents. As a consequence, EUR 4.5 billion were shifted from reserve assets to portfolio investment (debt securities) and other investment (deposits).

## 6 Austria's External Debt

As at December 31, 1999, 85% of Austria's external liabilities were in the form of nonequity liabilities, i.e. interest-bearing financial investments made by foreigners in Austria, which is tantamount to external debt. Since the measurement of external debt is gaining in importance internationally, the International Monetary Fund will expand the SDDS<sup>1</sup>) by this category over a three-year transition period. For Austria, the OeNB can supplement the external liabilities data with the figures on external debt starting from the reporting year 1976.

As at December 31, 1999, Austrians had incurred an external debt of EUR 218.7 billion by collecting deposits, taking out loans and selling debt securities abroad. Broken down by economic sectors, banks accounted for roughly 60% of Austria's external debt, and the public sector for another 30%. The remaining 10% were corporate debt (see table 6).

To provide a maturity snapshot for the 1999 reporting date, all external liabilities were broken down by original maturities, and all debt securities (a major element of external debt) moreover by term to maturity.

As at December 31, 1999, the share of short-term<sup>2</sup>) external liabilities was 41%; thus, roughly EUR 89.6 billion were subject to money market developments. The term structure of interest-bearing external assets (nonequity assets) was similar. On balance, half of the net international investment position of EUR 49 billion was comprised of short-term assets held by nonresidents in Austria (see table 5).

Of all debt securities held by nonresidents – with a market value of EUR 123.5 billion – EUR 116.2 billion were bonds and notes. Thereof, some 16% (EUR 18.8 billion) had a residual term to maturity of less than one year at the reporting date 1999, i.e. were to fall due in the course of the year 2000.

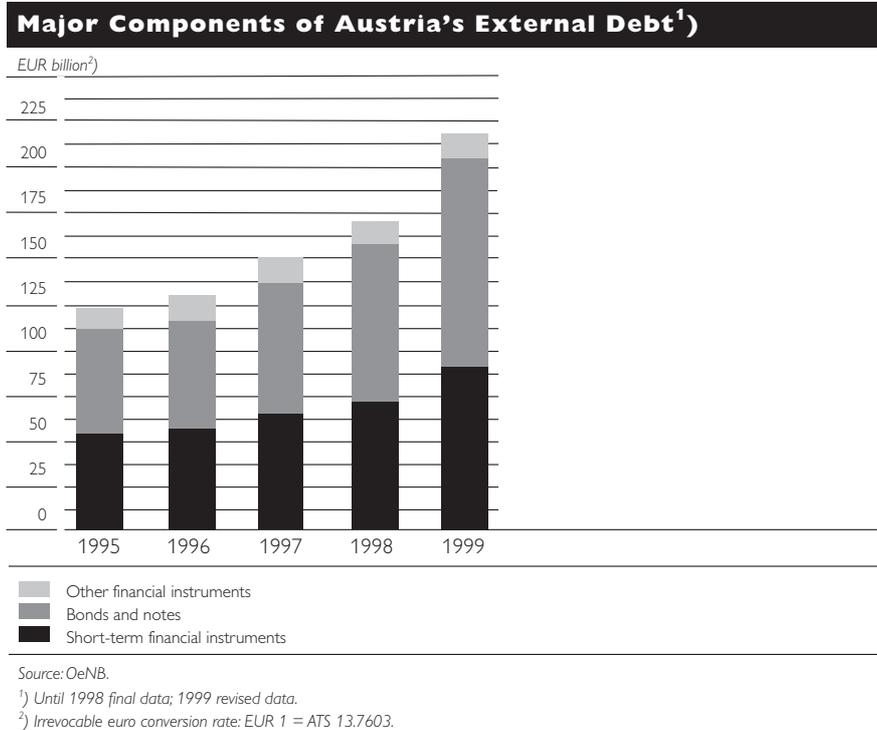
Austria's average external debt of EUR 195.2 billion generated EUR 9.5 billion of income for nonresident investors in 1999, which is tantamount to a yield of 4.9%. By comparison, Austrian investors earned EUR 7.5 billion interest income on their nonequity assets (EUR 157.5 billion on average);

1 *Special Data Dissemination Standard.*

2 *Maturity of one year or less than one year.*

their return on investment was 10 basis points below that of nonresident investors.

Chart 2



**Annex**

Table 1a

**Austria's International Investment Position**

End-of-period stocks	Assets		Liabilities		Net	
	1998 <sup>1)</sup>	1999 <sup>2)</sup>	1998 <sup>1)</sup>	1999 <sup>2)</sup>	1998 <sup>1)</sup>	1999 <sup>2)</sup>
	EUR million <sup>3)</sup>					
<b>Direct investment</b>						
Equity capital and reinvested earnings	+ 14,337	+ 17,415	+ 19,841	+ 22,520	- 5,504	- 5,105
Other capital	+ 1,649	+ 1,572	+ 508	+ 573	+ 1,141	+ 999
Total	+ 15,986	+ 18,987	+ 20,349	+ 23,093	- 4,363	- 4,106
<b>Portfolio investment</b>						
Equity securities	+ 14,706	+ 28,802	+ 13,337	+ 14,677	+ 1,369	+14,124
Monetary authorities	+ 866	+ 1,448	x	x	+ 866	+ 1,448
General government	+ 10	+ 54	x	x	+ 10	+ 54
Banks	+ 889	+ 2,529	+ 2,594	+ 3,043	- 1,705	- 515
Other sectors	+ 12,940	+ 24,771	+ 10,743	+ 11,634	+ 2,197	+13,137
Debt securities	+ 35,448	+ 62,877	+ 90,534	+123,515	-55,085	-60,638
Bonds and notes	+ 34,894	+ 61,095	+ 86,892	+116,209	-51,998	-55,114
Monetary authorities	+ 0	+ 2,904	x	x	+ 0	+ 2,904
General government	+ 242	+ 146	+ 45,928	+ 61,600	-45,685	-61,454
Banks	+ 12,802	+ 21,832	+ 32,161	+ 43,385	-19,359	-21,553
Other sectors	+ 21,849	+ 36,213	+ 8,804	+ 11,224	+13,046	+24,989
Money market instruments	+ 555	+ 1,782	+ 3,642	+ 7,306	- 3,087	- 5,524
Monetary authorities	+ 0	+ 659	x	x	+ 0	+ 659
General government	+ 1	+ 1	+ 1,188	+ 2,156	- 1,186	- 2,156
Banks	+ 369	+ 773	+ 2,109	+ 4,547	- 1,740	- 3,774
Other sectors	+ 184	+ 349	+ 345	+ 602	- 161	- 254
Total	+ 50,154	+ 91,679	+103,871	+138,192	-53,717	-46,514
<b>Other investment</b>						
Trade credits	+ 3,602	+ 3,864	+ 3,125	+ 3,222	+ 477	+ 642
Loans	+ 35,250	+ 47,137	+ 8,546	+ 12,544	+26,704	+34,593
Monetary authorities	+ 0	+ 990	+ 0	+ 952	+ 0	+ 38
General government	+ 91	+ 13	+ 2,504	+ 2,832	- 2,414	- 2,818
Banks	+ 31,788	+ 39,836	+ 2,048	+ 3,709	+29,741	+36,127
<i>thereof long-term</i>	+ 24,757	+ 24,757	+ 1,335	+ 2,668	+23,422	+22,089
Other sectors	+ 3,371	+ 6,298	+ 3,994	+ 5,051	- 622	+ 1,247
Currency and deposits	+ 32,797	+ 31,299	+ 62,845	+ 75,227	-30,048	-43,928
Monetary authorities <sup>4)</sup>	+ 43	- 2,050	+ 0	- 116	+ 43	- 1,934
General government	+ 820	+ 481	+ 0	+ 0	+ 820	+ 481
Banks	+ 31,205	+ 32,132	+ 62,845	+ 75,343	-31,640	-43,211
<i>thereof short-term</i>	+ 28,980	+ 26,761	+ 59,883	+ 71,238	-30,903	-44,477
Other sectors	+ 729	+ 737	+ 0	+ 0	+ 729	+ 737
Other claims, other liabilities	+ 6,002	+ 6,201	+ 3,201	+ 3,642	+ 2,802	+ 2,559
Monetary authorities	+ 118	+ 118	+ 0	+ 0	+ 118	+ 118
General government	+ 1,503	+ 1,574	+ 671	+ 716	+ 832	+ 858
Banks	+ 2,969	+ 3,023	+ 362	+ 428	+ 2,607	+ 2,595
Other sectors	+ 1,412	+ 1,486	+ 2,168	+ 2,498	- 756	- 1,012
Total	+ 77,651	+ 88,501	+ 77,717	+ 94,636	- 66	- 6,135
<b>Financial derivatives</b>	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0
<b>Reserve assets</b>						
Monetary gold <sup>5)</sup>	+ 3,405	+ 3,793	x	x	+ 3,405	+ 3,793
Special drawing rights	+ 128	+ 145	x	x	+ 128	+ 145
Reserve position in the Fund	+ 1,228	+ 1,057	x	x	+ 1,228	+ 1,057
Foreign exchange	+ 17,859	+ 13,952	x	x	+17,859	+13,952
Currency and deposits	+ 4,213	+ 4,651	x	x	+ 4,213	+ 4,651
with monetary authorities	+ 2,113	+ 3,376	x	x	+ 2,113	+ 3,376
with foreign banks	+ 2,100	+ 1,275	x	x	+ 2,100	+ 1,275
Securities	+ 13,646	+ 9,301	x	x	+13,646	+ 9,301
Equity securities	+ 15	+ 0	x	x	+ 15	+ 0
Bonds and notes	+ 9,869	+ 7,603	x	x	+ 9,869	+ 7,603
Money market instruments	+ 3,762	+ 1,698	x	x	+ 3,762	+ 1,698
Financial derivatives	+ 0	+ 0	x	x	+ 0	+ 0
Other sectors	+ 0	+ 0	x	x	+ 0	+ 0
Total	+ 22,619	+ 18,947	x	x	+22,619	+18,947
<b>External assets and liabilities</b>	+166,410	+218,114	+201,937	+255,921	-35,527	-37,807
<b>Nonequity assets and liabilities</b>	+135,278	+169,733	+170,051	+218,723	-34,774	-48,990

Source: OeNB.

<sup>1)</sup> Final data.

<sup>2)</sup> Revised data.

<sup>3)</sup> Irrevocable euro conversion rate: EUR 1 = 13,7603, Differences are due to rounding.

<sup>4)</sup> Negative value due to the negative balance resulting from TARGET payments on the order of EUR 5,3 billion (to be posted on the assets side according to ECB requirements).

<sup>5)</sup> Valued at market prices.

Table 1b

**Austria's International Investment Position – Structural Data**

End-of-period-stocks	Assets		Liabilities	
	1998 <sup>1)</sup>	1999 <sup>2)</sup>	1998 <sup>1)</sup>	1999 <sup>2)</sup>
	<i>% of external assets or liabilities</i>			
<b>Direct investment</b>				
Equity capital and reinvested earnings	8.6	8.0	9.8	8.8
Other capital	1.0	0.7	0.3	0.2
Total	9.6	8.7	10.1	9.0
<b>Portfolio investment</b>				
Equity securities	8.8	13.2	6.6	5.7
Monetary authorities	0.5	0.7	0.0	0.0
General government	0.0	0.0	0.0	0.0
Banks	0.5	1.2	1.3	1.2
Other sectors	7.8	11.4	5.3	4.5
Debt securities	21.3	28.8	44.8	48.3
Bonds and notes	21.0	28.0	43.0	45.4
Monetary authorities	0.0	1.3	0.0	0.0
General government	0.1	0.1	22.7	24.1
Banks	7.7	10.0	15.9	17.0
Other sectors	13.1	16.6	4.4	4.4
Money market instruments	0.3	0.8	1.8	2.9
Monetary authorities	0.0	0.3	0.0	0.0
General government	0.0	0.0	0.6	0.8
Banks	0.2	0.4	1.0	1.8
Other sectors	0.1	0.2	0.2	0.2
Total	30.1	42.0	51.4	54.0
<b>Other investment</b>				
Trade credits	2.2	1.8	1.5	1.3
Loans	21.2	21.6	4.2	4.9
Monetary authorities	0.0	0.5	0.0	0.4
General government	0.1	0.0	1.2	1.1
Banks	19.1	18.3	1.0	1.4
thereof long-term	14.9	11.4	0.7	1.0
Other sectors	2.0	2.9	2.0	2.0
Currency and deposits	19.7	14.3	31.1	29.4
Monetary authorities	0.0	- 0.9	0.0	0.0
General government	0.5	0.2	x	x
Banks	18.8	14.7	31.1	29.4
thereof short-term	17.4	12.3	29.7	27.8
Other sectors	0.4	0.3	x	x
Other claims, other liabilities	3.6	2.8	1.6	1.4
Monetary authorities	x	0.1	x	0.0
General government	0.9	0.7	0.3	0.3
Banks	1.8	1.4	0.2	0.2
Other sectors	0.8	0.7	1.1	1.0
Total	46.7	40.6	38.5	37.0
<b>Financial derivatives</b>	0.0	0.0	0.0	0.0
<b>Reserve assets</b>				
Monetary gold	2.0	1.7	x	x
Special drawing rights	0.1	0.1	x	x
Reserve position in the Fund	0.7	0.5	x	x
Foreign exchange	10.7	6.4	x	x
Currency and deposits	2.5	2.1	x	x
with monetary authorities	1.3	1.5	x	x
with foreign banks	1.3	0.6	x	x
Securities	8.2	4.3	x	x
Equity securities	0.0	0.0	x	x
Bonds and notes	5.9	3.5	x	x
Money market instruments	2.3	0.8	x	x
Financial derivatives	0.0	0.0	x	x
Other sectors	0.0	0.0	x	x
Total	13.6	8.7	x	x
<b>External assets and liabilities</b>	100.0	100.0	100.0	100.0
<b>Nonequity assets and liabilities</b>	81.3	77.8	84.2	85.5

Source: OeNB.

<sup>1)</sup> Final data.

<sup>2)</sup> Revised data.

AUSTRIA'S INTERNATIONAL INVESTMENT POSITION  
IN 1999

Table 2

**Austria's International Investment Position – Key Positions**

	End-of-period stocks					
	ATS billion	EUR million <sup>1)</sup>	% of GDP	% of exports of goods and services	% of external liabilities	% of nonequity liabilities
<b>External assets</b>						
1995 <sup>2)</sup>	1,617.6	117,556	68.1	179.0	84.5	x
1996 <sup>2)</sup>	1,786.1	129,801	72.8	184.1	85.5	x
1997 <sup>2)</sup>	2,099.8	152,598	83.3	195.5	83.6	x
1998 <sup>2)</sup>	2,289.9	166,410	87.7	195.3	82.4	x
1999 <sup>3)</sup>	3,001.3	218,114	111.8	243.0	85.2	x
<b>External liabilities</b>						
1995 <sup>2)</sup>	1,914.7	139,147	80.6	211.9	x	x
1996 <sup>2)</sup>	2,090.0	151,886	85.2	215.5	x	x
1997 <sup>2)</sup>	2,512.9	182,620	99.6	233.9	x	x
1998 <sup>2)</sup>	2,778.7	201,937	106.4	237.0	x	x
1999 <sup>3)</sup>	3,521.6	255,921	131.2	285.1	x	x
<b>Nonequity assets</b>						
1995 <sup>2)</sup>	1,446.2	105,099	60.9	160.0	x	85.8
1996 <sup>2)</sup>	1,574.8	114,445	64.2	162.4	x	88.0
1997 <sup>2)</sup>	1,751.8	127,308	69.5	163.1	x	84.3
1998 <sup>2)</sup>	1,861.5	135,278	71.3	158.8	x	79.6
1999 <sup>3)</sup>	2,335.6	169,733	87.0	189.1	x	77.6
<b>Nonequity liabilities</b>						
1995 <sup>2)</sup>	1,685.6	122,497	71.0	186.5	88.0	x
1996 <sup>2)</sup>	1,789.1	130,019	72.9	184.5	85.6	x
1997 <sup>2)</sup>	2,077.3	150,963	82.4	193.4	82.7	x
1998 <sup>2)</sup>	2,340.0	170,051	89.6	199.6	84.2	x
1999 <sup>3)</sup>	3,009.7	218,723	112.2	243.7	85.5	x
<b>Net international investment position</b>						
1995 <sup>2)</sup>	– 297.1	– 21,591	12.5	32.9	15.5	x
1996 <sup>2)</sup>	– 303.9	– 22,085	12.4	31.3	14.5	x
1997 <sup>2)</sup>	– 413.1	– 30,021	16.4	38.5	16.4	x
1998 <sup>2)</sup>	– 488.9	– 35,527	18.7	41.7	17.6	x
1999 <sup>3)</sup>	– 520.2	– 37,807	19.4	42.1	14.8	x
<b>Net external debt</b>						
1995 <sup>2)</sup>	– 239.4	– 17,398	10.1	26.5	x	14.2
1996 <sup>2)</sup>	– 214.3	– 15,574	8.7	22.1	x	12.0
1997 <sup>2)</sup>	– 325.5	– 23,655	12.9	30.3	x	15.7
1998 <sup>2)</sup>	– 478.5	– 34,774	18.3	40.8	x	20.4
1999 <sup>3)</sup>	– 674.1	– 48,990	25.1	54.6	x	22.4

Source: OeNB.

<sup>1)</sup> Irrevocable euro conversion rate: EUR 1 = ATS 13.7603.

<sup>2)</sup> Final data.

<sup>3)</sup> Revised data.

Table 3

**Austria's International Investment Position – Change in the Position**

	1998 end-of-period stocks <sup>1)</sup>	1999 annual changes					1999 end-of-period stocks <sup>2)</sup>
		total	transactions	other changes in assets			
				total	price and exchange rate changes	other adjustments	
		<i>EUR million<sup>3)</sup></i>					
Direct investment	+ 15,986	+ 3,001	+ 2,577	+ 424	x	x	+ 18,987
Portfolio investment	+ 50,154	+41,525	+26,510	+15,015	+6,418	+8,597	+ 91,679
Other investment	+ 77,651	+10,850	+ 6,750	+ 4,099	+5,071	- 971	+ 88,501
Financial derivatives	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0
Reserve assets	+ 22,619	- 3,672	- 1,964	- 1,708	+2,758	-4,466	+ 18,947
External assets	+166,410	+51,704	+33,874	+17,830	x	x	+218,114
Direct investment	+ 20,349	+ 2,744	+ 2,703	+ 41	x	x	+ 23,093
Portfolio investment	+103,871	+34,321	+24,449	+ 9,872	+1,400	+8,471	+138,192
Other investment	+ 77,717	+16,919	+12,242	+ 4,677	+5,605	- 928	+ 94,636
Financial derivatives	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0
External liabilities	+201,937	+53,984	+39,394	+14,590	x	x	+255,921
Direct investment	- 4,363	+ 257	- 126	+ 383	x	x	- 4,106
Portfolio investment	- 53,717	+ 7,203	+ 2,061	+ 5,143	+5,017	+ 125	- 46,514
Other investment	- 66	- 6,069	- 5,491	- 578	- 535	- 43	- 6,135
Financial derivatives	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0	+ 0
Reserve assets	+ 22,619	- 3,672	- 1,964	- 1,708	+2,758	-4,466	+ 18,947
Net international investment position	- 35,527	- 2,280	- 5,520	+ 3,240	x	x	- 37,807

Source: OeNB.

<sup>1)</sup> Final data.

<sup>2)</sup> Revised data.

<sup>3)</sup> Irrevocable euro conversion rate: EUR 1 = ATS 13.7603. Differences are due to rounding.

AUSTRIA'S INTERNATIONAL INVESTMENT POSITION  
IN 1999

Table 4

**Austria's International Investment Position – Regional Breakdown**

1999 end-of-period stocks<sup>1)</sup>

total	vis-à-vis EU-15	vis-à-vis the euro area	thereof vis-à-vis Germany	vis-à-vis non-euro area residents	thereof vis-à-vis Central and Eastern Europe	thereof vis-à-vis the U.S.A.
<i>EUR million<sup>2)</sup></i>						
Direct investment	18,987	7,793	5,304	2,444	13,683	1,400
Portfolio investment	91,679	62,606	53,285	30,053	38,394	10,414
Equity securities	28,802	17,250	15,195	6,473	13,607	5,475
Debt securities	62,877	45,356	38,090	23,580	24,787	4,939
Other investment	88,501	39,800	28,722	10,128	59,779	6,133
<i>thereof currency and deposits</i>	31,299	23,062	15,032	2,968	16,267	2,968
Financial derivatives	0	0	0	0	0	0
Reserve assets	18,947	x	0	0	18,947	x
External assets	218,114	x	87,311	42,625	130,803	x
Direct investment	23,093	15,912	14,607	9,877	8,486	1,270
Portfolio investment	138,192	x	x	x	x	x
Other investment	94,636	52,000	38,037	18,156	56,599	7,218
<i>thereof currency and deposits</i>	75,227	44,497	32,297	14,371	42,930	4,543
Financial derivatives	0	0	0	0	0	0
External liabilities	255,921	x	x	x	x	x

Source: OeNB.

<sup>1)</sup> Revised data.

<sup>2)</sup> Irrevocable euro conversion rate: 1 EUR = ATS 13.7603. Differences are due to rounding.

Table 5

**Austria's International Investment Position –**

**Maturity Breakdown (Original Maturities)**

	1998 <sup>1)</sup>			1999 <sup>2)</sup>		
	total	short-term	long-term	total	short-term	long-term
<i>End-of-period stocks in EUR million<sup>3)</sup></i>						
Direct investment	1,649	0	1,649	1,572	0	1,572
Portfolio investment	35,448	555	34,894	62,877	1,782	61,095
Other investment	76,804	50,655	26,149	87,394	56,645	30,749
Financial derivatives	0	0	0	0	0	0
Reserve assets	21,376	7,975	13,402	17,890	6,349	11,541
External assets	135,278	59,185	76,093	169,733	64,776	104,957
Direct investment	508	0	508	573	0	573
Portfolio investment	90,534	3,642	86,892	123,515	7,306	116,209
Other investment	79,009	67,826	11,183	94,636	82,336	12,300
Financial derivatives	0	0	0	0	0	0
External liabilities	170,051	71,468	98,583	218,723	89,642	129,082
Net international investment position	- 34,774	- 12,284	-22,490	- 48,990	-4,866	- 24,125
<i>Maturity bonds in % of total</i>						
Direct investment	100.0	0.0	100.0	100.0	0.0	100.0
Portfolio investment	100.0	1.6	98.4	100.0	2.8	97.2
Other investment	100.0	66.0	34.0	100.0	64.8	35.2
Financial derivatives	x	x	x	x	x	x
Reserve assets	100.0	37.3	62.7	100.0	35.5	64.5
External assets	100.0	43.8	56.2	100.0	38.2	61.8
Direct investment	100.0	0.0	100.0	100.0	0.0	100.0
Portfolio investment	100.0	4.0	96.0	100.0	5.9	94.1
Other investment	100.0	85.8	14.2	100.0	87.0	13.0
Financial derivatives	x	x	x	x	x	x
External liabilities	100.0	42.0	58.0	100.0	41.0	59.0
Net international investment position	100.0	35.3	64.7	100.0	50.8	49.2

Source: OeNB.

<sup>1)</sup> Final data

<sup>2)</sup> Revised data.

<sup>3)</sup> Irrevocable euro conversion rate: 1 EUR = ATS 13.7603. Differences are due to rounding.

Table 6

**Austria's International Investment Position – Sectoral breakdown**

	1995 <sup>1)</sup>	1996 <sup>1)</sup>	1997 <sup>1)</sup>	1998 <sup>1)</sup>	1999 <sup>2)</sup>
<i>End-of-period stocks in EUR million<sup>3)</sup></i>					
<b>External assets and liabilities</b>					
OeNB	+ 19,077	+ 21,311	+ 20,792	+ 23,647	+ 23,017
General government	+ 1,084	+ 1,309	+ 2,246	+ 2,667	+ 2,269
Banks	+ 67,477	+ 71,283	+ 81,186	+ 81,468	+102,028
Other sectors	+ 29,915	+ 35,898	+ 48,377	+ 58,628	+ 90,800
Other financial institutions	x	x	+ 18,461	+ 25,522	+ 47,664
Nonfinancial corporations	x	x	+ 22,227	+ 24,937	+ 32,652
Households	x	x	+ 7,689	+ 8,170	+ 10,484
External assets	+117,553	+129,801	+152,601	+166,410	+218,114
OeNB	+ 14	+ 7	+ 0	+ 0	+ 836
General government	+ 32,177	+ 31,728	+ 36,525	+ 50,291	+ 67,304
Banks	+ 72,689	+ 81,786	+ 98,265	+103,489	+132,177
Other sectors	+ 34,264	+ 38,363	+ 47,832	+ 48,158	+ 55,604
Other financial institutions	x	x	+ 9,714	+ 8,858	+ 8,883
Nonfinancial corporations	x	x	+ 37,551	+ 39,206	+ 46,542
Households	x	x	+ 567	+ 94	+ 179
External liabilities	+139,144	+151,884	+182,622	+201,937	+255,921
OeNB	+ 19,063	+ 21,305	+ 20,792	+ 23,647	+ 22,180
General government	- 31,093	- 30,420	- 34,280	- 47,624	- 65,035
Banks	- 5,212	- 10,503	- 17,078	- 22,021	- 30,149
Other sectors	- 4,349	- 2,465	+ 545	+ 10,471	+ 35,196
Other financial institutions	x	x	+ 8,747	+ 16,664	+ 38,781
Nonfinancial corporations	x	x	- 15,324	- 14,269	- 13,890
Households	x	x	+ 7,122	+ 8,076	+ 10,305
Net international investment position	- 21,591	- 22,083	- 30,021	- 35,527	- 37,807
<b>Nonequity assets and liabilities</b>					
OeNB	+ 18,577	+ 20,667	+ 19,272	+ 21,591	+ 20,515
General government	+ 365	+ 381	+ 1,068	+ 1,586	+ 1,159
Banks	+ 66,254	+ 69,884	+ 78,713	+ 79,060	+ 97,419
Other sectors	+ 19,905	+ 23,515	+ 28,531	+ 33,041	+ 50,641
Other financial institutions	x	x	+ 12,939	+ 17,699	+ 31,768
Nonfinancial corporations	x	x	+ 11,567	+ 11,574	+ 15,214
Households	x	x	+ 4,026	+ 3,768	+ 3,659
Nonequity assets	+105,100	+114,448	+127,585	+135,278	+169,733
OeNB	+ 14	+ 7	+ 0	+ 0	+ 838
General government	+ 32,177	+ 31,728	+ 37,812	+ 50,373	+ 67,410
Banks	+ 71,769	+ 80,224	+ 94,891	+ 99,013	+127,557
Other sectors	+ 18,539	+ 18,059	+ 18,909	+ 20,665	+ 22,919
Other financial institutions	x	x	+ 586	+ 544	+ 334
Nonfinancial corporations	x	x	+ 17,757	+ 20,055	+ 22,459
Households	x	x	+ 567	+ 66	+ 125
Nonequity liabilities	+122,499	+130,017	+151,612	+170,051	+218,723
OeNB	+ 18,563	+ 20,661	+ 19,272	+ 21,591	+ 19,677
General government	- 31,812	- 31,348	- 36,743	- 48,787	- 66,252
Banks	- 5,515	- 10,339	- 16,177	- 19,954	- 30,138
Other sectors	+ 1,366	+ 5,457	+ 9,622	+ 12,376	+ 27,722
Other financial institutions	x	x	+ 12,353	+ 17,155	+ 31,434
Nonfinancial corporations	x	x	- 6,190	- 8,481	- 7,246
Households	x	x	+ 3,459	+ 3,702	+ 3,534
Net external debt	- 17,399	- 15,570	- 24,027	- 34,774	- 48,990

Source: OeNB.

<sup>1)</sup> Final data.

<sup>2)</sup> Revised data.

<sup>3)</sup> Irrevocable euro conversion rate: 1 EUR = ATS 13.7603. Differences are due to rounding.

Table 7

**Portfolio Investment in 1999<sup>1)</sup> – Sectoral Breakdown**

	Total	Equity securities			Debt securities		
		total	shares	mutual funds shares	total	bonds and notes	money market instruments
<i>End-of-period stocks in EUR million<sup>2)</sup></i>							
OeNB	5,011	1,448	154	1,294	3,563	2,904	659
General government	201	54	28	26	147	146	1
Banks	25,133	2,529	1,991	537	22,605	21,832	773
Other sectors	61,333	24,771	20,233	4,537	36,562	36,213	349
Other financial institutions	45,907	15,586	14,088	1,499	30,321	30,321	0
Nonfinancial corporations	4,942	2,720	2,047	673	2,222	2,207	15
Households	10,484	6,465	4,098	2,366	4,019	3,685	334
Portfolio investment, assets	91,679	28,802	22,407	6,395	62,877	61,095	1,782
OeNB	x	x	x	x	x	x	x
General government	63,756	x	x	x	63,756	61,600	2,156
Banks	50,975	3,043	3,043	0	47,932	43,385	4,547
Other sectors	23,461	11,634	4,968	6,666	11,827	11,224	602
Other financial institutions	7,822	7,563	897	6,666	259	259	0
Nonfinancial corporations	15,638	4,071	4,071	0	11,567	10,965	602
Households	x	x	x	x	x	x	x
Portfolio investment, liabilities	138,192	14,677	8,011	6,666	123,515	116,209	7,306

Source: OeNB.

<sup>1)</sup> Revised data.

<sup>2)</sup> Irrevocable euro conversion rate: 1 EUR = ATS 13.7603. Differences are due to rounding.

Table 8

**Bridging Table to the Results of the 1998 Direct Investment Survey**

	1998 <sup>1)</sup>
<i>End-of-period stocks in ATS billion</i>	
<b>Assets</b>	
<b>Inward direct investment (IIP)</b>	220.0
less: other capital	
(corresponds to the net creditor position according to the Survey table 1/outward direct investment <sup>2)</sup> )	22.7
Equity capital (IIP)	197.3
less:	
Property abroad	15.4
Reinvested profit in 1998	7.7
<b>Equity capital according to the Survey table 1.1/outward direct investment<sup>2)</sup></b>	174.1
<b>Liabilities</b>	
<b>Outward direct investment (IIP)</b>	280.0
Less other capital	
(corresponds to the net creditor position according to the Survey table 1/inward direct investment <sup>3)</sup> )	7.0
Equity capital (IIP)	273.0
less:	
Property in Austria	4.2
Reinvested profit in 1998	25.3
<b>Equity capital according to the Survey table 1.2/inward direct investment<sup>3)</sup></b>	243.5

Source: OeNB.

<sup>1)</sup> Final data.

<sup>2)</sup> See Direct Investment Survey, supplement to the German-language OeNB statistical monthly "Statistisches Monatsheft" 6/2000, table 1.1/outward direct investment – Austrian direct investment by capital structure and employees.

<sup>3)</sup> See Direct Investment Survey, supplementary tot the German-language OeNB statistical monthly "Statistisches Monatsheft" 6/2000, table 1.2/inward direct investment – foreign direct investment by capital structure and employees.



ON A NEW  
CAPITAL ADEQUACY FRAMEWORK  
AS PROPOSED BY BASEL AND BRUSSELS

# Regulatory Capital Requirements for Austrian Banks – A Supervisory Tool Subject to Change

Johannes Turner

## I Introduction and Definitions

Irrespective of its legal structure, every enterprise must hold equity capital, which may take various forms, and record it in its balance sheet. Pursuant to Article 5 para 5 and Article 22 Austrian Banking Act (ABA),<sup>1)</sup> credit institutions, too, are required to hold own funds. Article 5 para 5 ABA, for instance, stipulates a floor for the initial capital or endowment of banks (in line with the transitional provisions of Article 103 para 9b ABA),<sup>2)</sup> while Article 22 links the amount of own funds or regulatory capital to the risk inherent in a bank's current business operations (exposure).

The terminology used to describe capital and capital requirements is rather complex; the term denoting the various types (or rather tiers) of an enterprise's capital is equity capital, which is sometimes – incorrectly – used as a synonym for own funds, regulatory capital or initial capital.

Article 23 ABA contains a definition of own funds, or capital eligible to be counted towards regulatory capital requirements (eligible own funds). It thus follows that the concept of own funds denotes a much broader spectrum of capital than the concept of equity capital. Equity capital, which is also referred to as capital stock or nominal capital, pursuant to, for instance, Article 6 Stock Corporation Act basically corresponds to the paid-up capital which is at the disposal of the corporation. Not only stock corporations, but also other legal entities may dispose of paid-up capital. Article 23 para 3 ABA defines the composition of paid-up capital for all legal forms a credit institution may take.

Consequently, the nominal capital of an enterprise forms part of its own funds (in the case of a bank), and on the day the enterprise is founded, its equity capital more or less equals the initial capital. Once a bank starts doing business, its own funds may expand, comprising more than just the equity capital. As defined in Article 23 para 1 ABA, own funds are, among other things, made up of hidden reserves, issues and retained earnings as well as various types of reserves.

Depending on the availability and usability of the own funds at hand, a distinction is made between senior capital (tier 1 capital) and subordinated capital (tier 2 capital). Since the transposition of the CAD (Capital Adequacy Directive) into Austrian law, the own funds eligible for regulatory capital requirements may also include specific (short-term) subordinated capital (tier 3 capital).

Subordinated capital may be counted towards senior capital or total own funds only at a certain ratio to tier 1 capital. In this way legislators clearly initiated a trend towards senior capital, as this provision implies that subordinated capital, the amount of which mostly exceeds that of senior capital, may still be counted towards senior capital. Recent trends, which have been observed in particular in the U.K. and the U.S.A., already point towards assigning tier 2 capital a higher rating, on the grounds that this type

<sup>1)</sup> *Bankwesengesetz (BWG).*

<sup>2)</sup> *The Stock Corporation Act, of course, also stipulates minimum capital requirements (Article 7 Stock Corporation Act), which are, however, overruled by the much higher requirements formulated in the Austrian Banking Act for credit institutions organized as stock corporations.*

of capital depends more strongly on the market, which therefore increasingly determines its value.

Given the differentiated grades of own funds, banks are allowed to use only specific types of capital to cover particular banking risks.

## **2 Reasons for Regulatory Capital Requirements**

Credit institutions rank among the economic sectors that are subject to the most stringent regulatory and supervisory provisions. This stringency may be traced to the role credit institutions play as financial intermediaries. On the one hand, the banking system as a whole is key to maintaining national and international confidence in a country's financial market. On the other hand, it is important for microprudential supervision to shield the creditors of any bank from adverse developments. The potential breakdown of other economic sectors could, of course, likewise undermine the confidence in the Austrian financial market, as bankruptcies and insolvency proceedings involving various enterprises have had detrimental effects on the respective creditors. Nevertheless, the circumstances in the banking sector are somewhat more complex than in most of the other sectors of the economy.

For the reasons given below the absence of regulatory and supervisory provisions would result in inadequate creditor protection:

### **Debt-to-equity ratio**

In contrast to e.g. the industrial sector, among credit institutions the debt-to-equity ratio distinctly shifts towards the debt component. To make use of the leverage effect, traditional enterprises must borrow funds, which is rather costly. Thanks to deposit-taking, banks, by virtue of their function as financial intermediaries, may dispose of much more external funds and – what is more – do so at considerably better conditions than in any of the other economic sectors. Conversely, the risk associated with banks' assets is more or less unique. The large number of depositors translates into a sizeable group of creditors with rather little knowledge about the financial situation of the bank on which they have claims.

### **Numerous creditors with comparatively small claims on banks**

The fact that depositors are informed rather poorly results both from their indifference, which is to a certain extent understandable, and from

### **Information asymmetries in accounting standards**

and disclosure requirements. As more and more consolidated financial statements are being drawn up according to the International Accounting Standards (IAS), these asymmetries should be remedied. However, chances are that only the major credit institutions will make use of this option available to groups. It follows, by extension, that comparing credit institutions which rely on varying accounting standards will not produce meaningful results.

### **Collateralization of deposits**

In the banking industry it is not common to secure deposits by collateral, in the same way as claims are generally not collateralized.

In other words, the market, i.e. the depositors, do not optimally control the risks banks undertake. This is why legislators are obliged to adopt laws (e.g. the Austrian Banking Act) and supervisory measures to ensure effective banking supervision, without restricting the bank management in fulfilling its tasks. This delicate balance must be continuously adjusted to attain the following objectives:

- *specific creditor protection* to protect bank creditors from unreasonable losses;
- *sectoral stability* to avoid a collapse of the banking sector.

To this end, legislators lay down numerous regulations centering on the capital requirements applicable to credit institutions. Such regulations stipulating capital requirements may be broken down into two categories:

- the *central regulatory provisions on own funds* and
- the *supplementary regulatory capital requirements* consisting in targeted measures (capital ratios) such as limits on large exposures, limits on participations.

These regulations are designed to map the amount of own funds to the risk inherent in the business transactions effected (indirect creditor protection by putting limits on risk) as well as to create an assets buffer to cover potential loss and thus ensure compliance with liability provisions (direct creditor protection).

It is obvious that the higher the capital, the easier it is for an enterprise to neutralize financing problems. Particularly the availability of a high volume of funds which are not likely to be withdrawn helps control cash flows. All told, the regulatory capital requirements have a downside, too, which will be touched upon later in this study, namely the widening disparity between economic and regulatory capital. Capital backing which is not differentiated enough and resulting capital misallocations quickly lead to opportunity cost, loss of income and distorted risk measures. Especially at the international level, enhancing the regulatory framework, notably regulatory capital requirements, and adapting the regulations to changing market conditions has been a perennial goal. The following section highlights this evolutionary process of the regulatory framework by taking the reader back several decades. These developments also lie at the heart of the current discussions about capital adequacy (see also the other focus studies in this issue).

### **3 History of Banking Legislation in Austria**

Specifically Austrian banking legislation was first introduced in the year 1979. In other words, only since March 1, 1979, have banks operating in this country been governed by a legal framework explicitly tailored to Austrian conditions. The 1979 laws superseded the German Banking Act<sup>1</sup> of September 25, 1939, and any amendments thereof. Prior to the

<sup>1</sup> *Kreditwesengesetz (KWG).*

enactment of the German Banking Act, individual regulations (e.g. the Regulation on Banking Licenses of July 17, 1925) as well as special laws (Credit-Anstalt Act) applied to the conduct of banking business.

#### **September 25, 1939 – German Banking Act**

The concept of liable capital first cropped up in the German Banking Act, even though e.g. the Mortgage Bank Act (which restricted the issue of mortgage bonds to a specified share of nominal capital) already included similar provisions. The German Banking Act was first to define in detail which capital was eligible from the supervisory standpoint and was consequently referred to in structural regulations. The latter comprised a maturity matching rule (liabilities not backed by liquid funds were limited to a specified ratio of equity capital), a liquidity rule (stipulating that the book value of participations and property must not exceed equity capital) and, if you will, a precursor of a large exposures rule.

#### **March 1, 1979 – first Austrian Banking Act**

The first Austrian Banking Act (ABA) closely mirrored the German Banking Act it superseded, not only in its definition of own funds (Article 12 para 2 German Banking Act on liable capital). Own funds accordingly corresponded to liable capital plus specified further collective provisions. As to structural rules, the act included a maturity matching rule (own funds must equal a minimum 4% of liabilities not backed by liquid funds), a solvency standard (the book value of participations and property was not to exceed 100% of own funds) and a kind of large exposures rule (any individual large exposure was not to exceed 5 to 7.5% of total liabilities).

As regulatory capital was calculated merely on the basis of part of the balance sheet total, namely the liabilities side only, the capital level of Austrian banks was rather low compared to that in other countries. A study published by the OECD drew special attention to the need to improve the capital adequacy of Austrian banks, showing that their basic ratio of equity capital to balance sheet total had slipped from about 6 to 2.5% from 1960 to 1983.

#### **January 1, 1986 – amendment to the Austrian Banking Act**

The 1986 amendment to the Banking Act changed the existing law in a fundamental way. In fact, this amendment centered on tightening the regulatory capital requirements, which – as a first – introduced participation and supplementary capital in addition to equity capital while at the same time reducing lower-grade capital. Moreover, the amendment brought both more stringent and new provisions on capturing particular banking risks (large exposures, solvency, open currency positions, investment limits). This was in line with the international trend of subjecting the ever more complex risks of the banking business to stricter regulatory capital requirements. At the same time, banks were encouraged to stock up on regulatory capital. In 1986, the first mention of “liable capital” in this context was made in the amended Article 12 ABA.

What is more, regulatory capital was to be calculated relative to the assets side, with liable capital at all times equaling 4.5% of total assets. Besides, the regulatory capital requirements for the first time factored in off-balance-sheet transactions (at a ratio of 2.25%), which are also known as contingent liabilities.

#### **January 1, 1994 – adoption of New Banking Act**

Soon after the 1986 amendment to the Banking Act introduced comprehensive changes, it became imperative to respond to the rapid internationalization by incorporating European community law (e.g. the Solvency Ratio Directive, the Own Funds Directive) into a new legal framework for banks – thus the new Banking Act<sup>1)</sup> was hammered out. Changing the way own funds are composed and calculated, the new legislation referred to “eligible own funds,” i.e. core capital and supplementary capital (at a one-to-one ratio) and laid down a number of structural rules, among others a minimum solvency ratio of eligible own funds to risk-weighted assets (on- and off-balance-sheet) of 8%. The capital was to be weighted in accordance with the respective counterparty (borrower); the solvency ratio also applied to consolidated accounts.

#### **January 1, 1996**

During the first two years since its enactment, the Austrian Banking Act was amended several times, but the implementation of the Capital Adequacy Directive was a particularly noteworthy milestone for regulatory capital. The definition of own funds was expanded once again to include tier 3 capital. Furthermore, regulatory capital was also to pertain to market risk (in the trading book and foreign exchange risk in general) and to be accounted for in the solvency ratio by a building block approach. This approach for the first time considered price risks (the limits of open foreign exchange positions notwithstanding) and shifted the focus away from the exclusive concentration on credit risk.

Given the changes in the ratios applicable to eligible own funds and the use of specific types of capital to cover predefined risk categories, it became more and more difficult to define and calculate one uniform capital ratio which was meaningful and lent itself to international comparisons (for suggestions, see section 4).

#### **Short-term perspectives**

In the international arena, various working groups have concerned themselves with advancing the legislation governing banking supervision. Regulatory capital requirements and associated structural rules continue to be the cornerstone of the pertinent laws. The special studies contained in this issue of Focus on Austria touch upon topics and discussions related to a new capital accord which might shape the immediate future.

Another topical discussion revolves around IAS 39, the international standard on the recognition and measurement of financial instruments.

<sup>1</sup> *Bankwesengesetz (BWG).*

As this standard also allows for fair value accounting via booking entries directly in the equity capital account, the implementation of IAS 39 is expected to lead to greater fluctuations in own funds, which thus become harder to calculate in advance. Recognition of such increases (but also reductions) of equity capital for regulatory capital purposes are under discussion worldwide; the entire standard has not yet been fully interpreted.

#### 4 Data Examples and Measures - Computing Problems

The table below shows the developments in Austrian banks' capital levels against their total assets, both on an unconsolidated basis. To put the capital base against total assets is the only way to illustrate capital developments over time, even though this measure does not indicate whether the regulatory capital requirement was met or not.

<b>Austrian Banks' Capital Levels</b>			
	Capital level <sup>1)</sup>	Total assets	Ratio
	ATS million		%
1960	5,124	93,058	5.5
1970	16,536	351,925	4.7
1980	51,407	1,858,724	2.8
1982	58,858	2,357,483	2.5
1987	124,138	3,419,130	3.6
1988	143,545	3,617,329	3.9
1989	164,131	3,830,858	4.3
1990	182,969	4,040,476	4.5
1991	196,254	4,276,192	4.6
1992	213,113	4,540,454	4.7
1993	227,833	4,826,676	4.7
1994	295,916	5,078,727	5.8
1995	315,188	5,382,997	5.9
1996	346,672	5,650,976	6.1
1997	396,212	6,000,229	6.6
1998	457,129	6,616,768	6.9
1999	483,816	7,219,129	6.7

Source: OeNB.

<sup>1)</sup> Pursuant to the legal stipulations effective at the respective time.

The data illustrate how the various amendments impacted the banks' capital levels and what tendencies the legal changes triggered. Into the early 1980s, for instance, the capital levels were on a continuous decline. Following the 1986 amendment to the Austrian Banking Act they embarked on a more or less steady climb, with today's levels basically in line with international figures.

All in all, Austrian banks' capital backing may be deemed adequate and satisfactory. The risk provisions of the recent past did not – as reported by some major international financial newspapers – pose any solvency problems for Austria's credit institutions.

In light of the building block approach towards regulatory capital requirements and the differentiated use of individual own funds components, the methods applied to the computation of capital ratios differ greatly and the data do not really lend themselves to comparisons. Therefore, a more thorough analysis seems useful. The following selection of measures

(each of which has already been referred to in the recent literature) serves this purpose. This list of measures is not exhaustive.

1. *Capital ratio = (tier 1 + eligible tier 2)/assessment base*

The advantage of this measure is that it is fairly easy to calculate; in its composition it corresponds to the former solvency measure. On the downside, this capital ratio neglects the price risks referred to in the Capital Adequacy Directive.

2. *Capital ratio = own funds/assessment base*

This capital ratio is also relatively easy to calculate. However, this measure is not really very informative, since the assessment bases in line with the Austrian Banking Act only factor in solvency and do not account for any price risks, while the numerator in this equation considers all types of own funds (including tier 3, which may only be applied to the hedging of price risks).

3. *Capital ratio = (own funds – market risk charge)/assessment base*

While this measure at least takes into account credit and price risks, the various uses of the own funds components remain unaccounted for.

4. *Capital ratio = own funds/(assessment base + 12.5 x market risk charge)*

This measure also considers credit and price risks and does not factor in the different uses of own funds components either. For the measure to equal the 8% level of the traditional solvency ratio, the charge applied to the market risk is transferred to the denominator and multiplied by 12.5.

5. *Capital ratio = (eligible own funds + [MIN {tier 3 – market risk charge; 0}])/assessment base*

This fifth capital ratio<sup>1)</sup> appears to be the only measure to meet all the legal requirements and to allow for comparability. First of all, this equation tries to determine whether the tier 3 capital available is sufficient to cover the market risk. Excessive tier 3 capital is set to zero, as this type of capital must not be counted towards any other capital charges. If the tier 3 capital available (inclusive of tier 2 capital reassigned in accordance with the ABA) is not sufficient, the remaining difference in the market risk charge is subtracted from the eligible own funds. Only then is the solvency coefficient calculated. This methodology producing solvency measures which are adjusted for the market risk makes it possible to compare the values obtained across all kinds of credit institutions.

Values obtained as at December 31, 1999, help differentiate the measures explained above:

Method	Measure 1	Measure 2	Measure 3	Measure 4	Measure 5
Ratio in %	13.69	13.93	13.47	13.17	13.05

As was to be expected, the second measure yields the highest ratio (since all tiers of own funds are considered), while the fifth measure, which rests on the most restrictive computational method, produces the lowest value. Overall, the individual measures are not highly divergent. This is ascribable to the capital charge applicable to market risk, which is low by

1 This ratio was devised by the Banking Analysis and Inspections Divisions of the OeNB.

comparison to solvency. Besides, most credit institutions have sufficient tier 2 capital at their disposal to meet the market risk charge. It is nevertheless essential to provide precise definitions for these measures, in particular as solo bank evaluations sometimes produce substantial deviations and as they affect the capital charge in case the building block approach is extended further.

## 5 Outlook and Concluding Remarks

Supervisory practice has shown that risks may only be captured by regulatory capital requirements, provided adequate quantitative measures are found to assess those risks. Regulatory capital requirements have evolved over time owing mainly to these two factors:

- international harmonization and
- the development of banking products, risk management and associated quantitative measures.

International harmonization of the laws pertaining to banking supervision as well as to accounting policies is continuously under way to increasingly level the playing field across borders (also for nonbanks) and to counteract regulatory capital arbitrage.

The development of new banking products, especially in the derivatives industry, and ensuing new risks necessitate ever more complex calculation methods, new approaches to risk management and the finetuning, optimization and adequacy of existing regulations and reporting requirements.

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<sup>1</sup> The English version of OeNB statistics (Focus on Statistics) is available at the OeNB web site [http://www.oenb.at/stat-monatsheft/englisch/state\\_p.htm](http://www.oenb.at/stat-monatsheft/englisch/state_p.htm).

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## I Introduction

Supervisory review (by which is meant the review of the adequacy of capital requirements at an individual bank by the supervisory authority) is an essential part of the new capital adequacy framework, complementing and linking the other two pillars – minimum capital requirements and market discipline. The key innovations proposed by the new capital standards, which are discussed in detail in this study, comprise the possibility of applying differentiated regulatory capital requirements, increased consistency between a bank's capital and its overall risk profile, and the provision for early supervisory intervention, when a bank's capital ratio declines but still exceeds 8%.

The Basel Capital Accord of 1988 introduced the concept of supervisory review. The idea was, however, presented in a rather subtle way and did not consequently form part of the Accord's implementation at the EU level. The 1988 Accord already emphasized that "*Capital adequacy as measured by the present framework, though important, is one of a number of factors to be taken into account when assessing the strength of banks.*"<sup>2)</sup>

As early as 1975, the first chairman of the Basel Committee on Banking Supervision, Sir George Blunden, considered a capital ratio "*valuable as a yardstick, not a categorical imperative,*" which was to say that the capital ratio was only one of a number of factors which are essential to make prudential supervision effective.

In June 1999, the Basel Committee – followed by the European Commission in November 1999 – made supervisory review an essential part of their consultative papers on a new capital adequacy framework. The supervisory review process presented in the proposals reflects an extension of such procedures, which may already be found in all EU and G-10 countries, if to varying degrees.

Before discussing the concept of supervisory review, we will present a number of interesting findings from papers written on the implications of the Basel Accord since its introduction in 1988.

## 2 Impact of the 1988 Basel Capital Accord<sup>3)</sup>

In recent years, numerous studies have investigated the impact of the 1988 Basel Accord, which for the first time introduced risk-weighted regulatory capital requirements,<sup>4)</sup> on banks' actual capital levels. Several studies came to the conclusion that G-10 banks raised their capital ratios on account of the Accord.

A comprehensive research paper by the Basel Committee<sup>5)</sup> states that the average capital ratio of large G-10 banks increased from 9.3% in 1988 to 11.2% in 1996. One reason for the increase in capital ratios

1 Since the further development of supervisory review is the subject of ongoing discussions in Basel and Brussels, this study reflects the "work in progress" and not a finalized new framework. What is more, it describes current European developments without anticipating the actual implementation in Austria.

2 Basel Committee on Banking Supervision (1988), p. 4, paragraph 8.

3 Basel Committee on Banking Supervision (1988).

4 The capital that banks must hold is calculated as a percentage of the risk-weighted assessment basis.

5 Basel Committee on Banking Supervision Working Papers, Capital Requirements and Bank Behaviour (1999).

was that banks tended to raise capital during economic upswings, while reducing their capital base in times of recession. One-size-fits-all, i.e. nondifferentiated, risk weights indeed caused banks to shift to riskier (and more profitable) assets within the same weighting band. Kim and Santomero had already described such an effect in 1988.<sup>1)</sup> Given the scarcity of comparable data, the academic literature on this subject is very limited.

Some papers<sup>2)</sup> suggest that the Basel Accord caused American banks to substitute towards less risky assets. These results are, however, disputed by other authors, who claim that banks' internal capital targets triggered such shifts.<sup>3)</sup>

A British paper<sup>4)</sup> elaborated on these American studies and, using supervisory data on 94 U.K. banks over the period 1989 to 1995, focused on

- the impact of regulatory pressure on banks' capital strategy when their capital ratios begin to fall and
- adjustments made to balance sheet positions in order to boost relative capital ratio levels.

The paper revealed that during that period, regulatory capital requirements had a greater impact on bank behavior than internal capital targets. Supervisory review, however, aims rather at encouraging banks to make their own calculation of adequate capital levels and align these with regulatory capital requirements. The paper also found that U.K. banks adapted their capital ratios mainly by boosting their capital levels and not through a systematic shift towards less risky assets. Ediz, Michael and Perraudin deemed regulatory capital requirements an attractive and efficient instrument for raising the stability of the financial system.

According to the Basel Working Paper,<sup>5)</sup> it is very difficult to draw any firm conclusions about any connection between the impact of minimum capital requirements and the competitive position of banks, since competitiveness seems to be rather independent of regulatory measures over the long term. The papers analyzed did not clarify whether the Accord leveled the competitive playing field for banks. International differences in accounting regulations and the cost of capital might have had a greater role to play. The findings of these papers are certainly relevant to the new capital adequacy framework under discussion.

1 Kim, D. and A. Santomero (1988), pp. 1219–1233.

2 Hall, B. (1993); Haubrich, J. G. and P. Wachtel (1993); Calem, P. S. and R. Rob (1996); and Thakor, A. V. (1996).

3 Hancock, D. and J. Wilcox (1993).

4 Ediz T., I. Michael and W. Perraudin (1998).

5 Basel Committee on Banking Supervision Working Papers, *Capital Requirements and Bank Behaviour* (1999).

### 3 Fundamental Principles of Supervisory Review

The central principle of supervisory review is that not even the most comprehensive list of regulations governing minimum capital requirements can adequately cover all potential risks a bank, let alone a complex banking group, is exposed to. In this vein, the current chairman of the Basel Committee, William J. MacDonough, expressed the necessity for a new capital adequacy framework, “to better align regulatory capital requirements to underlying risks and to recognise the improvements in risk management and control.”<sup>1)</sup>

Following the Anglo-American model, the philosophy of banking supervision has been gradually moving from formal rules towards greater individualization, with a stronger emphasis on the supervision of individual banks according to banks’ risk profiles. The Basel Core Principles for Effective Banking Supervision, published in September 1997, expressed this shift clearly: “Effective banking supervision requires that the risk profile of individual banks be assessed (...); supervisors must ensure that banks have resources appropriate to undertake risks, including adequate capital, sound management, and effective control systems and accounting records.”<sup>2)</sup>

Some of the main reasons why the concept of supervisory review has been developed further and in a more definite way are listed below:

- There is a limit to the number and types of risks that may be adequately covered by general regulatory requirements. For every regulatory requirement, there is a way of getting around it, a process that is referred to as “gaming.”<sup>3)</sup> This is all the more important, since it is the long-term objective of the new framework to reduce or, ideally, eliminate the difference between economic capital (capital deemed to be economically essential on account of the risk profile) and regulatory capital (flat rate capital charges).
- The risk a bank or the financial system is exposed to is not limited to on- or off-balance-sheet positions. The actual risk is dependent primarily on the quality of the risk management systems and the management capabilities of the board of directors. Capital requirements cannot take the place of sound risk management. Thus, risk management and internal controls should be the main focus of capital adequacy reviews. Supervisors should, therefore, not only ensure that banks and investment firms have adequate resources to cover their risks, but also encourage them to develop and implement better risk management and control systems.<sup>4)</sup> Improved risk management and controls should be recognized by supervisors, not least on account of the fact that such improvements might also reduce systemic risk.
- In addition, supervisors are encouraged to use their own resources efficiently by focusing their activities, such as examinations and analyses,

1 Quotation from the lecture by Claes Norgren “A New Capital Adequacy Framework” at the 22<sup>nd</sup> SUERF Conference in Vienna, April 2000.

2 Basel Committee on Banking Supervision, *Core Principles for Effective Banking Supervision* (1997), p. 9.

3 Benink, H. and C. Wihlborg (2000), p. 5 ff.

4 EU Consultation Document (1999).

on banks requiring special supervisory attention (e.g. institutions that are systemically relevant, complex or not well diversified).

Supervisory review is primarily intended to be a practical tool of banking supervision, but by no means an instrument for shadow management by the supervisory authority. Banking supervision should not replace a bank's management nor its internal controls. On the one hand, a precise and unambiguous definition of the supervisory review criteria is essential. A too general formulation of regulations or standards might lead to excessive differences in the quality and accuracy of banks' risk management practices. On the other hand, a certain amount of flexibility in handling these criteria seems necessary, for instance in order to allow for the application of supervisory principles to new types of business.

#### **4 Brief Review of the Current Legal Situation According to the Austrian Banking Act<sup>1)</sup>**

As set out in Article 22 para 1 of the Austrian Banking Act (ABA), each credit institution and each group of credit institutions is at any time required to hold capital of at least 8% of the assessment basis.<sup>2)</sup> The Federal Minister of Finance may issue a regulation to increase this level to 8.5% if this is in the national economic interest, i.e. ensures the soundness of the banking system. However, such an increase must apply to all banks simultaneously.

The minimum capital requirement of 8% is not a microeconomic recommendation, but a floor to which certain supervisory sanctions are directly linked. The capital target should be well above the regulatory minimum in order to avoid a decline to below the level of 8% should the nature of a bank's business change.<sup>3)</sup>

The current Austrian legislation does not provide for the application of differentiated capital requirements in excess of 8% to individual banks.

Article 39 ABA already contains material provisions which tie in neatly with the concept of supervisory review. The duty of diligence commits managers of credit institutions to get acquainted with particular banking and operational risks, to adequately contain such risks and to take into account parallel risks. Bank managers are explicitly required to consider the security of third-party monies and the maintenance of capital levels when engaging in new transactions the risks of which are also new to the bank.

#### **5 The Core Principles of Supervisory Review**

According to the Basel Committee's New Capital Adequacy Framework of June 1999<sup>4)</sup> the supervisory review process of a bank's capital adequacy rests on four basic principles:

<sup>1)</sup> *Bankwesengesetz (BWG).*

<sup>2)</sup> *Additional capital requirements apply pursuant to Article 26 para 1 ABA (open foreign exchange positions), Article 22b para 1 ABA (trading book) and Article 29 ABA (if the limits for qualifying participations are exceeded).*

<sup>3)</sup> *Chini, L. and G. Frölichsthal (1997), p. 127.*

<sup>4)</sup> *Basel Committee on Banking Supervision, A New Capital Adequacy Framework (1999), p. 53.*

### The Four Basel Principles

- *Principle 1: Supervisors expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum.*
- *Principle 2: A bank should have a process for assessing its overall capital adequacy in relation to its risk profile, as well as a strategy for maintaining its capital levels.*
- *Principle 3: Supervisors should review and evaluate a bank's internal capital adequacy assessment and strategy, as well as its compliance with regulatory capital ratios.*
- *Principle 4: Supervisors should seek to intervene at an early stage to prevent capital from falling below prudent levels.*

These four principles form the basis for the supervisory review discussion at the EU level.

#### Present State of Discussion in Brussels

The three principles, which are set out below, are currently being discussed in Brussels.<sup>1)</sup> The EU intends to provide supervisors with the relevant powers by adopting either two or all three of these principles in an EU directive.

These provisions would be complemented by explanatory notes, which may be adapted in a timely and flexible manner in response to new developments in risk management and supervisory practice.

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*Draft EU Article 1: Competent authorities must be able to require individual institutions to hold capital in excess of the basic minimum requirement appropriate to its risk profile and the adequacy of its controls.*

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A key innovation is that supervisors should have the power to set individual capital requirements appropriate to a bank's risk profile – in contrast to the current flat capital charge of 8% (including market risk). The present intention is to maintain a minimum capital ratio of 8%.

This provision is to provide national authorities with the legal power to set higher capital charges. Although this principle was laid down in Article 10 of the Solvency Ratio Directive (“the competent authorities may prescribe higher minimum ratios as they consider appropriate”), it has to date been implemented in only a few Member States. The possibility of setting higher capital requirements for individual banks is to be introduced on account of the differences in banks' risk profiles. The range of banks which will be subject to this provision, however, has still to be determined (see also section 6).

The intention of this provision is not to apply a second capital charge for risks that have already been accounted for by pillar 1 (minimum capital requirements). Rather, it targets the removal of imbalances in capital adequacy that cannot be achieved by flat capital charges, and seeks clearer

<sup>1</sup> EU Consultation Document (1999).

alignment with a bank's individual situation, e.g. with regard to diversification, mergers, management systems, risk strategies, type and volatility of earnings.

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*Draft EU Article 2: An institution must be able to satisfy the competent authorities that it has in place an appropriate process for assessing its risk profile and its capital adequacy, and a strategy for maintaining capital adequacy.*

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This provision is designed to implement the Basel principles 2 and 3 mentioned above. In general, more emphasis is to be placed on the consistency between a bank's risk profile and its capital, including its capital strategies, and also on the question of whether the same risks are always dealt with in the same way. The long-term aim is to bridge the gap that typically exists between regulatory and economic capital (see also section 6.2). Capital strategies are to gain importance in order for banks also to avoid undercapitalization in the medium and long term and to operate at prudent capital levels.

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*Draft EU Article 3: Early supervisory intervention shall be possible when the capital ratio begins to fall, but is still above 8%.*

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Draft article 3 corresponds to Basel principle 4. Banks often hold capital in excess of the minimum requirements. In this way they provide for planned business growth and/or preempt the need for sudden capital injections in times of capital market stress. Besides, a certain capital level is required to support higher risk tolerance, obtain a particular rating and ensure lower refinancing costs. The increasingly important marking-to-market method (e.g. with regard to the International Accounting Standards) also requires a capital buffer as a cushion against unexpected market fluctuations.

The idea behind Article 3 is that – in line with the concept of early intervention – banking supervisors should be able to require banks to bring their risky assets into line with the level of their capital base. They should also have the right to raise capital charges, even if the capital ratio, while trending downwards, is still above the required minimum.

The question of whether this provision is to be explicitly enshrined in the new framework is currently under discussion. Some supervisors feel they already possess sufficient authority to deal with deteriorating capital levels, others are in favor of being provided with formal powers to do so. In some countries early intervention has already been implemented. If a bank's capital ratio declines sharply, it is the objective of supervisory review to enable the competent authorities to intervene at an early stage, before problems become critical.

## 6 Unsolved Questions and Problems of Implementation

### 6.1 Worldwide Implementation of the New Basel Accord

The Basel Accord is addressed to the G-10 countries. It has, however, also been implemented in many other countries, some outside the EU. Hence the problem of the consistent implementation of supervisory review procedures arises in all the countries where the 1988 Accord has been implemented. In addition to resource problems, several countries are faced with deficiencies in the number and qualifications of supervisory personnel as well as legal and political problems that might hamper the implementation of supervisory review.

### 6.2 All Banks versus System-Relevant, Internationally Active and Highly Complex Banks

The Basel Accord is geared towards large internationally active banks, with its provisions having the status of recommendations. Brussels, on the other hand, is discussing incorporating the new principles into an EU directive, which must be transposed into national law by all 15 Member States. The Commission is therefore considering limiting the scope of the supervisory review, including differentiated capital requirements, to systemically relevant and/or highly complex banks and banking groups. EU banks and supervisors have to resolve the basic issue of limited resources and determine in how far it is appropriate and efficient to extend the entire supervisory review process, including differentiated capital requirements, to all banks, or in how far a distinction should be made between various types of credit institutions.<sup>1)</sup> This issue is especially important in countries with a large number of banks (see the table below).

<b>Number of Credit Institutions in the EU</b>				
	1990	1995	1996	1997
Germany	4,720	3,785	3,675	3,578
France	2,027	1,469	1,407	1,299
Austria	1,210	1,041	1,019	995
Italy	1,156	970	937	935
United Kingdom	..	564	550	551
Spain	696	506	458	416
Finland	529	381	373	371
Sweden	704	249	237	242
Portugal	260	233	228	235
Luxembourg	177	220	221	215
Belgium	157	145	141	134
Denmark	124	122	125	100
Netherlands	111	102	101	90
Ireland	48	56	62	70
Greece	39	53	55	54
EU total	11,958	9,896	9,589	9,285

Source: European Central Bank.

### 6.3 Legal Problems

In general, greater flexibility and a more individual approach are desirable. In this respect, however, the Anglo-American philosophy and Continental European legal tradition do not appear to be very compatible. In Austria,

<sup>1</sup> EU Consultation Document (1999), p. 6 f.

too, constitutional law requires that statutory provisions be phrased as precisely as possible for reasons of legal certainty. Thus, it will be preferable for legal reasons to integrate the basic principles into a legally binding directive. Otherwise EU-wide implementation might not be guaranteed, which might further distort competition and increase regulatory arbitrage.<sup>1)</sup>

#### **6.4 Full versus Partial Implementation of Supervisory Review**

Principle 1 (differentiated capital requirements) is dependent on the implementation of principle 2 (consistency of capital and risk, including capital strategy). The application of the latter, however, does not depend on principle 1. It would thus make sense to commence the implementation of supervisory review on the basis of principle 2.

#### **6.5 Setting an “Adequate” Capital Ratio**

Translating a qualitative evaluation into a quantitative capital requirement is likely to be the most problematic issue in Continental Europe.<sup>2)</sup> In addition, banks increasingly need to be made aware of the fact that basic problems (such as inadequate internal controls) will not be solved simply by applying a higher capital ratio. Therefore, capital requirements are only a means to an end, but not the end itself. Not even the highest capital ratio can take the place of adequate risk management.

#### **6.6 Prudent Level<sup>3)</sup>**

If the EU draft article 3<sup>4)</sup> were to be implemented, it would be necessary to define the prudent level of capital. Since the minimum requirement of 8% might not be sufficient in all cases or for all banks, a differentiated capital ratio of e.g. 9% could be set for individual banks in line with principle 1. A further capital cushion of another, say, 0.5% should prevent any unforeseen undercapitalization.<sup>5)</sup>

## **7 Outlook**

### **7.1 More Emphasis on Risk-Focused Elements**

Banking supervision has been subject to changes resulting in a stronger emphasis on risk-oriented aspects for several years now in many countries worldwide, including Austria. The continued intensification of the qualitative supervisory elements (in contrast to the formal, quantitative ones) will also play a significant role in the future. The criteria which determine whether risks have been correctly identified in a model chosen by an individual bank have, for instance, already been set out in a regulation based on Article 26b ABA (Internal Models Regulation for the Limitation of Market Risk). This regulation provides for qualitative standards on bank

<sup>1</sup> Migration of credit institutions or certain types of businesses to countries with less strict regulations and less stringent operational conduct of supervision.

<sup>2</sup> EU Consultation Document (1999), p. 72.

<sup>3</sup> EU Consultation Document (1999), p. 70.

<sup>4</sup> “Early supervisory intervention when the capital ratio begins to fall, but is still above 8%”.

<sup>5</sup> Basel principle 4.

management's involvement in risk control, the review of models by internal audit etc.

However, these developments in no way diminish the importance of adhering to the quantitative standards, which not only keep in check the uncritical expansion of transactions and risk-taking, but also guarantee a minimum capital cover against loan losses and liquidity risks at all banks. In addition, quantitative standards ensure a minimum level of comparability across banks.

On the other hand, compliance with quantitative minimum standards alone obviously does not guarantee sufficient risk control. The risks inherent in modern banking business have reached a level of complexity that can no longer be captured by nondifferentiated, one-size-fits-all quantitative standards. The more diversified the scope of a bank's business – in terms of geography and products – and the more complex its internal structures, the greater the challenge for bank management to obtain a realistic picture of the bank's total risk exposure and to make suitable, risk-aware decisions.

Only if the internal methods and procedures prove to be reliable in measuring and controlling risk can supervisors be sure that the data reported by a bank provide a reliable picture of its financial situation and risk profile.

The Basel Core Principles for Effective Banking Supervision focus especially on supervision's preventive function. By further strengthening the focus on risk management, potential dangers can be identified in good time and eliminated through adequate supervisory intervention.<sup>1)</sup>

The same ideas are put forward very clearly in a paper by Estrella.<sup>2)</sup> He stresses that while it is rather easy to calculate minimum capital requirements, it is much more difficult to determine the optimum capital level. Supervisors face the challenge of finding the adequate balance between regulation (quantitative) and supervision (qualitative). He arrives at the conclusion that "*Mechanical formulas may play a role in regulation, but they are in general incapable of providing a solution to the question of how much capital a bank should have.*"

In Estrella's opinion the adequate capital level depends not only on the type and quality of a bank's assets, but also on the quality of the management, the adequacy and effectiveness of its internal controls and, not least, on external factors.

## 7.2 From Regulatory to Economic Capital

A gradual development towards the recognition of "economic" capital (which is determined by the bank on the basis of what capital it actually requires) is also part of the supervisory review – at least in the case of complex large banks.<sup>3)</sup> The EU Consultation Document also suggests that

<sup>1</sup> See also the lecture by OeNB Vice Governor Dr. Gertrude Tumpel-Gugerell: "Weiterentwicklung der Bankenaufsicht – Gebot der Stunde," Innsbruck, April 2000.

<sup>2</sup> Estrella, A. (1988).

<sup>3</sup> Basel Committee on Banking Supervision, *A New Capital Adequacy Framework* (1999), p. 55, paragraph 8.

“institutions’ management should consider for themselves how much capital is needed to cover unexpected losses.”<sup>1)</sup>

Before determining the adequate amount of economic capital, the concept of “economic risk” needs to be clearly defined. The scope of potential interpretations ranges from the danger that actual earnings fall below expected earnings over a given period of time to the risk of a decrease in the firm’s net worth and insolvency.

At present, economic and regulatory capital continue to diverge, but the long-term target is to bring them in line. The quantification of economic capital remains a fundamental problem, however. Essentially, economic capital should cover unexpected losses. Expected losses should already be covered by internal bank provisions or the income for the year (or, even before that, by margins).

With market and credit risk models, the first steps have been taken towards quantifying economic capital; this is not yet the case with operational risk. Thus, economic capital models are far from being sufficiently developed and of a standard to be approved by banking supervisors. Banks have, however, already advanced towards suggesting certain quantitative standards (e.g. a regulatory horizon of one year, requirements based on the insolvency rate stated by a bank).<sup>2)</sup>

Future developments are likely to move further in the direction of bank-determined capital which – in contrast to flat rate capital charges – covers the actual risk exposure and is based on objective risk criteria.

The difficulty of setting an adequate or prudent capital level and at the same time avoiding both insufficient and excessive regulation is bound to produce tensions. Pinpointing adequate economic capital is undoubtedly very difficult and complex, as its level is essentially dependent on a bank’s risk appetite and current risk exposures.

Supervisory review puts banks in charge of selecting the systems or processes to determine a capital ratio that the individual bank considers adequate. Therefore it seems likely that credit institutions will employ and fine-tune existing systems (market risk models, but also credit risk models, quantifiable and nonquantifiable criteria, macroeconomic variables, etc.). Banks should endeavor critically to analyze their internal capital adequacy and to plan ahead of time for any additional capital cover that might become necessary. The bottom line is that credit institutions should generally hold capital in excess of the regulatory minima.<sup>3)</sup>

1 *EU Consultation Document (1999)*, p. 69, paragraph 23.

2 *International Swaps and Derivatives Association (2000)*, p. 10 ff.

3 *EU Consultation Document (1999)*, p. 65.

## 8 International Comparison

Certain supervisory review elements have already been in active use for years in countries such as the U.S.A. and the United Kingdom. The U.S. banking supervisory authorities practice early supervisory intervention on the basis of three types of capital ratios. In the United Kingdom, the risk-based supervisory system RATE (**R**isk **A**ssessment, **T**ools of **S**upervision, **E**valuation) has been increasingly employed in recent years.

### 8.1 U.S.A. – Prompt Corrective Action in the Federal Reserve System<sup>1)</sup>

After the banking crisis of the late 1980s, the U.S.A. tried to minimize the costs of deposit insurance and to provide for supervisory intervention in an efficient and timely manner. Thus, the Federal Deposit Insurance Corporation Improvement Act (FDICIA) stated in 1991 that banks were to be subdivided into five capital categories according to the criteria of total risk-based ratio, tier I risk-based ratio and capital in percent of nonweighted assets (leverage ratio).<sup>2)</sup>

	Total risk-based ratio %	Tier I risk-based ratio	Leverage ratio
1. Well capitalized	>10% and	>6% and	>5%
2. Adequately capitalized	> 8% and	>4% and	>4%
3. Undercapitalized	<8% or	<4% or	<4%
4. Significantly undercapitalized	<6% or	<3% or	<3%
5. Critically undercapitalized	not applicable	not applicable	not applicable

An additional criterion for bank classification is unsafe and unsound practice, which is also in line with the basic idea of supervisory review. One target of this categorization was to be able to close problematic banks prior to insolvency, another was the development of the “Prompt Corrective Action System,” based on the above categories, under which a particular capital ratio triggers certain mandatory or discretionary provisions – in addition to the regular bank audits.

One such provision applicable to all of the above bank categories is that a bank may not pay dividends if that would leave it undercapitalized. Banks in the categories 3 to 5 are subject to increased scrutiny by the Federal Reserve and have to file and implement a capital restoration plan within 45 days. Such banks may acquire interest in a company or open new branch offices only if the capital restoration plan has been accepted by the supervisory authorities. The Fed may impose discretionary provisions to e.g. restrict asset growth and the interest rates paid on deposits and elect a new board of directors.

There are two ways of approaching the problem of adequate and timely supervisory reaction: In the U.S.A. regulatory measures are determined on the basis of existing capital ratios, while the European proposal calls for

1 Federal Reserve System, *Commercial Bank Examination Manual*, <http://www.bog.frb.fed.us/boarddocs/supmanual>.

2 These ratios are stated for the purpose of illustration; they do not correspond to the ratios used in Austria.

analyzing a bank's risk profile first and then setting individual capital ratios as a result of this profile.

A paper by Aggarwal and Jacques<sup>1</sup>) investigates the influence of prompt corrective action on banks' capital levels and risk profiles. The study shows that immediately after the introduction of prompt corrective action in 1992 and 1993 capital ratios actually rose and risk exposure declined. This, however, does not allow the conclusion that the minimum capital requirements really corresponded to the risk incurred – a factor that is clearly relevant in the discussion on supervisory review.

## 8.2 United Kingdom – RATE System

Following the crash of Barings Bank and the bringing together of all U.K. supervisory authorities in the Financial Services Authority (FSA), British banking supervision formalized its risk-based system, the basic objectives of which the FSA expressed as follows: *“A flexible and differentiated risk-based approach to setting standards and to supervision, reflecting the nature of the business activities concerned, the extent of risk within particular firms and markets, quality of firm's management controls and the relative sophistication of the consumers involved.”*<sup>2</sup>)

The resulting RATE system (Risk Assessment, Tools of Supervision, Evaluation) is based on the principle of collecting and analyzing as much information as possible – such as reported data, management information or newspaper articles – on potential risks during off-site banking supervision. Taking into account this risk analysis, supervisors draw up a work program for the main supervisory tasks that have to be completed at each bank during a certain period of time. In addition, they set prudential priorities, including e.g. on-site examination and instructions for external auditors. A bank's business profile, range of products, risk profile and control mechanisms determine the duration of the work program. In complex banks, a new RATE program is carried out every six to ten months; in small banks one program may last up to 36 months. The FSA prepares a detailed evaluation for every bank or banking group on the basis of nine evaluation factors – six business risk and three control risk factors. The RATE factors are abbreviated CAMELB (Capital, Asset quality, Market risk, Earnings, Liabilities, Business) & COM (Internal Controls, Organization, Management) and RATE can be compared with, but is by no means identical to the American CAMEL system (Capital, Asset quality, Management, Earnings, Liquidity).

A bank's individual capital ratios are first set at the end of the authorization process and then reviewed and possibly changed as a consequence of a RATE analysis. The FSA sets a trigger ratio (minimum capital requirement) as well as a target ratio for each bank. A bank is expected to operate at the higher target ratio, which serves as a buffer, in order to minimize the risk of falling below its individual trigger ratio. If the capital ratio of a bank declines below the target ratio, the FSA is

<sup>1</sup> Aggarwal, R. and K. T. Jacques (1988).

<sup>2</sup> Financial Services Authority (1997).

entitled to intervene at once to ensure that capital does not fall below the trigger ratio.

## 9 Outlook for Austria – Capitalization of Austrian Banks

As was the case prior to the introduction of the 1988 Basel Accord and the relevant EU directives, Austria – as well as many other countries – again faces the question of whether its banks are adequately capitalized according to the new regulations. Here it is important to stress that the objective of the new framework is not generally to raise capital ratios, but rather to make sure that a bank's capital adequately covers the risks a bank has incurred. The European Commission in Brussels (and the relevant supervisory fora) will also have to discuss the definition of eligible capital, including transitional arrangements, at some point.

The table below shows that at the end of December 1999 more than 80% of Austrian banks had a capital ratio above 10%, and 53% held eligible capital of over 12%, with both ratios taking account of market risk.

When analyzing this table, it is, however, important to be aware that the overall impact of the new Basel and EU provisions on capital ratios cannot be exactly determined without detailed trial calculations. Of particular importance are, among other factors, the effects of the new weighting provisions on actual capital charges on a bank's credit portfolio, the influence of risk mitigation techniques and the capital charge for other risks, including interest rate risk in the banking book.

### Capital Ratios of Austrian Banks as at December 1999<sup>1)</sup>

Capital ratio	Number of credit institutions	% of credit institutions	% of credit institutions, cumulative
$x < 9$	85	9.1	100.0
$9 \leq x < 10$	96	10.3	90.9
$10 \leq x < 11$	142	15.2	80.6
$11 \leq x < 12$	117	12.5	65.4
$12 \leq x < 13$	84	9.0	52.9
$13 \leq x < 14$	79	8.4	43.9
$14 \leq x < 15$	56	6.0	35.5
$15 \leq x < 20$	153	16.3	29.5
$x \geq 20$	124	13.2	13.2

Source: OeNB.

<sup>1)</sup> Including market risk, for 936 credit institutions, i.e. excluding Austrian branches of third-country banks.

Given the number of Austrian banks (949 credit institutions at the end of June 2000), the new provisions will also have a considerable impact on the resources of banking supervisory authorities and the banks in question.

As stated in section 3, certain key elements of supervisory review have already been implemented in Austria. In addition to the statutory preparation and review of annual financial statements, external bank auditors also review compliance with all Banking Act provisions including bank managers' duty of diligence and whether banking and operational risks, in particular, have been adequately controlled. The results of these examinations must be compiled in a banking supervisory audit report. Since 1994, the OeNB has been carrying out on-site examinations of banks as and when commissioned by the Federal Minister of Finance (see Article 70

para 1 item 3 ABA). This practice is in line with the statement in the EU Consultation Document that “the instruments chosen to implement the new principles should allow supervisors to adopt different supervisory approaches.”<sup>1)</sup>

The key innovations proposed by the new capital adequacy framework are differentiated capital requirements and the focus on consistency between capital and risk. The implementation of these innovations in Austria will need to be as careful as possible given the limited resources available and should aim at bolstering the soundness of the financial system.

Essential questions remain unanswered in the current consultation documents. These will also require discussion in cooperation with the banks. Indeed, the concept of supervisory review also states the need for a regular dialogue between the supervisory authorities and the banks.

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1 *EU Consultation Document (1999), p. 67.*

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# Credit Risk

## *Proposal on a Capital Charge for Credit Risk Put forward by the Basel Committee on Banking Supervision and the European Commission – Current Debate and Possible Implications for the Austrian Banking Industry*

Franz Partsch

### **I Introduction**

The review of the capital adequacy regime for credit risks is an integral part of the first pillar of the new capital adequacy framework. The minimum levels of capital shall be made consistent with the actual credit risk and shall take into account new developments in credit risk management. In this context, the consultative papers issued by the Basel Committee on Banking Supervision and the European Commission offer a large variety of proposals ranging from detailed descriptions of alternatives to certain risk-mitigating techniques to a rather general discussion of internal ratings (see section 5). These suggestions have sparked off a lively debate among the parties involved, which shows both how rapidly this issue has been developing over the past years and that supervisors are willing to address capital adequacy for credit risks in an entirely new way.

This paper aims to illustrate how the discussion on capital adequacy of credit risks and the proposed approaches have evolved. It also critically reviews the drafts of the new capital adequacy framework.

Section 2 defines the basic concepts *credit risk* and *credit risk management*. Section 3 deals with current developments in credit risk management. The provisions pertaining to credit risk in the Austrian Banking Act<sup>1)</sup> are described in section 4. Section 5 presents the new proposals on a capital charge for credit risk and identifies unresolved questions. Section 6 discusses the expected implications for the Austrian banking sector and the Austrian supervisory authorities.

### **2 Definitions**

#### **2.1 Credit Risk**

The 1988 Basel Accord offers a very simple definition of credit risk: “(For most banks the major risk is) credit risk, that is to say the risk of counterparty failure...”<sup>2)</sup> In addition, the concept is clearly separated from other risks, such as investment risk, interest rate risk, currency risk and concentration risk. Transfer risk is considered to be a special aspect of credit risk and is dealt with separately in the 1988 Accord.

The consultative paper issued in 1999 by the Basel Committee contains a similar definition of credit risk: “Credit risk is most simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms.”<sup>3)</sup> The paper also states that for banks, loans are the most obvious source of credit risk. However, both the banking and the trading books comprise additional fields of banking activity which are exposed to credit risk, such as acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options, commitments and guarantees as well as the settlement of transactions.

1 *Bankwesengesetz (BWG).*

2 *Basel Committee on Banking Supervision (1988), p. 8 f.*

3 *Basel Committee on Banking Supervision (1999A), p. 1.*

The definition of credit risk as the risk of borrowers or counterparties defaulting shall be supplemented by two more far-reaching concepts, which will be of interest in discussing the new capital adequacy framework.

### **2.1.1 Risks Inherent in Credit Operations**

Risk management usually distinguishes various types of risk with regard to the commensurate business line. In the credit business, the following types of risk are usually identified:<sup>1)</sup>

- default risk;
- risk of a lack of granularity;
- operational risk;
- legal risk;
- risk in new markets;
- market risks in fixed interest loans.

Single measures in managing the risk inherent in credit operations often relate to several of these types of risk; hedging instruments, for instance, can reduce the default risk but at the same time involve substantial operational risks. It is vital to bear such interactions in mind when supervisory regulations affect risk management measures.

### **2.1.2 Credit Risk as Credit Value at Risk**

As new methodologies of risk measurement and risk control have been introduced in credit operations, a new approach to credit risk has also been evolving. Under this new approach, credit risk is viewed as an extension of default risk, which involves, apart from the risk of borrowers defaulting, the risk of “a fluctuating portfolio value due to a possible deterioration or improvement of the borrower’s creditworthiness.”<sup>2)</sup> Therefore it is crucial to always keep in mind that supervisory regulations may generate diverse effects, depending on the underlying risk approach.

## **2.2 Credit Risk Management**

While the 1988 Basel Accord did not explicitly discuss credit risk management, the above-mentioned consultative paper on credit risk management contains the following definition:<sup>3)</sup> “The goal of credit risk management is to maximize a bank’s risk-adjusted rate of return by maintaining credit exposure within acceptable parameters.” Banks have to control both the risk of the single credit and the total credit risk of the whole portfolio. Furthermore, banks should be aware of the relationship between credit risk and other risks. The most important steps in credit risk management are identifying, measuring, monitoring and controlling risks as well as holding sufficient capital and adequate compensation for the risks incurred. The essential measures in a reliable risk management system include establishing an appropriate credit risk environment, operating under a sound credit granting process, maintaining an appropriate credit

<sup>1</sup> Lejsek, A. (1999), p. 21.

<sup>2</sup> Wiesmayr, C. (1999), p. 250.

<sup>3</sup> Basel Committee on Banking Supervision (1999A), p. 1.

administration, measurement and monitoring process and ensuring adequate controls over credit risk. The consultative paper also underlines the relationship between credit risk management and the assessment of asset quality, the adequacy of provisions and reserves and the disclosure of credit risk.

Credit risk management is described as a complex area comprising, according to this definition, a range of operational functions, organizational units, workflows and instruments as well as aspects of a bank's credit culture.<sup>1)</sup> Furthermore, revenues from undertaking risks should be taken into consideration when assessing the efficiency of credit risk management. This may become relevant if best practices are to be included in supervisory regulations.

### **3 Current Developments in Credit Operations and Risk Management**

For quite some time, supervisors have been observing developments in credit operations that hamper the effectiveness of the 1988 Basel Accord. A working paper by the Basel Committee identifies the following forms of what is termed capital arbitrage:<sup>2)</sup>

- Cherry picking: Within a particular risk-weight category, the bank shifts its portfolio towards riskier, but also more profitable loans.
- Securitization: By bundling loans into debt securities, the bank can significantly reduce its minimum capital charge while its risk exposure remains unchanged.

Certain credit derivatives are also frequently mentioned in the context of capital arbitrage.<sup>3)</sup>

Capital arbitrage is facilitated by the very crude differentiation of risk in the existing framework and inconsistencies in some provisions, such as, for instance, the different treatment of banks and corporates that have the same risk profile.

Banks have markedly reinforced their activities in these fields – securitization and derivatives – over the past few years. Market changes and competitive factors in the banking sector, such as deregulation, disintermediation, product standardization, globalization, changing investment behavior and technological innovation,<sup>4)</sup> have also generated new conditions in credit operations. The above-mentioned forms of capital arbitrage are fostered by the following trends:

- *Higher liquidity of credits and credit products:* Credits are becoming increasingly marketable as new market participants emerge thanks to deregulation and disintermediation and as new, innovative credit products are developed. Standardized credit agreements and new, uniform methods of risk assessment further enhance the credit marketability.

1 Schmolli, A. (1999B), p. 73.

2 Basel Committee on Banking Supervision (1999B), p. 22 ff.

3 Ong, M. (1999), p. 27 ff.

4 Moody's (1999), p. 7.

- *Growing demand for profit contributions from credit operations:* With shareholder value awareness expanding and the mobility of investors increasing, banks are forced to consistently meet tight profitability targets. At the same time, competition in credit operations is becoming stiffer as new agents and financing products enter the market and dent margins.
- *Methodological progress in credit operations:* The rapid development of information technology enables banks to carry out more and more complex calculations, processing an ever growing amount of data. As a result, methodologies from other areas, e.g. market risk management, may also be applied to credit operations.

Consequently, many banks have made the advancement of credit risk management one of the key elements in their business policies. Efforts often focus on improving the methodologies to adjust the credit portfolio to optimum levels. The banks typically go through various stages of development, moving from rudimentary approaches in risk assessment and rather intuitive risk control on to highly specialized rating methods and active risk controlling based on integrated risk assessment standardized across institutions.

The individual stages in the development of credit risk management are characterized by improvements in the following areas:<sup>1)</sup>

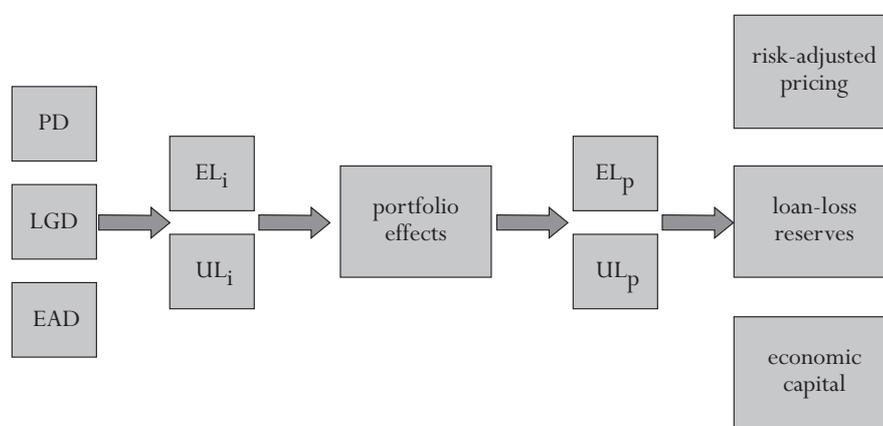
- *Rating:* In simple management systems, procedures that are largely based on expert opinion, experience and intuition are used to assess the creditworthiness of borrowers. More refined methods apply instruments of statistical analysis and calibrate risk categories to default probabilities. In integrated management systems, default probabilities are replaced by the calculation of present values on the basis of mark-to-market value models.
- *Calculation of provisions:* The simplest method to calculate provisions is to estimate the necessary amount on the basis of historical default observations in the individual business lines. Sophisticated systems use statistically calculated expected losses to determine provisions. These methods can be refined further by adjusting the provisions to the present economic situation by taking into account macroeconomic factors.
- *Capital allocation:* The simplest method of allocating capital is fulfilling the respective legal requirements. A more refined technique uses estimated or historical loss volatilities. Very sophisticated systems also take into account risk correlations.
- *Measurement of earnings for controlling:* In simple systems, controlling is based on contribution margins or return-on-equity ratios. Modern controlling procedures include risk-adjusted earnings and capital. The most sophisticated procedure is controlling based on total return concepts and market values.
- *Instruments of portfolio management:* Controlling the whole credit portfolio in simple systems means diversification as to products, regions and/or

<sup>1</sup> Drzik, J. and G. Strothe (1997), p. 260 ff.

sectors by intuition rather than facts and figures. Active portfolio management using securitization, derivatives and credit trading is the next step. Integrated control systems allow for simultaneous control of the various types of risks on the basis of common risk parameters.

Active, integrated portfolio management using credit risk models is currently the most sophisticated form of credit risk management.

The Basel Committee has drawn up a report about the current status of credit risk models and their possible application for regulatory purposes.<sup>1)</sup> Credit risk models are usually used to measure, aggregate and control risks in various products and business lines. They are often based on the following relationships between the most important risk parameters:



Source: Ong, M. (1999), p. 54.

- The credit rating of the borrower reflects the probability of default (PD). Collateral and other assets held by the borrower determine the loss given default (LGD). The provisions of the credit contract have an effect on the level of exposure at default (EAD). The three risk parameters combined lead to the expected loss of an individual credit ( $EL_i$ ) or the deviation from  $EL_i$ , the unexpected loss ( $UL_i$ ).
- In a credit portfolio, there are usually positive or negative relationships between the risks of different credits. The expected and unexpected losses of the whole portfolio ( $EL_p$  and  $UL_p$ ) can be calculated on the basis of these correlations and the expected losses of the individual credits.
- The expected loss must be taken into account in pricing by charging an adequate risk premium (risk-adjusted pricing) and by creating loan loss reserves. The economic capital serves as a cushion in the case of possible unexpected losses.

At present, various types of credit risk models, which partly differ in their fundamental conception, are in use:<sup>2)</sup>

<sup>1</sup> Basel Committee on Banking Supervision (1999B), p. 8 ff.

<sup>2</sup> Jones, D. and J. Mingo (1998), p. 53 ff.

- So-called default mode models or two-state models distinguish only between two outcomes, “nondefault” or “default,” while multi-state models or mark-to-market models also take into consideration the impact of changes in ratings of nondefault credits on the value of the whole portfolio.
- Top-down approaches model the risk for the portfolio as a whole and break it down into groups of debtors or subportfolios. Bottom-up models quantify credit risk at the level of each individual loan and aggregate the results to assess the total risk.

Default probabilities are the most important inputs for credit risk models. There are also conceptual differences, with the two basic types being:

- Models based on risk segmentation: On the basis of historical default data, default probabilities are calculated for each individual rating category. These calculations are sometimes supplemented by actuarial analyses and macroeconomic factors.
- Individual models: Default probabilities are inferred from option models and observed market data such as market prices or credit spreads.

The development of credit risk modeling in banks has largely been influenced by the methodologies applied to market risk modeling. The ideas of portfolio theory as applied to market risk are to be extended to default risk. Yet there are conceptual differences between these two types of risk. In particular, two such differences should be mentioned:<sup>1)</sup>

- While market risks are usually symmetrical and thus easy to model, modeling default risks with their typically asymmetrical distribution is a bigger challenge.
- Risk modeling in credit operations traditionally follows an accounting-based approach, whereas other business sectors tend to act on market-based considerations.

However, integrated risk management absolutely requires a uniform measurement of risks in all business lines. Therefore, banks will continue to develop the value-at-risk approaches in lending business.

#### **4 Credit Risk Regulations in the Austrian Banking Sector**

Like regulations in other countries, the Austrian Banking Act (ABA) contains a range of provisions pertaining to credit risk and credit risk management. The most important provisions are as follows:

- The *solvency* provisions in the Austrian Banking Act (Article 22 ABA) are central to credit risk. They stipulate the minimum regulatory capital requirement, whose assessment is, inter alia, based on the asset items weighted according to credit risk.<sup>2)</sup> Thus, the 1988 Basel Accord and the relevant EU directive have been implemented.<sup>3)</sup>

<sup>1</sup> Schwaiger, W. (2000), p. 377.

<sup>2</sup> Chini, L. and G. Frölichsthal (1997), p. 290 ff.

<sup>3</sup> Directive 89/647/EEC.

- The provisions on *large exposures* (Article 27 ABA) set a limit on individual credits in relation to the credit institutions' eligible own funds and can therefore be considered to be a minimum requirement regarding portfolio diversification.<sup>1)</sup>
- Article 39 ABA stipulates the *duty of diligence* of the management of credit institutions. In particular, it says that managers shall inform themselves about and appropriately limit particular banking and operational risks. The explanatory notes to these provisions encompass, among other things, a list of various types of risks,<sup>2)</sup> and a systematization of the measures to limit risks.<sup>3)</sup> These notes imply that credit risk and its limitation are key management tasks of credit institutions.
- Article 42 ABA assigns a special role to *internal audit* in risk limitation. The explanatory notes also mention the formal and material propriety of procedures in credit operations, such as credit allocation and credit auditing.<sup>4)</sup>
- The provisions of Article 63 ABA pertaining to the *bank auditing procedure* relate indirectly to credit risks, especially owing to the auditors' responsibility to assess the accuracy of the valuation,<sup>5)</sup> including whether required depreciations, value adjustments and provisions<sup>6)</sup> have been made. Article 63 (5) ABA<sup>7)</sup> stipulates that the bank supervision audit report include credits broken down by risk categories.
- The *Major Loans Register* at the Oesterreichische Nationalbank (OeNB), whose establishment is based on Article 75 ABA, makes data on large-scale borrowers' total indebtedness to banks available to credit institutions, which use these data for risk assessment purposes.

## 5 The Proposals of the Basel Committee and the European Commission on Capital Requirements for Credit Risk

The authors of the Basel Committee's and the European Commission's proposals for a new capital adequacy framework have given due consideration to the developments in credit risk modeling. The above-mentioned report by the Basel Committee explicitly examined whether such models, like market risk models, can be used in the formal process of setting regulatory capital requirements for credit risks. However, the report concludes that at present, two major obstacles prevent credit risk modeling from being used in banking supervision, namely:<sup>8)</sup>

1 Chini, L. and G. Fröhlichsthal (1997), p. 290 ff.

2 Erläuternde Bemerkungen (explanatory notes) 96/2 in Chini, L. and G. Fröhlichsthal (1997), p. 361.

3 Erläuternde Bemerkungen (explanatory notes) 93 in Chini, L. and G. Fröhlichsthal (1997), p. 361 f.

4 Erläuternde Bemerkungen 93 in Chini, L. and G. Fröhlichsthal (1997), p. 378.

5 Göth P. (1995), p. 353 ff.

6 Chini, L. and G. Fröhlichsthal (1997), p. 425.

7 Regulation issued by the Federal Ministry of Finance on the Bank Supervision Audit Report, BGBl No 119/1994, as amended by BGBl Nos 30/1997 and 181/1997, in Chini, L. and G. Fröhlichsthal (1997), p. 579 ff.

8 Basel Committee on Banking Supervision (1999B), p. 1 f.

- Data limitations: Data availability is significantly limited because most credit instruments are not marked to market and credit defaults are relatively rare.
- Model validation: The validation of credit risk models is fairly complicated since credits are usually held for longer periods than marketable instruments.

In fact, banks use credit risk models only in certain areas or for testing purposes. Substantial improvements, especially of data, are still required to justify the full use in integrated risk control management.

The proposals put up for consultation therefore rule out that credit risk models will be recognized as supervisory instruments for the time being. At the same time, the authors explicitly state that preparations should be made to recognize such models at a later point in time.

The papers envisage the minimum capital requirement against credit risk to be assessed through the modified standard and the internal ratings-based approaches. The following subsection summarizes the existing proposals and discusses open questions. Details of some of the suggested provisions can be found in the two consultative papers (depending upon availability).<sup>1)2)</sup>

### **5.1 The Modified Standardized Approach**

This method represents a gradual refinement of the 1988 Basel Accord. Instead of classifying borrowers in rather crude risk categories, risk differentiation is to be provided through ratings by external institutions. Similar to existing regulations, the new proposals spell out different provisions for different groups of borrowers and credit products:

- sovereign;
- regional governments and local authorities;
- public sector entities;
- credit institutions;
- investment firms;
- multilateral development banks;
- corporates;
- high-risk items: low-rated counterparties or assets, highly leveraged institutions, equity, subordinated debt, concentrated credit exposure, quality of credit information, impaired assets;
- short-term commitments;
- OTC derivatives;
- asset securitization.

<sup>1</sup> Basel Committee on Banking Supervision (1999C).

<sup>2</sup> European Commission (1999).

The weightings proposed are as follows:

Claim	Assessment <sup>1)</sup>					
	AAA to AA-	A+ to A-	BBB+ to BBB-	BBB+ to B-	below B-	unrated
	%					
Sovereigns	0	20	50	100	150	100
Banks and investment firms <sup>2)</sup>	20	50	50 (100)	100	150	50 (100)
Corporates and other	20	100	100	100	150	100

Source: Basle Committee on Banking Supervision (1999C), p. 31.

<sup>1)</sup> Using: Standard & Poor's Rating of long-term debt securities as an example.

<sup>2)</sup> There are two options for credit institutions and investment firms: Risk weighting in Option 1 is based on the assessment of the individual institution whereas risk weighting in Option 2 is based on the risk weighting of the sovereign in which the institution is incorporated (deviating weightings in Option 2 are quoted in brackets).

The consultative papers provide a detailed description of possible criteria for eligible external credit assessment institutions ( such as credibility and transparency ( and for procedures for recognizing such institutions. Apart from the renowned major international rating agencies as well as national and regional agencies, the papers also consider alternative ways such as risk assessment by export insurance agencies or, based on uniform qualitative and quantitative criteria, by banks themselves.<sup>1)</sup>

Moreover, collateral is to play a somewhat larger part in risk mitigation; the proposals include a variety of principles, including legal certainty to maturity and asset mismatches, etc. The eligible collateral comprises mostly marketable, liquid securities.

## 5.2 The Internal Ratings-Based Approach

The internal ratings-based approach aims to use banks' internal risk assessment and measurement systems to calculate a capital charge for credit risk. Neither of the two papers specifies clearly which requirements internal methods have to fulfill to be accredited. However, there are certain general guidelines for developing proposals for actual regulations. Internal ratings are a first step towards recognizing credit risk models. Therefore, the papers call for a flexible, open strategy that can be adapted to modern forms of credit risk analysis. They also explicitly stress that there needs to be consistency between the modified standardized and the internal ratings-based approaches. Furthermore, there must also be a balanced relationship between an international harmonization of standards and the necessary national room for maneuver for assessing the individual rating systems.

The reason why the papers contain merely a general description of internal ratings is that they have been taken into consideration rather late and, above all, only after the European countries had vigorously supported this idea. While the Basel paper views both methods as more or less equal, the European Commission's paper published several months later than that of the Basel Committee gives priority to the internal ratings-based approach.

<sup>1)</sup> This alternative is mentioned in the EU consultation document only. It is not included in the Basel paper.

Meanwhile, working groups in Basel and Brussels have been busy working out drafts for regulations pertaining to internal ratings. The current state of the debate indicates that the following structure of regulations can be expected.

The internal ratings-based approach entails two different types of approaches towards calculating the regulatory requirement: Under the foundation approach, capital evaluation is only partly based on a bank's individual risk parameters, i.e. it is the bank's task to assess its probability of default. The supervisors fix standard values for loss given default and exposure at default (supervisory vector). Under the advanced approach, the bank sets all risk parameters itself. It has not been decided yet whether additional risk parameters shall be incorporated in the capital requirement. In particular, the inclusion of the risk factors maturity and credit concentration has been considered.

The Basel Committee has set the following minimum requirements for the *foundation approach*:

- Rating grade structure: Banks must have a minimum number of grades. Additional provisions will regulate the distribution of exposure among grades and the relationship between grades. The purpose is that a bank pursues adequate and sound credit risk differentiation.
- Integrity of rating assignment and review: This provision shall ensure that a grade is assigned to each borrower and that the ratings are updated regularly. In addition, each rating must be subject to independent in-house review. The executive board and board of directors as well as internal and external auditors are to review the rating system on a regular basis.
- Rating assignment: The criteria for assigning borrowers and counterparties to one rating category or another should be both plausible and intuitive and have predictive and discriminant power. The criteria should be specific enough to allow a third-party assessment of an exposure. Banks shall make sure that all relevant information taken into account in assigning ratings is fresh. The rating must cover a time span of at least one year and consider all important predictable facts beyond this period. When analytical tools are used, model specifications and output must be comprehensively documented and model performance must be periodically monitored and tested. Moreover, banks need to clarify under which circumstances human judgments, overrides, etc. may be used.
- Standards for quantifying probabilities of default: The Basel Committee's Models Task Force points out three methods:
  - internal loss experience data,
  - mapping to agency grades, based on certain supporting analysis,
  - statistical default models.

Detailed statistical requirements, such as a minimum length of time series, still need to be specified.

- Data collection and documentation: A comprehensive database is a prerequisite for evaluating risk parameters, for using ratings in everyday lending business and for regularly reviewing and validating the rating

system. The bank should dispose of a full rating history of each borrower; the database should also include the terms of agreement, collateral and maturity as well as the histories of LGD estimates and estimates of exposure at default for each facility. For each default event, data on real recoveries and workout costs as well as histories of write-offs and provisions should be collected and stored. These data should be available for the above-mentioned procedures at all times.

- Use of internal ratings: Only banks where rating is an integral part of credit risk management shall be permitted to use internal ratings to evaluate minimum capital requirements. The ratings shall be taken into consideration in all risk-sensitive decisions, especially when approving credits and setting credit limits and in the pricing process. Also, internal ratings shall be applied in risk measurement, reporting about the bank's risk exposure, the determination of write-offs and provisions and the allocation of capital. It is vital for the rating system to have been implemented and used in the bank for at least a few years, otherwise, it would not possess the stability necessary for calculating capital requirements.
- Internal validation: The bank shall regularly validate the consistency and accuracy of the rating system. In the backtesting process, expected probabilities of default are compared with the bank's historical default data. In addition, the banks are advised to make comparisons with external data. Analyses of the distribution of exposure by rating and rating transition statistics can also allow conclusions about possible inconsistencies.

The advanced approach will include additional minimum standards for quantifying loss at default and exposure at default as well as for managing and evaluating collateral and credit limits.

The minimum capital requirement is calculated by translating the risk parameter values into capital weights. It has not been decided yet whether this translation will be achieved by mapping to (discretionary) supervisory risk categories or by applying a (continuous) transforming function. In any case, the translation shall follow uniform criteria or a uniform algorithm.

### **5.3 Issues to be Addressed and Open Questions in the Consultative Papers**

Since the publication of the consultative papers, the debate has focused on the following issues:

- Unclear distinction: While the provisions on risk classification and capital weights are clearly aimed at reducing default risk, the minimum standards for rating systems are clearly considered to be part of the much broader concept of risk management, which also covers operational, legal and other risks in credit operations. Considering the range of provisions in other fields of the new capital adequacy framework, there is the danger that some risks are made subject to a capital charge twice or even more often and that some banks will be discriminated against.

- Use of external ratings for supervisory purposes: There are some fundamental concerns,<sup>1)</sup> for instance, the question whether external rating agencies, which are by their very nature profit-oriented, should be allowed to play a role in banking supervision. Moreover, experts often cautioned that rating agencies do not take responsibility for their ratings; others criticize that the agencies' ratings lack predictive quality and that the consistency of their ratings on industries or regions leaves much to be desired.<sup>2)</sup> The agencies, for their part, are also skeptical about taking part in the supervisory process,<sup>3)</sup> pointing out that their ratings primarily relate to capital market securities and are therefore not directly applicable to bank loans.
- Rating gap in the European countries: Many argue that the number of externally rated enterprises in Europe is comparably low, which might put European businesses at a disadvantage against their U.S. counterparts and, in particular, small and medium-sized companies against major corporations. There is also the question of equal competition between banks of different sizes. Larger banks tend to invest in rated debt securities and extend more loans to rated companies. The standardized approach makes the risk differentiation of their minimum capital requirements easier for them.
- Consistency in the standardized approach and between the standardized and the internal ratings-based approaches: Critics argue that under the proposed standardized approach, entities with similar default risks and ratings are given different risk weights, for instance, capital charges of 50% for BBB-rated banks and 100% for BBB-rated enterprises. This would again heighten the capital arbitrage potential. Moreover, the proposals fail to specify the underlying assumptions on the risk parameters of these risk weights under the standardized approach. If the translation of risk categories into capital weights under the standardized approach is different from that under the internal ratings-based approach, cherry picking between the two methods will hardly be avoidable.

It remains to be seen what the details of the internal ratings-based approach will look like; however, potential problems are visible in some basic concepts:

- Definition of default: The default probability depends partly on how default is actually defined. In credit risk models, the key criterion is a bank's loss, i.e. default events are defined through actual losses or through losses recorded on the books, e.g. write-offs or creating provisions. As financial reporting and tax regulations differ from country to country, default probabilities between banks in different countries may not always be entirely comparable. Default definitions range from delays in payment exceeding 30 days to the start of legal insolvency proceedings.

<sup>1</sup> Boley, S., F. von Dewall and K. Hoekerd (2000), p. 22 f.

<sup>2</sup> Ammer, J. and F. Packer (2000).

<sup>3</sup> Moody's (2000), p. 3.

- Treatment of provisions: There is widespread agreement that equity shall help cover unexpected losses whereas expected losses shall be covered by current earnings and risk-mitigating provisions. However, in some cases there are significant differences in the rules on creating provisions. In assessing capital charges, regulators have to take into account these differences in loan loss reserve coverage.

## **6 Expected Impact on the Austrian Banking Sector and Banking Supervision**

The current regulations pertaining to the Austrian banking sector include a range of the above-mentioned elements of adequate credit risk management (see section 2). Hence, for the Austrian banking sector, the proposed measures are a refinement rather than an entirely new approach.

For quite some time, a number of Austrian banks have been pushing ahead with credit risk management as envisaged in the proposals described before (see section 3). Regardless of their impact on supervisory regulations, the developments in risk management also influence competition. The ability to measure and control risks accurately will be a decisive competitive advantage in credit operations. Although the proposals put forward by the Basel Committee and the European Commission are still under discussion, the banks might find it useful to launch the following preparatory measures:<sup>1)</sup>

- record the criteria for ratings as well as rating processes and decisions;
- draw up time series on risk assessments, collateral assessments and credit exposure;
- record and systematically process data on defaults and losses;
- establish a pattern to measure default probability, loss given default and exposure at default;
- draw up time series on default probabilities, loss given default and exposure at default.

The supervisory recognition and permanent supervision of external rating agencies and internal ratings systems, however, are an entirely new challenge to regulators and require new instruments and procedures. Naturally, the Austrian banking supervisory authorities have always dedicated much of their work to the credit risk of banks; the new regulations will broaden the scope of their tasks. An optimum combination of on-site examinations as well as supervisory and statistical reporting will be required to ensure that both banks and regulators can carry out their tasks as efficiently as possible.

The recognition of internal ratings and continuous monitoring will presumably consist of the following examinations:

- examination of the recording of rating systems and data sources;
- on-site examination of the organization and structure of rating processes;
- analysis of default and risk statistics;

<sup>1</sup> Horn, C. and O. Küchle (2000) p. 244 ff.

CREDIT RISK  
PROPOSAL ON A CAPITAL CHARGE FOR CREDIT RISK PUT FORWARD  
BY THE BASEL COMMITTEE ON BANKING SUPERVISION AND THE  
EUROPEAN COMMISSION – CURRENT DEBATE AND POSSIBLE  
IMPLICATIONS FOR THE AUSTRIAN BANKING INDUSTRY

- case-by-case comparisons of ratings by various banks and external rating agencies for selected borrowers.

In these procedures, supervisors will increasingly make use of the results of the banks' internal validation procedures, which are a substantial prerequisite for the recognition of internal ratings. Therefore, more extensive supervision will not considerably increase the banks' tasks and responsibilities.

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# *Critical Evaluation of the Basel Committee's and the European Commission's Proposals on the Treatment of Other Risks in the New Capital Adequacy Framework*

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*With the discussion about the supervisory treatment of other risks in Basel and Brussels still in full swing, this paper is to be read as a progress report rather than a presentation of an agreed set of new rules. It reviews current developments, without, however, suggesting how the new rules might be implemented in Austria.*

## **I Introduction**

At first glance, the treatment of “other risks” in the context of the new capital adequacy framework may seem a bit out of place. Credit risk and – owing to booming investment banking – also market risk are the traditional types of banking risks. Taking on these risks, which generate revenues in the form of net interest income, trading profits and commission income from portfolio management, is one of the key functions of the banking sector. Consequently, it is only logical that the Basel Committee on Banking Supervision (BCBS) and the European Commission should first of all set a framework for capital requirements for credit risk in the Basel Accord of 1988 and the Solvency Ratio Directive in 1989.<sup>1)</sup> These rules were later supplemented by requirements for market risk, which marked the first departure from the “one-size-fits-all” standardized approach for all credit institutions and permitted banks to use their own risk management models (value-at-risk models) to assess their required capital charge.<sup>2)</sup>

This approach has also been maintained in the consultations on a new capital adequacy framework, which was officially kicked off in 1999.<sup>3)</sup>

The consultative papers for the first time propose specific capital charges for so-called other risks.<sup>4)</sup> The 1988 Accord is based on a simple approach that should cover not only credit risks but also any other risks. One objective of the new capital adequacy framework is to align regulatory capital more closely with economic capital, i.e. the level of capital required to cover the actual risks to which a bank is exposed. Thus, other risks are no longer covered and have to be made subject to a specific capital charge. This paper gives an overview of the present discussion, from both the supervisors' and the practitioners' points of view. The following section provides a description of the various attempts to define other risks. It is followed by a comparison of the proposals of the Basel Committee's and the European Commission's consultative papers and a presentation of articles on current risk management procedures in banks. The paper ends with an introduction of first approaches to quantify other risks.

1 *International convergence of capital measurement and capital standards (“Basel Accord,” 1988) and [http://www.europa.eu.int/eur-lex/en/lif/dat/1989/en\\_389L0647.html](http://www.europa.eu.int/eur-lex/en/lif/dat/1989/en_389L0647.html) Council Directive 89/647/EEC on a solvency ratio for credit institutions (1989).*

2 *Amendment to the capital accord to incorporate market risks (1996) and [http://www.europa.eu.int/eur-lex/en/lif/dat/1993/en\\_393L0006.html](http://www.europa.eu.int/eur-lex/en/lif/dat/1993/en_393L0006.html) Council Directive 93/6/EEC on the capital adequacy of investment firms and credit institutions (1993).*

3 *A new capital adequacy framework, consultation document issued by the Basel Committee on Banking Supervision (1999) and [http://europa.eu.int/comm/internal\\_market/en/finances/banks/capad.htm](http://europa.eu.int/comm/internal_market/en/finances/banks/capad.htm), consultative paper by the European Commission's services (1999).*

4 *For a description of the elements of other risks, see 2 “Definition of Other Risks.”*

## 2 Definitions of Other Risks

Since other risks are primarily defined as all risks other than credit and market risks, it is crucial to identify the risks which should be made subject to capital requirements before discussing the calibration of a capital charge.<sup>1)</sup> Clear definitions are also necessary if other risks are to be quantified using internal models.

One of the most complex issues in this context is the double meaning of the term “operational risk:” The term is either used as a synonym for “other risks” or, more often recently, to denote a subcategory of other risks.

After a survey among banks, the Basel Committee made a first attempt to define “operational risks” in the fall of 1998: The majority of the banks surveyed defined operational risk as any risk not categorized as market or credit risk, i.e. they chose a negative definition. Operational risk is generally associated with settlement or payments risk. Some banks define operational risk as a loss arising from a human or technical error. In 1988, banks also mentioned settlement and netting risks. Operational risk becomes even more complex when second-round effects, i.e. combinations of various risk elements from different risk categories occur. For instance, an operational problem with the settlement of a financial transaction can generate market or credit risks.<sup>2)</sup>

In April 2000, the Basel Committee agreed on a definition of other risks. For purposes of revising the capital framework, it described other risks as all risks other than credit, market and interest rate risks. In other words, the Basel Committee opted for the generally accepted negative definition. The explicit mention of interest rate risk in the context of other risks may be a bit of a surprise, as this category is usually considered to be a component of market risk. However, this is due to the fact that both the Basel and the Brussels consultative papers discuss the question of interest rate risk in the banking book under the heading other risks. Therefore, the Basel Committee and the EU must make clear that interest rate risk in the banking book is a separate category. The new, broad definition of other risks includes operational risk (OpR), business/strategy risk, legal risk, reputational risk and other risks. These risks occur in all fields of business, from traditional credit and trading operations to fee-based financial services and new products such as Internet banking and e-commerce.<sup>3)</sup>

Already at an earlier stage, the Basel Committee had defined operational risk as “the risk that deficiencies in information systems or internal controls will result in unexpected loss. This risk is closely linked to human error, systems failure and inadequate procedures or controls.”

Furthermore, other risks are also classified as measurable (usually operational risks) and nonmeasurable (usually business/strategy risk, legal risk, reputational risk and other risks) elements.<sup>4)</sup>

1 *EU consultation document (1999)*, p. 57.

2 *Operational Risk Management (1998)*.

3 *Other Risks (OR)*, (2000), p. 3 ff. [http://www.sib.co.uk/basel/publications/bis\\_other\\_risks042000.pdf](http://www.sib.co.uk/basel/publications/bis_other_risks042000.pdf).

4 *Operational Risk Management (1998)*.

A joint study by the British Bankers' Association (BBA), the International Swap Dealers' Association (ISDA) and Robert Morris Associates (RMA) provides a definition which, according to the authors, reflects the latest developments in the industry:

“Operational risk is the risk of direct or indirect loss resulting from inadequate or failing internal processes, people or systems or from external events.”

However, the Basel Committee is right in its criticism that this study fails to state whether business/strategy risk is included in this definition or not.<sup>1)</sup>

### **3 The Proposals of the Basel Committee and the European Commission**

Before discussing the proposals drawn up in Basel and Brussels, it should be noted that the authors of this paper were able to use only those documents that had already been published by the Basel Committee and the European Commission at the time this paper was finished. Since Basel released a separate discussion paper on other risks in April 2000 whereas Brussels last commented on the subject in its consultation document published in November 1999, the two approaches diverge to a certain degree. However, it can be assumed that it is in the interest of both the Basel Committee and the European Commission to align their proposals as far as possible to produce a new capital adequacy framework.

#### **3.1 The Treatment of Other Risks in Brussels<sup>2)</sup>**

The European Commission addressed the topic other risks in its November 1999 consultation document against criteria like technical feasibility, incentives for sound risk management, implications for supervisory resources and legislative acceptance in the Member States, and suggested that the supervisory framework for other risks should rest on the following elements:

- the development of risk management standards and internal controls to serve as a first line of defense against other risks;
- the development of a capital requirement for other risks;

After discussing problems of definition, the European Commission identified the following aspects of other risks as relevant for supervisory purposes:

- other risks cut across all business lines, although the extent to which they do so may vary;
- the techniques for quantifying other risks lag behind those available for market and credit risks;
- the management of other risks is mostly confined to easily quantifiable elements.

The European Commission suggests that a general standard should cover the following main elements:

<sup>1</sup> BBA, ISDA, RMA (1999), p. 35 ff.

<sup>2</sup> EU consultation document (1999), p. 57 ff.

- development of an approach for differentiating between credit and market risk and between them and other risks;
- adequacy of the procedures to identify, measure and control risks, also at group level;
- adequacy of compliance functions and the quality of personnel;
- the internal control systems employed;
- the internal audit procedures used;
- the contingency plans in place;
- limit systems and other risk management procedures;
- risk mitigation techniques, including insurance policies.

The EU consultation document proposes a standard methodology for other risks based on a yet to be determined formula covering the size and income of an institution (*top-down approach*). The suggested capital requirement could be a simple linear calculation or could follow a building block approach. This will depend on the outcome of further analyses of the relevant parameters and possible interactions between them and also on whether the formula is set progressively or regressively.

$$K = \alpha A + \beta I$$

Parameter A (assets) could stand for total assets including off-balance-sheet items. Costs should not be included in this formula, as the introduction of risk management systems and control mechanisms, while mitigating other risks, is rather expensive.

Parameter I (income) could refer primarily to noninterest income, its fee income or operating income components, which could be supplemented by aspects of the volatility of earnings.

Brussels suggests possible alternative methodologies for the management of other risks, which are based either on self-assessment or the observation of market prices. The self-assessment methodologies include bottom-up approaches like internal modeling. The European Commission also mentions a box approach based on management's assessment of the relative risks to which a bank is exposed from different business lines.

The observation of market prices in the Value-at-Risk Differential (VaR-D) is quoted as an example of the top-down approach. For a closer examination of quantitative methodologies, see section 4.4.

Brussels has deliberately chosen a simple capital requirement in accordance with the top-down approach, but at the same time has not ruled out the recognition of other methodologies at some future date.

### 3.2 The Treatment of Other Risks in Basel<sup>1</sup>)

The latest discussion paper of the Risk Management Group of the Basel Committee issued in April 2000 distinguishes between the measurable (like operational losses) and the nonmeasurable components (for instance, implications of a reputational loss) of other risks and presents a four-strand model to deal with other risks:

1 "Other Risks (OR)" (2000).

1. internal models approach;
2. internal business line approach;
3. simple standard approach;
4. basic indicator approach.

The Basel Committee has made it clear from the outset that it has a preference for an internal models approach, but also concedes that internal assessment techniques are not yet refined enough to calculate the economic capital for other risks. An internal model of this kind would be based on the interaction between defined business lines, defined types of other risks, risk indicators and measurement techniques.

Large institutions at least are familiar with the business line approach. Under this approach, a bank's activities are broken down into business lines and risk categories. Risk indicators are then used as a filter to analyze the other risks which have been identified. Finally, these measures are aggregated to form the basis for the capital charge.

The simple standard approach would be a simplified business line approach with about five lines of business. It is suggested to use only one or a very limited number of standard indicator(s) of risk and a simple method of aggregation. Thus, the capital charge for settlement risk, for example, could be based on a standard indicator such as business volume. The simplest version of the standard approach would be to have a single indicator for the whole institution (this is where the top-down and bottom-up approaches overlap). However, as this standard approach could facilitate capital arbitrage, the indicators would have to be chosen very carefully in order to ensure sound risk assessment.

#### **4 Risk Management Techniques for Other Risks**

A range of methodologies of how to treat other risks can be found in the literature.<sup>1)</sup> The following section describes these techniques and provides an overview of possible bank internal procedures. It remains to be seen, however, to what extent these techniques will eventually be accepted by the supervisors.

##### **4.1 Qualitative Criteria**

Over the past few years, risk awareness in the financial sector has evolved considerably. Today, there is a positive view and general acceptance of the work of risk management and risk control units, which previously had widely been regarded as useless and expensive. Banks all over the world have been investing in new risk assessment models, oversight systems and, in particular, well-qualified staff. Many surveyed institutions<sup>2)</sup> agree that risk management and risk control units are the most effective means of minimizing risks and avoiding losses. An efficiently run risk management unit with competent personnel maintaining good contacts with all

<sup>1</sup> BBA, ISDA, RMA (1999); Ceske, Hernandez and Sanchez (2000); papers at the IIR conference "New Trends in Operational Risk" (March 27/28, 2000, London) and the ICBI's "3rd Annual Global Financial Industry Forum on Managing Operational Risk" (June 28/29, 2000, Juan les Pins).

<sup>2</sup> BBA, ISDA, RMA (1999).

departments of a bank can detect risks at an early stage and thus give management the opportunity to intervene in good time.

The use of qualitative standards in risk control is particularly important for the management of other risks. First, only carefully applied control mechanisms and management information systems ensure that risks can be considerably reduced. Second, mathematical solutions, which do not currently seem to be appropriate, rely on sound risk management. Third, sensible risk management is the best way to reduce the risk that quantitative methodologies give firms a false sense of security.

Risk control should not be set up as an isolated function; for risk management to work effectively, all members of an institution should be involved. Especially where other risks are involved, significant responsibility lies outside the independent risk control unit, for instance in the back office, the technical support unit, the legal division, the compliance officer, the customer service division and the internal auditing division. Therefore, establishing an effective risk management unit should also involve the creation of a well-organized information network within the institution.

Since the magnitude of other risks largely depends on an institution's structure and its business lines, it is advisable to look for individual solutions. A number of measures can be implemented quickly and require only a small amount of technical or financial outlay. Such measures include regular and in-depth reporting, stepped-up involvement of top-level executives in day-to-day business and the introduction of internal risk assessment. The involvement of staff – which is often referred to as the most dangerous risk source – is a very sensitive issue. Employees become committed only if they feel that their work is appreciated and that it is in everybody's interest to work towards reducing the likelihood of errors. However, the literature suggests that the role of employees in risk management tends to be somewhat depersonalized, which certainly does not help give employees the feeling that they are trusted and esteemed. The management of other risks requires good intuitive skills. On the one hand, it must be recognized that some errors are inevitable, on the other hand, the cause of the errors must be identified and appropriate measures must be taken to limit their negative effects. Considerable leadership qualities are required, as employees must not be regarded solely as a source of errors but rather as valuable providers of the information required to identify particularly error-prone processes. Appropriate training and motivation-enhancing measures need to be carefully planned in cooperation with representatives of the relevant divisions (for instance, immediate superiors, heads of division, senior management, personnel division, risk management) and adjusted to an individual employee's specific areas of responsibility.

As stated in the most recent proposals by the Basel Committee and the European Commission and numerous conference papers by market participants,<sup>1)</sup> professional risk management is the key to risk mitigation.

1 "Other Risks (OR)" (2000).

Risk management standards will therefore continue to play a central role for the foreseeable future.

#### 4.2 Risk Indicators and Self-Assessment

Identifying risk indicators is vital in both the qualitative and the quantitative management of other risks. The papers mentioned above<sup>1)</sup> show that a number of institutions have already defined indicators of other risks which could generate losses or which in fact have generated such losses in the past. How much weight should be attached to the indicators is up to the individual institutions to decide ("self assessment"). The next step in analyzing the risk indicators is to assess their possible impact. For instance, a fire in the IT center is likely to do much more harm to an institution than a fire in the cloakroom. Possible interactions and chain reactions must also be taken into consideration. When an incident occurs, it is possible, or even likely, that more than one risk indicator will materialize. In other words, a fire in the IT center represents not only a danger to staff and buildings but may, eventually, affect data integrity, destroy data and cause a range of other technical problems. Customer services and the institution's reputation may also suffer as a consequence (secondary operational risks).

A number of risk management systems providers and speakers at seminars<sup>2)</sup> suggest that a standard catalogue of risk indicators could be created from which every institution could pick the appropriate indicators. Such catalogues already comprise between 50 and 300 indicators. The risk indicators must be chosen and categorized on a case-by-case basis to adequately capture an institution's actual risk exposure.

Some risk indicators are nearly impossible to influence or avoid, but sound risk control and risk management can help minimize them. Analyzing risk indicators has the advantage of identifying the interrelationships and correlation of risks and making out the role which they play in an institution. At the same time, analyzing risk indicators is a time-consuming process, like fitting together the pieces of a puzzle, and it is hard not to lose sight of the overall risk situation.

The following paragraph introduces the risk indicators most frequently quoted in the literature:

Personnel, management, systems and control procedures are considered to be the main risk indicators. These categories are broken down into subcategories, for instance, the category "personnel" has the subcategories human error, fraud, knowledge and skills, health and experience (operational risk). In addition to these main risk indicators, the literature quotes indicators the institution has little or no influence over, such as external events or political change (hardly quantifiable other risks).

A classification worked out by the British Bankers' Association identifies the following risk factors:

1 BBA, ISDA, RMA (1999); Ceske, Hernandez and Sanchez (2000); papers at the IIR conference "New Trends in Operational Risk" (March 27/28, 2000, London) and the ICBI's "3rd Annual Global Financial Industry Forum on Managing Operational Risk" (June 28/29, 2000, Juan les Pins).

2 "Other Risks (OR)" (2000).

People	Process	Technology	External	Physical
Employee error Fraud Lack of knowledge or skills  Loss of key personnel	Capacity risk Accounting error Settlement and payment error	Data quality System error Y2K	Legal Outsourcing Tax  Political	Fire Natural disaster Theft  Terrorist

The study by BBA, ISDA and RMA which was mentioned earlier specified four main risk indicators, which are applied differently on a consolidated basis and at the organizational unit level. The consolidated assessment relates to business-wide affairs whereas the organizational approach reflects the operational area.

Self-assessment is the second step needed to assess risk indicators both on a qualitative and a quantitative basis. The specification of risk indicators has illustrated the types of dangers to which an institution is exposed. In order to introduce and implement efficient risk management, it is necessary to identify the processes which might contain other risks and to assess how well these processes are carried out. A questionnaire distributed to all members of an institution may help obtain the necessary information. Not only the answers as such, but also the process of providing the answers can prove beneficial: It can raise the problem awareness among those directly concerned and reveal shortcomings. It is vital that these valuable contributions be given due consideration and, where appropriate, acted upon. Timetables and regular follow-up checks are to make sure that the agreed measures are implemented within the deadline and that the results are assessed.

Self-assessment will only have the desired effect if this evaluation process is repeated at regular intervals. Management and staff should perform the evaluation jointly. At this point, it appears important to emphasize once more the difficult situation staff is faced with. The number of questionnaires requiring completion will almost inevitably increase, if such evaluations are to be a valuable method of self-assessment. Excellent management skills are required: Managers must make clear that the evaluation is of great importance and that clear and candid assessments will be rewarded. Responses which deviate from the general pattern as well as “embellished” responses must be queried.

#### 4.3 Data Quality and Reporting

Having defined risk indicators and analyzed correlations in the self-assessment process, institutions can start the data collection exercise. As mentioned above, there are two categories of other risks: “high probability, low severity” events and “low probability, high severity” events. It is obvious that a useful internal database can cover the first category, that is most of the operational risks. Which data should be chosen to control operational risks depends on an institution’s size, complexity and business. Reporting must be adapted to the chosen methodology. Both the BCSB and the European Commission demand a group-wide assessment. To determine the frequency

and the extent of operational deficiencies, the data are processed primarily as time series (see section 4.4).

The key issues to be considered in data collection are as follows:

*Purity:* It is to be ensured that data consist solely of operational losses; the data basis can be further refined by distinguishing between expected and unexpected losses.

*Historical observation period:* A measurement based on historical data must cover a sufficient time period. It must be noted, however, that changes (mergers, technical adaptations, etc.) may impair the usefulness of data.

*External data:* Banks may rely on external data to complement internal data in cases where internal data are insufficient. Yet external data do not reflect an institution's actual risk profile. Moreover, the quality and integrity of external data need to be thoroughly reviewed.<sup>1)</sup>

There are already a few suppliers of external databases which associate loss data with certain business lines and types of organization. The banks themselves link these data to loss events and risk indicators. Since the whole process is still at an early stage, it can be expected that a range of new database and processing software suppliers will be on the market in the near future.

The following section describes quantitative methodologies based on the above-mentioned data. At this point it seems appropriate to critically review the use of historical data as a risk management instrument.

Market risk depends primarily on market price fluctuations, i.e. exchange rates, share prices, bond prices, etc. Such data have been collected for a long period and show a certain pattern. Old price data and time series are used to quantify likely future losses, although this method is criticized by some.

In the case of credit risk, it is not only the data issue that is more complex. There is agreement that the data must cover at least one business cycle if it is to provide a viable basis for the assessment of future risk. Since neither the industry nor supervisors are willing to wait that long, consideration is being given to alternative solutions.

Firms have only just started collecting data on operational risk; moreover, the assumption that past loss data are a reliable basis to make predictions about future developments still needs to be critically reviewed. Studies on the management of operational risks, i.e. that component of other risks which can be best quantified, maintain that healthy risk management is the best way to reduce losses or avoid them altogether. If an organization learns its lesson from past losses and changes its structures accordingly, it can be assumed that risks will be mitigated to a similar extent. The "external data approach" entirely disregards this "learning effect," as loss data from external databases do not reflect the conditions under which risks actually materialize, nor do they provide information about the preventive measures that were subsequently taken.

<sup>1</sup> <http://www.MOREExchange.org> or [www.operationalrisk.com](http://www.operationalrisk.com), but also <http://www.bba.org.uk>.

#### 4.4 Quantitative Methodologies

The literature<sup>1)</sup> describes the following quantification methodologies:

##### 4.4.1 Top-Down Approach

Top-down approaches are usually the first step to measuring operational risk; the calculations are based on firm-wide data. The results are allocated to individual units according to predefined criteria; however, these results are only of limited value for risk management purposes.

The simplest method is the *residual approach*, under which the capital required for market and credit risks is deducted from total capital. This approach may be easily followed, but it is in fact quite useless in risk management: It does not quantify risk, but merely assumes that the remaining capital suffices to cover other risks. The *activity-based approach* estimates operational risk by applying a range of indicators representing the individual business lines (number of employees, sales, etc.). It must be noted, however, that the use of cost indicators may generate negative incentives (see proposal by the European Commission).

*Key Risk Indicators* identify risk factors and make use of them in early-warning systems. Here, regression or trend analyses produce estimates of expected losses. This methodology is relatively easy to implement; on the other hand, it focuses on units that are subject to risk management and thus disregards uncontrolled units.

Historical time series consisting of revenues and expenses serve as the basis for calculating *operating leverages*, which provide a clear picture of the relationship between revenues and costs. Risk is classified as the potential deviation between expected and actual results.

The analysis of *earnings volatility* calculates the difference in volatility between total revenues and total losses minus market and credit volatility. This calculation is an ex post analysis of the origin of revenues and losses, and assumes that sufficient capital is available. Based on the well-known assumptions of Capital Asset Pricing Models (CAPM), namely efficient markets and zero arbitrage, all aspects of a bank, including operational risk, should be included in a model. However, it is difficult to assign the results to individual business lines or products; the theorems of capital market theory can only be applied to other risks to a limited extent.

##### 4.4.2 Bottom-Up Approach

Bottom-up approaches model the correlation between cause and effect at the business line or process level. The aggregate results should illustrate the risk profile of an institution. One of the biggest disadvantages of these models is that they are expensive to develop. Besides, these techniques shift the focus to individual processes and fail to capture highly unusual events with major implications.

The causal modeling technique displays correlations between cause and effect using graphical models and relates them through conditional

<sup>1</sup> Ceske, Hernandez, Sanchez (2000). Note that the authors use the concept "event risk" synonymously for "operational risk" in a narrower sense.

probabilities (Bayes Theorem). This model is based on a detailed analysis of the processes within the organization. Illustrating the causal networks can be very useful for institutions with closely linked processes, provided that their structures do not change frequently so that the data can be easily kept up to date. Nevertheless, the quantification of probabilities is more difficult since it is also based on historical data and is therefore limited to ex post observations. Furthermore, causal modeling is not appropriate for organizations that frequently enter new fields of business.

Predictive modeling is often seen as the ultimate goal of most bottom-up approaches. This technique seeks to define predictive factors in order to determine the probability and the severity of future loss events. The credit card industry has already used this method, with the aim of filtering out the causes and warning signs of possible losses. The statistical methodology applied comprises regression and factor analyses as well as assumed probabilities. The correlations obtained should reflect the impact on the institution as a whole. This technique is only suited to distinct lines of business where there is an association between easily quantifiable events and future losses. Apart from the fact that this technique requires extensive resources, it relies on historical data to predict future events, and the results obtained must therefore be treated with caution.

#### **4.4.3 Actuarial Methodologies**

The “low probability, high severity” components of other risks are in most cases nothing less than veritable disasters. Consequently, there have been attempts to employ actuarial methodologies (processing existing loss data) to calculate the capital-at-risk. Institutions use both bottom-up (i.e. business line-oriented methodologies) and top-down techniques based on data collected from across the company.<sup>1)</sup>

#### **4.5 Risk Mitigation and Insurance**

As soon as risks and potential dangers become evident, people feel the need to insure against these risks. Traditionally, certain risks, such as fire, theft or interruption of business, have been covered by insurance policies. Insurance companies' calculation techniques for disaster risks enable them to offer products that cover individual elements of these risks only; an all-embracing cover is difficult to provide. In any case, the responsibility for qualitative control will always remain with the institution. Of course insured institutions might develop a false sense of security and might thus attach less importance to establishing an efficient risk management system.

The “new” insurance products for other risks also deserve to be assessed from the perspective of the historical recognition of risk-mitigating techniques. While the concept of risk mitigation was given only little consideration in the Solvency Ratio Directive, hedging became an important element in the capital requirement for market risk. The ongoing discussion on a new capital adequacy framework seeks to give more weight to risk mitigation and to also consider more recent developments such as loan

<sup>1</sup> Hoffmann (2000).

securitization (e.g. asset-backed securities). Market and credit risks remain in the same market, which comes into being when market agents become active for various motives, e.g. if up against limits or out of a desire to rearrange the portfolio. Assuming credit and market risks is one of the key economic functions of supervised institutions, which derive a significant part of their revenue from such business. The institutions must hold capital against these risks.

It seems a bit daring to transfer these risk mitigation concepts to other risks. Especially as far as market risk is concerned, emphasis is always laid on the notion that risk is a “neutral” concept, as market movement can generate both losses and gains. Other risks, however, tend to have negative implications: When the risk becomes evident, revenues are usually highly unlikely to go up.

The transfer of credit risks is driven by other motives. Limits are set to allocate risk more broadly. To allow for the renewed use of credit lines which have already been exhausted, credits are transferred to counterparties which have capacity for the relevant customers or which do not yet have any exposure to these borrowers (e.g. regional balancing out of loans). Once extended, the loan remains in the banking sector, where capital is held against it and which is subject to banking supervision.

Insuring other risks, however, involves the transfer of risk to another sector operating under a different regulatory framework. Similar risks should be treated in the same way in terms of capital requirements not just in the case of Allfinanz groups. Rather, attention should be given to the systemic risk which develops when risks are diversified outside the originating sector.

## **5 Critical Comments on Quantification Attempts and the Regulatory Treatment of Other Risks**

On the whole, banks would be well advised to improve risk control in their risk-prone areas. While there is agreement that active risk management is required in the case of other risks, the various above-mentioned methodologies for quantifying other risks are a controversial issue.

### **5.1 Data Collection and Cost Effectiveness**

A fair analysis of how cost effective the quantification of other risks is can be obtained only by recording the total costs and time spent on collecting data and eliminating errors. There are also serious concerns that the documentation of shortcomings might exert considerable pressure on staff. Statistical data can identify relatively easily which persons or divisions cause the most frequent or expensive mistakes; indeed, such statistics are used for this purpose. Furthermore, the exchange of personal data within external database networks, which some providers do envisage, is a sensitive issue.

### **5.2 Eligibility and Predictive Quality of Data**

As has been mentioned in section 4.3, it is highly questionable whether loss data, especially those of external institutions, are suited to predict future operational risks. The use of historical data contradicts the idea of the

“learning organization” or the current view that improving organizational structures is the key to risk mitigation. The question remains whether the possible end justifies the pressure placed on staff.

### **5.3 Critical Comments on Methodologies**

Andrew Carter, a freelance risk management consultant, is among those who doubt that complex mathematical methods are the best choice for the quantification of operational risk. Considering that mathematical techniques require a lot of time and money, more cost-effective, simpler risk management procedures would seem to be preferable.<sup>1)</sup>

### **5.4 Supervisory Treatment of Other Risks**

Some experts are skeptical about considerations to permit the use of institutions' internal quantification models for supervisory purposes. One of the most important unresolved questions is how supervisors should deal with complex structures that both institutions and supervisors find hard to understand. Furthermore, it will be necessary to agree a timeframe and budget guidelines for all those involved. In order to enable institutions to gain further experience in this field, critics of the complex quantitative methods advocate simple solutions with simple calculation factors.<sup>2)</sup>

### **5.5 Supervisory Priorities**

The new papers from Brussels and Basel contain a range of new proposals. As laid out in the study on credit risk also in this issue, improving and harmonizing the supervisory standards on the recognition of internal rating systems is one of the crucial issues. It must be noted, however, that providing data will be time-consuming and costly. The question arises whether an evolutionary approach would not be more useful. After establishing market risk systems, improving credit assessment systems was the next logical step. Compared to that, the methods to measure other risks are still in their infancy. Likewise, these systems need time to develop; otherwise, a debate on the supervisory recognition of these methods will not produce useful results.

### **5.6 Other risks in the Second Pillar “Supervisory Review”**

The idea that the unmeasurable elements of other risks might be covered by the second pillar should be viewed with some skepticism. As the paper “Supervisory Review” in this issue demonstrates, supervisors should not provide shadow management of banks and cover all those elements for which no criteria have been developed in the first pillar. The treatment of other risks, which is currently considered to be reasonable, must be incorporated in the new capital adequacy framework; transferring it to the supervisory review process does not seem to make sense. Leaving aside the problem of quantifying other risks, there is broad agreement that it is

<sup>1</sup> Lecture by Andrew Carter (freelance risk management consultant) “Developing Effective Strategies to Monitor Operational Risk” at the IIR conference “New Trends in Operational Risk” (March 27/28, 2000, London).

<sup>2</sup> Hoffmann (2000).

necessary to review management structures and to identify and eliminate shortcomings.

## 6 Outlook

The ongoing debate on a new capital adequacy framework is apparently also about taking account of market developments at an early stage. It will be vital to address the issue of other risks and perhaps even to develop a simple approach to assess the required level of regulatory capital to cover them. This could be supplemented by risk management standards, whose implementation could be made transparent using the third pillar of public disclosure. The dialogue which is now in progress between credit institutions and supervisory bodies will have to intensify, especially as far as other risks are concerned. But quite separately from the current supervisory discussion, the improvement of risk management methods is certainly a step in the right direction.

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## I Introduction:

### Definition and Measurement of Interest Rate Risk

#### 1.1 Issues to be Discussed and Definition of Interest Rate Risk

In its publication “Principles for the Management of Interest Rate Risk” of September 1997, the Basel Committee on Banking Supervision provided the following general definition of interest rate risk for credit institutions: *“Interest rate risk is the exposure of a bank’s financial condition to adverse movements in interest rates. Accepting this risk is a normal part of banking and can be an important source of profitability and shareholder value. However, excessive interest rate risk can pose a significant threat to a bank’s earnings and capital base. Accordingly, an effective risk management process that maintains interest rate risk within prudent levels is essential to the safety and soundness of banks.”<sup>1)</sup>*

This 1997 publication of the Basel Committee established a new international standard for the regulatory treatment of interest rate risk, without, however, discussing capital charges for interest rate risk – as would be in line with the first pillar (minimum capital requirements) of the Basel three-pillar concept. For the trading book or trading activities of credit institutions, the Basel Committee had developed capital requirements as early as 1996<sup>2)</sup> (see also section 2.1.1).

For the banking book, by contrast, no mention had been made of any explicit capital charges for interest rate risk (see also section 2.1.2). The Basel and EU proposals on a new capital adequacy framework, however, changed this. This study examines the proposed introduction and application of capital charges to cover the interest rate risk in the banking book, in addition to the like charges already applied to the trading book.

In the above-mentioned “Principles for the Management of Interest Rate Risk” the Basel Committee basically differentiates between the trading book and the banking book for the supervisory management of interest rate risk, without explicitly mentioning capital charges: *“Another question is the extent to which interest rate risk should be viewed on a whole bank basis or whether the trading book and the banking book should be treated separately. As a general rule, it is desirable for any measurement system to incorporate interest rate risk exposures arising from the full scope of a bank’s activities, including both trading and non-trading sources. This does not preclude different measurement systems and risk management approaches being used for different activities.”<sup>3)</sup>*

To set the stage for the various approaches towards measuring interest rate risk and the proposals on capital charges discussed below, a brief introduction to the sources and effects of interest rate risk might be helpful. The following definitions and explanatory notes are based on the Basel Committee’s 1997 publication on interest rate risk management.

The four main types or sources of interest rate risk are as follows:

1. *Repricing risk*: As banks perform maturity transformation, timing differences or maturity mismatches are inevitable. These differences in the maturity (for fixed rate) or repricing (for floating rate) of, in

<sup>1)</sup> Basel Committee on Banking Supervision (1997).

<sup>2)</sup> Basel Committee on Banking Supervision (1996).

<sup>3)</sup> Basel Committee on Banking Supervision (1997).

particular, assets and liabilities can – as interest rates change – expose a bank's (*net*) interest income to fluctuations which, considering the respective nominal interest return, are unanticipated. Repricing risk can also affect the present (*net*) economic value of future cash flows. Compare also letters a) and b) below on the two major economic effects of interest rate risk.

2. *Yield curve risk*: Yield curve (used in a specific sense here) means a curve depicting the yields of (possibly synthetic) zero coupon bonds of the same rating as a function of the residual maturities of the respective bonds or synthetic bonds. The curve is interpolated for all residual maturities on the basis of the actual residual maturities in the market. This definition is essential, since only the yield curve in the specific sense is used for determining a bank's economic value.

For further details see the pertinent textbooks, especially on the management of interest rate risk or on asset and liability management.<sup>1)</sup> What is yield curve risk about? On top of the repricing risk (1), unanticipated changes to the slope and shape of the yield curve which go beyond a basic parallel movement may have adverse effects on a bank's net interest income. In other words, this happens when different interest rate changes on the assets and liabilities sides become effective at a given future point in time. A simple parallel shift of the yield curve, on the other hand, would correspond to identical interest rate changes across all maturities, which would cause problems with net interest income, as stated under 1 above, only in case of repricing at different future repricing dates. Especially changes in the steepness of the yield curve, which might even result in an inversion of an originally ascending curve, raise yield curve risk.<sup>2)</sup>

3. *Basis risk*: This risk refers to the spread risk that occurs if different underlying yield curves (here the term is used generally) are allocated – in particular – to assets and liabilities, respectively. The effect described below differentiates this form of interest rate risk from the risks discussed under 1 and 2: If an asset- and a liabilities-side position with identical fixed-interest periods or residual maturities and identical repricing dates are combined, repricing may still result in changes in net interest income if repricing is based on two different index rates. In Austria, the various secondary market yields of Austrian bonds, mainly government bonds, are frequently used as alternative index rates, which – in addition to money market rates – for instance also have an effect on the base rate calculation under the rise and fall clause applicable to private loans.
4. *Optionality*: This interest rate risk is gaining importance in interest rate risk management in the banking book of Austrian credit institutions. It arises from stand-alone or embedded options and differs from the three risk types mentioned above in that it may occur not only at the

1 Zimmermann et al. (1995).

2 Fabozzi, F. J. and A. Konishi, editors (1996), especially: "Measuring and Controlling Yield Curve Risk" (Dattatreya, R. and F. Fabozzi), pp. 103–126.

respective repricing dates of the various positions, but also at other exercise dates of an option or over longer periods of time, maybe even the entire maturity of a position.

In addition to stand-alone options or interest rate derivatives, exchange-traded as well as – for the most part – over-the-counter, options embedded in structured interest rate products of the capital market are gaining importance. These embedded options are often nontrading activities. Typical examples of stand-alone options are caps or floors and swaptions, i.e. options on swaps. Embedded options can be further subdivided into embedded “real” interest rate options, i.e. options on future interest rate developments, and more general optionalities which might only indirectly depend on the interest rate – such as various prepaying rights of borrowers, to state a simple example.

The two most important economic effects of interest rate risk, or rather of the four risk types, mentioned above may be seen from two different perspectives:

- a) *Net earnings perspective:* A bank’s future net interest income is directly influenced by the factors 1 to 4 mentioned above. In addition, other income, especially fee income, may indirectly depend on the future development of interest rates – most of all with regard to the “risk of customer behavior.” Let us take a look at the simple example of lending: A surge in lending rates, caused for instance by the rise and fall clause mentioned under number 3 above, might dampen borrowing, which would consequently not only reduce banks’ interest income, but also their fee income.

The earnings perspective thus refers to a future effect, which can only be observed or measured over the short or medium term, since sensible income forecasts are feasible for a limited period of time only, i.e. without tracking all positions until the end of their maturities.

- b) *Net economic value perspective:* Two types of changes in the yield curve affect the present economic value of all expected cash flows of the positions considered in interest rate risk analysis: on the one hand, changes as stated under letter a) of expected interest rate flows which are included in the calculation of the present value; on the other hand, changes in the present discounting of all future cash flows on account of variations in the yield curve to be considered in discounting the respective present value.

The latter case refers to the primary economic value effect, while the former interest rate effect may be regarded as rather secondary. For the primary discounting effect, an immediate single yield curve change is often assumed for analyzing present value sensitivity in order to obtain the present modification of the present value for all relevant future cash flows (see section 1.2.2). As the economic value perspective considers the potential impact of interest rate changes on the present value of all future cash flows, it provides a more comprehensive view of the potential long-term effects.

## 1.2 Methods of Interest Rate Risk Management

Discussing the main measurement methods used for managing interest rate risk in detail would exceed the scope of this paper. Instead, a short analysis of the strengths and weaknesses of each method – taking into account the types and effects of interest rate risk described above – shall suffice to get a first impression of the applicability and the effort involved in the use of a certain method, without having to be familiar with the technical details.

For an in-depth introduction refer to textbooks on this topic. In addition to the two books already mentioned, the authors would like to suggest another book in German,<sup>1)</sup> which – in contrast to the other two – takes a rather technical approach.

### 1.2.1 Gap Analysis

The nominal amounts of interest rate-sensitive assets, liabilities and off-balance-sheet positions are slotted into the appropriate time bands according to their residual maturities or maturity dates (if fixed rate) and the time remaining to their next repricing (if floating rate). Gap analysis gives a rough indication of the effect of interest rate fluctuations (see 1., a above).<sup>2)</sup> The effect of repricing risk on net earnings can only be approximated by gap analysis if a simple parallel shift of the yield curve is assumed (and if the current balance sheet is maintained in the future). Yield curve risk 2., a cannot be captured accurately by gap analysis.

The term gap analysis is used because a gap arises between the maturity-related net positions of assets and liabilities when the nominal amounts of these assets and liabilities are aggregated in a given time band.

### 1.2.2 Duration of Equity or Duration Gap

Modified duration is a single-figure measure for evaluating the effects of parallel shifts of the yield curve on a bank's economic value. This method captures the interest rate effect 1., b as stated in section 1.1, i.e. the net economic value perspective of repricing risk. If optionalities are also considered in determining the duration of a given position, the interest rate effect 4., b can, for parallel yield curve shifts and with great effort, also be roughly estimated by means of the duration of equity – as far as this is possible with a single figure. The economic value perspective of yield curve risk 2., b can be captured neither by duration nor by gap analysis.

The duration of equity reflects the sensitivity of the present value of capital to interest rates, i.e. it measures the relationship between changes in the present value and changes in interest rates causing the first. It is applicable to rather small, parallel yield curve shifts. An alternative measurement is the duration gap, which simply contrasts the aggregated (modified) duration of assets to that of liabilities and measures the type of maturity transformation.<sup>3)</sup>

<sup>1</sup> Schwanz, J. (1996).

<sup>2</sup> In this paper a letter combination such as "1,a" refers to the type of interest rate risk (1) and its economic effect (a) as stated in section 1.1.

<sup>3</sup> Zimmermann, H. et al. (1995).

### 1.2.3 Duration Analysis

Article 22h Austrian Banking Act (ABA)<sup>1)</sup> presents the duration method for calculating the regulatory capital requirement for the general position risk in interest rate instruments as an alternative to the maturity band method referred to in section 2.1.1 below. The concept of gap analysis (see section 1.2.1) – at least according to legislative intent – forms the basis for the maturity band method. The duration method, on the other hand, is more complex and implicitly contained in the calculation of the duration gap (see section 1.2.2), since, as in gap analysis, the market or present values – instead of the nominal amounts – of interest rate-sensitive assets, liabilities and off-balance-sheet positions are slotted into time bands (zones) according to the (modified) duration of each individual position.

This improved form of gap analysis should thus be referred to as duration analysis, and may be considered a first step towards measuring the economic value perspective of yield curve risk 2., b, i.e. it is also applicable to nonparallel shifts of the yield curve (as is in fact assumed in Article 22h ABA). On the other hand, duration analysis may also be seen as a preliminary form of the key rate duration methodology, which implies splitting the duration of individual positions.

### 1.2.4 Key Rate Duration Methods

These methods break the total duration of each position down into several key rate durations using certain modeling assumptions. In other words, key rate duration measures the sensitivity to a parallel shift of a particular sector of the yield curve. Each sector is characterized by a key rate used as a point of reference for the shift of the respective sector. A simultaneous shift of all sectors by the same interest rate difference again results in a simple parallel shift of the entire yield curve. The basic assumption of this method is that while interest rates are not subject to parallel changes across all maturities, they still move more or less in sync in individual sectors of the curve. Various modeling techniques are used in the market.

Key rate duration methods measure the economic value perspective of yield curve risk 2., b even more accurately than duration analysis (see section 1.2.3), since nonparallel shifts of the yield curve can also be considered for individual positions and the pertinent cash flows. Duration analysis, on the other hand, can only capture interest rate changes for two different positions (with essential duration disparities) and within two different time bands.

What is more, key rate duration can be applied to measure the effect of interest rate risk 3., b, that is the economic value perspective of basis risk. This, however, requires additional modeling assumptions on how to forecast approximations of various base rates on the basis of the underlying future yield curve (preprocessing models, see also section 3.4).<sup>2)</sup> These methods, as well as the simulation methods described below, are used mainly by large credit institutions.

<sup>1)</sup> *Bankwesengesetz (BWG).*

<sup>2)</sup> *Schwanitz, J. (1996).*

### 1.2.5 Simulation Methods

The interest rate risk measurement systems described so far model future interest rate changes in a completely static fashion. They consider a single parallel shift or a nonparallel variation of the yield curve, but they do not take into account the gradual changes of interest rates over time. This scenario can be compared to the modeling assumption for stress testing in the trading book, which is an ABA requirement for market risk models.<sup>1)</sup> Stress tests in the trading book also model crisis scenarios by simply capturing a dramatically different market situation. The reason for employing this technique in the trading book is for instance given in “Stress Testing,” Volume 5 of the OeNB Guidelines on Market Risk.<sup>2)</sup>

For interest rate risk management in the banking book, on the other hand, the dynamic simulation of the future path of interest rates emerged as an additional measurement system, which also facilitates capturing the repricing risks 1., a and 1., b. Since the risk of changes in net interest income through the repricing of assets or liabilities (1., a) occurs at every repricing date, dynamic simulation techniques are clearly better suited for capturing this risk than is for instance gap analysis (see section 1.2.1), which only takes into account the respective next repricing date.

Simulation methods, which are also discussed in detail in the Basel publication on the management of interest rate risk,<sup>3)</sup> either use single fixed scenarios of interest rate development (comparable to stress testing in the trading book, but including the dynamic development over time) or an entire probability distribution of future yield curve scenarios generated by a statistical yield curve forecasting model (e.g. by Monte Carlo simulation). These complex methods help capture all types of risk and both effects (a and b).

## 2 Capital Charges for Interest Rate Risk – The Current Situation in Austria

The Austrian Banking Act defines the legal framework for interest rate risk in Austria, with different regulations applicable to trading and nontrading activities. Interest rate risk in the trading book is to be measured in great detail and is subject to capital backing. The regulations on interest rate risk in the banking book, however, are rather general and there are no explicit capital charges.

### 2.1 Austrian Banking Act

#### 2.1.1 Trading Book

The Basel Committee on Banking Supervision<sup>4)</sup> and the European Commission developed precise regulatory requirements for interest rate

1 Article 26b para 5 letter 1b ABA, in conjunction with Article 7 Regulation on Internal Models for the Limitation of Market Risks.

2 Breuer, T. and G. Krenn (1999): See page 10 for the reason referred to in the text.

3 Basel Committee on Banking Supervision (1997), Annex A.

4 Basel Committee on Banking Supervision (1996).

risk in the trading book. The pertinent EU directive<sup>1)</sup> was implemented in Austrian legislation in Articles 22a to 22o ABA, with Articles 22f and 22h ABA mainly dealing with the general interest rate risk in the trading book. Pursuant to Article 26b ABA and the pertinent Regulation on Internal Models for the Limitation of Market Risks, which are based on the Basel minimum capital requirements, credit institutions may determine the capital charges required for their interest rate risk in the trading book also by means of internal models. An EU directive<sup>2)</sup> prescribing the regulatory treatment of internal risk models was passed in 1998.

Articles 22f and 22h ABA require credit institutions with a securities trading book to calculate the potential loss they might have to bear in the interest rate-sensitive segment of their trading portfolio. The market rate changes to be assumed in this calculation are clearly specified by law. Capital charges apply to the potential loss. This procedure is referred to as the standardized approach and allows banks to choose between calculating capital requirements on the basis of residual maturities (or the time remaining until the next repricing date) or on the basis of the modified duration of their interest rate-sensitive instruments. The first is called maturity band method, the second duration method. The ABA defines different standard scenarios for each method, which might be regarded as somewhat inconsistent. Interest rate changes of 100 basis points are assumed for short-term and 60 basis points for long-term maturities in the maturity band method, whereas the changes range from 100 to 70 basis points in the duration method. Volume I of the OeNB Guidelines on Market Risk may serve as a general reference on this standardized approach to interest rate risk in the trading book.<sup>3)</sup> On the downside, the standardized approach does not take into consideration correlations between the various financial instruments.

This is exactly what speaks in favor of the application of internal risk models, which take into account current volatilities as well as diversification effects resulting from correlations. Article 26b ABA sets the quantitative and qualitative legal framework that banks have to comply with if they want to use their models to calculate capital requirements. The law does not require the use of certain types of models (for instance variance/covariance approach, historical simulation, Monte Carlo simulation), since banks should enjoy extensive freedom in choosing their models.

This does not pose a problem, since an expert opinion and supervisory consent are required before a bank may employ an internal model to calculate capital charges for interest rate risk in the trading book.

### 2.1.2 Banking Book

As mentioned above, the ABA contains much less definite rules on interest rate risk in the banking book. The liquidity provisions under Article 25 para 1 ABA for instance state that credit institutions need to maintain systems to

1 Directive 93/6/EEC, hereinafter referred to as CAD I (Capital Adequacy Directive).

2 Directive 98/31/EC, hereinafter referred to as CAD II.

3 Coosmann, G. and R. Lazslo (1999).

monitor and control the interest rate risk of all of their transactions – that is not only of trading, but also of nontrading activities. Furthermore, Article 39 ABA lays down that it is part of bank managers' duty of diligence to get acquainted with the particular banking and operational risks and to appropriately contain these risks. Credit institutions must establish such administrative, accounting and control procedures as are necessary for the purpose of capturing and evaluating the particular banking and operational risks. The explanatory notes on this provision explicitly name interest rate risk. Internal audits are to be used to review the adequacy of these procedures and their enforcement regularly, that is at least once a year.

These provisions are clearly of a mainly qualitative nature and do not contain any indication of how banks are to go about quantitatively measuring interest rate risk. Most importantly, they do not contain capital requirements for interest rate risk in the banking book. Interpretations of these provisions will focus on the above-mentioned Basel document "Principles for the Management of Interest Rate Risk,"<sup>1</sup>) which, among other things, calls for:

- clear separation of risk control from the risk-taking units;
- regular and timely reporting on risk exposure to senior management;
- policies and procedures for measuring and limiting interest rate risk that are consistent with the nature, scope and complexity of banking activities, including sufficient resources;
- analysis and understanding of the essential risk properties of new products before their use in banking transactions;
- measurement systems for interest rate risk capturing all material sources of risk. Risk managers as well as the senior management need to understand the mechanism of the measurement system and especially all assumptions;
- stress tests analyzing the effects of extreme market developments. The results of these analyses should also be considered in defining limits.

In addition to the provisions mentioned above, there is one rule that limits interest rate risk in absolute terms: Article 26a ABA decrees that open term positions must not exceed 50% of eligible capital. Banks which hold capital covering the interest rate risks of their trading activities have to apply this provision only to their banking book. It must be taken into consideration, however, that Article 26a ABA merely applies to positions in foreign currencies and therefore not to any euro-denominated transactions. It will certainly be necessary to reconsider the adequacy of Article 26a for risk control, when capital requirements for interest rate risk in the banking book will be implemented.

## 2.2 Reporting

Pursuant to Article 74 para 4 ABA, banks must transmit to banking supervision authorities quarterly reports on their assets and liabilities graded according to residual maturities (what is referred to as residual maturities computation in part B of the monthly return). Since this report

<sup>1</sup> Basel Committee on Banking Supervision (1997).

was originally introduced for other purposes, its usefulness for the identification of a bank's interest rate risk is very limited.

The above-mentioned Basel document on the management of interest rate risk<sup>1)</sup> set forth a number of principles for an ideal reporting system enabling supervisors to effectively identify interest rate risk in the banking book, the most important of which are:

- reporting on all instruments should focus on the time to next repricing rather than on residual maturities;
- off- and on-balance-sheet positions should be recorded equally;
- interest rate exposures should be separated according to currencies;
- meaningful time bands should be established.

This reporting system essentially reflects the principle of gap analysis (see section 1.2.1), a basic method that should be part of the minimum standard of every bank and the supervisory reporting of which should not pose any real problem. Therefore, developing reporting systems along these lines will be an important task for the future, with the necessary dialogue between supervisors and banks an essential element in this process.

### **3 Basel and EU Suggestions for the Treatment of Interest Rate Risk in the Banking Book**

#### **3.1 Separation of Trading and Nontrading Activities**

One essential primary decision was already made in the EU Consultation Document of November 1999:<sup>2)</sup> The separation of trading and nontrading activities is to be maintained in determining minimum capital requirements for interest rate risk in the banking book, i.e. individual capital charges will be computed for the trading book and for the banking book.

The EU Consultation Document suggests a negative definition of the interest rate-sensitive banking book for the purpose of setting capital charges for interest rate risk, i.e. the banking book corresponds to everything that is not contained in the trading book.

However, several positions which are to be regarded as immune from or insensitive to interest rate risk are to be excluded from the definition of the banking book when setting interest rate risk capital requirements. The EU Consultation Document mentions other assets/liabilities and own funds as examples for such positions,<sup>1)</sup> a suggestion that met with criticism also in Austria, both in the banking sector and beyond.<sup>3)</sup>

In any case, such a negative definition of the banking book only makes sense if the definition of the trading book – in Austrian legislation currently laid down under Article 2 item 35 ABA – remains in line also with the new capital requirements for credit risk (see the paper “Credit Risk” in this volume), especially with regard to the specific position risk and the counterparty risk in the trading book. Since June 2000 a working group of the Technical Subgroup of the EU Banking Advisory Committee has been engaged in revising the trading book definition. As a member of this EU

<sup>1</sup> Basel Committee on Banking Supervision (1997).

<sup>2</sup> EU Consultation Document (1999).

<sup>3</sup> Enthofer, H. and P. Haas (2000).

working group, one of the authors of this paper (T. Hudetz) is involved in the task of finding a positive trading book definition that is complementary to that in the banking book.

### 3.2 Free Zone and Outliers

As mentioned above, the Basel Committee published a number of essential documents on the issue of interest rate risk.<sup>1)</sup> It is interesting to note, however, that the Basel Consultative Paper of 1999, which is currently at the center of discussion and forms the basis for the EU Consultation Document,<sup>2)</sup> refers to the interest rate risk in the banking book in the least concrete terms.

Basel presupposes that, in principle, the interest rate risk exposure of most banks is not so high as to endanger their financial stability. There are, however, some banks which incur significant interest rate risk and hence absolutely require regulatory measures. Therefore Basel explicitly suggests setting capital requirements only for banks with above-average interest risk exposure, thus differentiating between credit institutions taking average and those taking above-average risk. The first category of banks incurs interest rate risk that may be regarded as commensurate with the banking business and thus does not require capital charges, whereas the exposure of the second group of banks is unusually high. Capital requirements need to be set for the risk exceeding such a free zone, i.e. an average exposure. Banks with above-average risk exposure are referred to as outliers, and obviously a number of parameters need to be defined to be able to identify them.

Basically there are two ways to determine outliers: either by using data from the individual bank or from all banks of a country put together.

In the first case, the definition would be based on the potential loss of an individual bank resulting from a certain interest rate change. Outliers would then, for instance, be defined as banks facing a potential loss of more than X% of their capital if interest rates vary by Y basis points.

In the second case, credit institutions would be graded according to their interest rate risk in the order of their potential loss, and outliers would be defined as a quantile, for instance the worst 5%, of all banks put together.

It seems that a decision has been made in favor of the first method, which also means that there are not necessarily outliers in every country. The essential advantages of this method are:

- the loss threshold, defined as X% of a bank's capital, can be put in meaningful economic context with the solvency of banks;
- every bank knows whether it is an outlier or not on the basis of its own data;

1 The most important pertinent publications are:

- *Measurement of Banks' Exposure to Interest Rates* (April 1993),
- *Principles for the Management of Interest Rate Risk* (September 1997) and most recently
- *Consultative Paper on a New Capital Adequacy Framework* (June 1999).

2 EU Consultation Document (1999).

- the results are comparable across countries;
- the method reveals if the risk of all banks put together is increasing.

No decision has so far been reached on determining the parameters X% and Y basis points. It should be stressed once again that the consultation documents of both the Basel Committee and the EU suggest capital charges only for that potential loss of a bank which exceeds X% of its capital (compare economic value sensitivity in section 1.2.2). This method is referred to as the free zone approach.

### 3.3 De Minimis Exemption

In contrast to the Basel Committee, the EU Commission also suggests the introduction of a (yet to be defined) de minimis exemption for credit institutions with immaterial nontrading activities, most of all investment firms. This is essential, since the implementation of the calculation methods for interest rate risk described in the next section is likely to involve considerable effort for most banks. Therefore, it seems all the more important to find a solution which also exempts from this effort small banks that do not engage in securities trading, but have insignificant interest rate risk in the banking book – measured according to simple and easily applicable criteria (compare also section 4.1).

### 3.4 Standardized Approach versus Internal Models and Preprocessing Models

The EU Consultation Document recommends applying also to the banking book the standardized approach towards determining interest rate risk, which is described in Annex 1 of CAD I and is essentially an implementation of the Basel recommendations of 1993. This means that, in principle, the same methods as in the trading book are to be used. Certain adaptations to the banking book might, however, be necessary. In addition, the EU Commission recommends employing the duration method, which should provide incentives for improving risk management systems. This corresponds to the duration method as laid down in Article 22h ABA (see also section 2.1.1).

One of the biggest problems in this context is the treatment of products lacking definite repricing intervals – so-called core deposits – and of very complex instruments. Specific methods, also referred to as preprocessing models, are required to assign such positions to the respective time bands.<sup>1)</sup> Here, supervisors have to decide whether to regulate the treatment of such products or whether to give banks extensive freedom in estimating the effective interest rate lock-in and capital tie-up periods and the resulting slotting into time bands. In the latter case, it would above all be important that banks be required to give reasons for the methods used and the assumptions made to ensure traceability.

The Basel Committee and the EU Commission also suggest permitting internal models for the calculation of capital charges for interest rate risk in the banking book. This approach puts considerable confidence in bank-

<sup>1</sup> Schwanz, J. (1996).

determined assumptions and parameters. The quantitative and qualitative framework should be in line with the CAD II criteria for the recognition of internal trading book models. Models to be used for the calculation of capital charges for banking book interest rate risk would – in line with the trading book – of course be subject to approval by banking supervision authorities. Model results, like potential losses calculated according to the standardized approach, are used to identify outliers, and capital only needs to be held for amounts exceeding the free zone (X%).

Both the standardized approach and the use of models have a number of advantages and disadvantages that will have to be balanced against each other in practical application. In any case, it should be up to each bank to choose either one of these approaches. The table below contrasts some of the advantages and disadvantages:

Standardized Approach		Internal Model	
Advantages	Disadvantages	Advantages	Disadvantages
<p>Risk may be compared consistently across banks.</p> <p>The method is already used by some banks to calculate the market risk of the trading book. In Austria, however, this only applies to a minority of the total number of banks.</p>	<p>A single approach measuring the risk of all banks irrespective of their risk structure might not be efficient and is likely to fail to adequately measure risk in many cases</p> <p>A standardized approach might distort risk management decisions.</p>	<p>Little effort would be involved for banks that already use internal models for interest rate risk control.</p> <p>Banks would be encouraged to further develop their models.</p> <p>The assumption and parameters used reflect the business areas and balance sheet positions of each bank.</p>	<p>Results are not easily comparable across banks.</p> <p>Model examination would mean a considerable burden for supervisors.</p> <p>Models might tempt banks to save capital instead of objectively measuring risk.</p>

All told, the Basel and EU suggestions have so far been guided by the following principles:

1. Supervision of interest rate risk cannot and should not replace banks' responsibility for adequate risk management.
2. Supervisory regulations should encourage banks to establish adequate risk management systems without undermining established methods.
3. Due to supervision, outliers should reduce their risk – by reducing their exposure, by raising their capital or, not least, by improving their risk management systems.
4. Future capital requirements are likely to be a considerable burden for banks as well as supervisors. Therefore it is important to make sure that this burden corresponds to the risks involved.
5. Basically the interest rate risk of all banks should be subject to supervision, but naturally supervisors will keep focusing their attention on system-relevant banks.

#### 4 Outlook: Two OeNB Contributions

The final section provides a summary of two contributions made by the authors to the discussion on future developments of capital requirements or supervision of interest rate risk in the banking book. Both are works in progress and will be developed further.

#### **4.1 Treatment of Small Banks: Risk-Dependent De Minimis Exemption?**

This issue ties in with section 3.3 above on the de minimis exemption suggested in the EU Consultation Document in addition to the free zone explained in section 3.2. The four criteria for a de minimis exemption stated in the Consultation Document are mainly directed towards investment firms, of which there are few in Austria. Many small Austrian banks, most of which do not even have a securities trading book, could, however, face a paradoxical situation on account of free zones calculated according to the duration-based standardized approach (see section 3.4). They would have to implement the complex duration method only to perhaps arrive at the conclusion that they are within the free zone and thus are not subject to capital charges for interest rate risk.

For the de minimis exemption, the authors therefore suggest an additional simple risk criterion based on gap analysis (see section 1.2.1), which temporarily enables small banks with rather insignificant interest rate risk in the banking book to use the maturity method instead of the duration method, as long as their risk remains small.

#### **4.2 Stress Testing in the Banking Book – Regulatory Simulation Scenarios?**

An additional supervisory tool might be suggested for monitoring and controlling the interest rate risk in the banking book of large, system-relevant banks: namely the simulation methods (see section 1.2.5) based on statistical yield curve forecasting models already used by these banks. For stress tests in the banking book, supervisors would provide simulation scenarios in the form of probability distributions of extremely adverse future interest rate developments and could then compare the results across banks. One of the authors (T. Hudetz) is currently investigating the feasibility of this suggestion in a study in cooperation with the Oesterreichische Kontrollbank (C. Schwärzler).

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S T U D I E S

# The New Millennium – Time for a New Economic Paradigm?

Results of the 28th Economics Conference of the Oesterreichische Nationalbank<sup>1)</sup>

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## I Introduction: Is Europe Heading Towards a New Economy?

Over the past decade, Europe has made huge efforts to enhance its international competitiveness and growth potential: The EU has implemented the single market program, taken an active role in the international liberalization of the capital, goods, and services markets, created Economic and Monetary Union and pushed ahead with enlargement. However, in light of the rapid development of information and communication technology, which is often linked with the concept of a New Economy and the emergence of a new economic paradigm, these efforts seem to be insufficient. A number of questions have been left unanswered: Is there, in fact, a New Economy, and if so, how is it defined? How conclusive are statistics on productivity, which are often presented as empirical evidence of the existence of a New Economy? Nor is there a clear understanding of the time dimension: Is the acceleration of productivity resulting from the rapid development in information and communication technologies (ICT) a temporary or a more permanent phenomenon? While a number of economists have confirmed the existence of a New Economy in the U.S.A., only tentative evidence has so far been detected in Europe. This raises the question of structural economic differences between the U.S.A. and Europe: To what extent have they been fostering the development of a New Economy in the U.S.A. while hampering it in Europe? Can Europe catch up if it removes rigidities, and how long would that take? Finally, the impact of economic policy must not be disregarded either: How can it support and stimulate growth? In particular, what is the role of a stability-oriented macro policy? And which way should monetary policy go in this environment?

At the two-day conference, these complex and comprehensive questions were discussed in five sessions. The first session was dedicated to the challenges for monetary policy resulting from the possible economic change of paradigm toward a New Economy. The second forum discussed whether Europe was also able to develop new sources of economic growth. The relationship between technological change, stock markets and corporate valuations was the central issue in the third forum. The fourth session sought to explore the reasons for the growth differential between the U.S.A. and the EU and to discuss the U.S. productivity edge. The fifth session summarized the challenges that the New Economy posed to economic policy in general. In this context, the discussants also considered the current political and economic, especially budget-related, developments in Austria. The conference concluded with a discussion on the Austrian universities' function as centers of innovation and their future development.

<sup>1</sup> The conference took place in Vienna from June 15 to 16, 2000. This article summarizes the main conclusions. The original papers were published in separate conference proceedings in October 2000. Most papers can also be found under [www.oenb.at](http://www.oenb.at).

## **2 Monetary Policy Challenges in the New Economy Effects of the New Economy on Inflation Are Not Predictable – Uncertain Development of Asset Prices**

*Urban Bäckström* introduced the topic by giving a historical overview of Sweden's monetary policy over the past decades. He pointed out that Sweden had opted for a policy of price stability with flexible exchange rates already back in 1931. Since 1991, the central bank has been pursuing a policy of inflation targeting, whose main advantage, according to Bäckström, is that the importance of low inflation can be communicated to the public quite easily. The big challenges of inflation targeting involve choosing the rate to be targeted and ascertaining whether output volatility would increase. More recently, another source of instability was identified: the fluctuation of asset prices. What are the implications of the emergence of a New Economy in this context? On the whole, Bäckström was quite skeptical about the concept of a New Economy: He looked askance at the buzzword itself, and he is as skeptical that there were any signs of the emergence of such a New Economy in Europe. The European economy had so far witnessed neither a boom in investment, nor had the rate of productivity growth accelerated. In any case, it was a difficult time for monetary policy, he said. It was still unclear how effects on the demand and on the supply sides would develop in relation to each other, which means that both inflationary or deflationary pressures could be generated. What monetary policymakers need most in a situation like that are reliable forecasts, which, however, are becoming increasingly difficult to make in times of structural change.

### **Higher Real Interest Rates?**

*Alfred J. Broaddus* also doubted that the macroeconomic environment had systematically changed to such an extent that the concept of a New Economy would be justified or that a new economic policy would be required. Nevertheless, he recognized that some of the U.S. economy's key parameters, like the sustainable long-term GDP growth rate, may have changed. According to Broaddus, the question of how economic policymakers can deal with these changes can be best analyzed by using new neoclassical synthesis models, which were developed from a combination of real business cycle models and elements of the real economy, such as inflexible prices. The monetary conclusions that these models offer for the current state of the U.S. economy contradict those drawn by some proponents of the New Economy paradigm. The latter point out that in light of rapidly increasing productivity, new inflationary pressures can hardly develop, therefore there is no need for monetary restriction. According to Broaddus' analysis, on the other hand, rising real interest rates are necessary to restore the equilibrium between expected income and potential output, which currently seems to be out of balance in the U.S. economy.

### **Maintaining Financial Market Stability by Centralizing Banking Supervision in the Euro Area**

*Franco Bruni* focused on maintaining the stability of financial markets as the task of central banks in a changing environment. As to the relationship between financial market stability and modern central banking theory, Bruni pointed out three key aspects: the function as a lender of last resort, the stabilization of assets, and institutional questions. The main difficulty in last resort lending is how to distinguish between insolvency and illiquidity. According to Bruni, one method to resolve this problem would be an approach labeled Prompt Corrective Action, which buys time to understand and correct the causes of problems of illiquidity before they can be confused with signals of insolvency. Bruni suggested that asset prices should be considered in monetary policy only as possible indicators of the future development of the general price level. The main question arising in this context is how this treatment of asset prices can be incorporated in a transparent and objective way in the monetary policy strategy. Exchange rates are among the most important asset prices; still, according to Bruni, the exchange rate issue was one of the weakest aspects of the EU's monetary arrangements. As far as institutional issues are concerned, Bruni called for the creation of a harmonized, centralized and independent supervisory agency in the euro area.

### **Intense Communication between Central Banks and Markets in a Changed Environment**

*Iwao Kuroda* described the unprecedented monetary situation in Japan. A policy aiming at a zero nominal rate is a unique phenomenon in monetary history. This policy, however, has kept the Japanese economy from getting trapped in a deflationary spiral; for this reason, the monetary policymakers will stick to it until the economy is back on a path of self-sustained recovery. In pursuing this policy, the Bank of Japan must make available the desired amount of money at practically no cost. This implies that the funds do not necessarily go to whoever needs them most and that the banks can ignore the liquidity risk. The emergence of a “knowledge-based economy” will further change the structure of risks faced by central banks. The necessary information about these changes will only become available through intense communication with the markets.

### **Monetary Policy Strategy of the Eurosystem well Prepared for the New Economy**

*Klaus Liebscher* analyzed the implications that a permanent increase of the growth potential and a decline in structural unemployment caused by the use of new information and communication technologies may have for monetary policy. He stressed that especially in times when uncertainty was running high because of a possible change of economic regime, fulfilling the objective of price stability was of particular importance. On the assumption that the New Economy in fact exists, it was essential that the central banks base their monetary policy decisions on a wide range of macroeconomic indicators whose usefulness would not be impaired too much by such a

change of regime. In assigning a prominent role to money and taking into account a broad range of indicators, the Eurosystem's two-pillar strategy meets the above-mentioned requirement. The federal structure of the Eurosystem is an additional asset, as it allows policymakers to draw on the macroeconomic expertise of the individual national central banks. Liebscher was convinced that Europe could also benefit from a New Economy, provided that certain rigidities on the labor, services and goods markets could be eliminated.

### **The Main Difference between U.S. Economic Policies of the 1920s and the 1990s Is Monetary Policy**

The luncheon speech of the first day, which *David E. Altig* delivered in the place of *Allan H. Meltzer*, pointed out parallels between the 1920s and the 1990s. In the U.S.A. both periods witnessed strong growth, rapid innovation and a booming stock exchange. The most important difference, however, is in monetary policy: In the 1920s, the gold standard ensured fixed exchange rates, therefore the national economies were often incompatible. In the 1990s, this problem was avoided by choosing a fluctuating exchange rate. The approaches to fighting recession also changed: The slump of 1921 prompted policymakers to adopt deflationary policies, contrary to the expansive policies in the early 1990s. The major problem in the 1920s was to end deflation; the major problem now is to adjust downward the historically high U.S. current account deficit. In both decades, the stock markets got too much attention. After all, they merely reflect uncertainty about anticipated future earnings growth.

### **3 New Sources of Economic Growth in Europe**

#### **Higher Labor Utilization in Europe as a Source of Growth; Spread of Information Technology Necessary**

The paper by *Jorgen Elmeskov* and *Stefano Scarpetta* provides empirical evidence that the rapid growth in output and labor productivity in the U.S.A. was associated with significant technological change, as estimated by faster growth rates of multifactor productivity, especially over the past few years. Most of the productivity acceleration results from the spread of information and communication technology, whose special feature is the potential to generate "network effects." Investment in information technology has been on the rise also in Europe over the past few years – though not fast enough. Information technology is only one reason Europe is lagging behind. Elmeskov showed that in the U.S.A., labor utilization has grown, whereas in Europe, labor has still been substituted for capital. In particular, the U.S.A. succeeded in reintegrating traditional outsider groups – low-skilled, or younger and older persons. Demand for these groups is yet to be created on the European labor market, though first steps in the right direction have already been taken. The policy requirements in this field are reasonably well understood; the measures required to reap the full benefits from information technology are generally less well understood. However, they likely include conditions that allow a flexible reallocation of resources within economies.

### **Economic Crisis as Mental Liberation**

*Timo J. Hämäläinen* discussed the political, social and institutional prerequisites and implications of the paradigm shift resulting from the rapid technological, organizational and social changes. Traditional neo-classical growth theory, on which e.g. Elmeskov's paper was largely based, disregarded these aspects, therefore its empirical value is low. The theories of endogenous growth have a broader approach, but they are difficult to test empirically. More complex methods that take into account also the social and institutional environment must be used to address this issue. They would show that whether a country adapts to a new paradigm quickly or reluctantly depends on its particular "starting point" – i.e. available resources, technologies, organizational arrangements, the role of the government and, in particular, the willingness to embrace change. In Finland, for instance, the severe economic crisis of the early 1990s markedly raised this "adjustment capacity," thanks to which Finland became one of the technologically most advanced nations in Europe.

### **More Investment in a Knowledge-Based Economy**

*Jørgen Birk Mortensen* described the activities of the Danish Economic Council and focused in particular on the policies to raise employment. *Wolfgang Polt* gave an overview of the situation in Austria and pointed out that among the wealthy nations, Austria had traditionally responded very slowly to new developments in information technology. However, for the past few years, the Austrian economy had been catching up quickly. *Vicente Salas Fumás* emphasized Spain's deficits in research and development. In contrast to other European countries, Spain had not improved its research performance for the past few years, which was chiefly attributable to a freeze on public spending in this area. Europe would not be able to quickly benefit from information technology like the U.S.A. because it lacked the necessary framework conditions: The integration of the European market is not advanced enough, the overriding role of the banks impedes the emergence of an efficient market for risk capital, and there is no European network for research and development. On the whole, more funds had to be invested in creating a knowledge-based economy.

## **4 Technological Change, Stock Markets and Valuation of Firms**

### **New Criteria for Evaluating Businesses of the New Economy**

*Claus J. Raidl* tried to answer the following questions: Does the evaluation of businesses in the New Economy require new approaches and criteria? How do the stock markets respond? What will the effects on the individual stock exchanges be? According to Raidl, potential investors tend to take into account criteria like growth (potential), innovation, human capital, market position, losses, and corporate spending on marketing when evaluating New Economy IPOs; in the Old Economy, corporate profit is considered the most important gauge. Traditional methods of market evaluation cannot explain why, for instance, the stock prices of New Economy enterprises posting losses in the past fiscal year and expecting losses also in the next

fiscal year are on the rise. Therefore, stock markets have every reason to behave irrationally toward New Economy businesses: Unlike the goods market, the capital market is the only truly global market and thus has the capacity to provide abundant funds through the most diverse channels for budding New Economy firms. In addition, an increasing amount of investment capital is available as a growing number of European governments are posting budget surpluses. And last but not least, people increasingly tend to invest their savings in shares and funds. All these developments foster liquidity on the capital market. Raidl asserted that stock exchanges could operate successfully in the long run only if they managed to attain a reputation for the New Economy, provided sufficient liquidity for these rapidly expanding industries and unless investors had to take high legal or currency risks. This could be a golden opportunity for Wiener Börse AG, which, contrary to other European exchanges, fulfills the latter criteria. The reform of Wiener Börse AG should also eliminate weaknesses and help establish the Vienna stock exchange as a niche player.

#### **Doubling the Market Capitalization of Wiener Börse AG between 2000 and 2003?**

*Stefan Zapotocky* pointed out that the overall performance of Wiener Börse AG had to be improved; its three main functions – trading, information, and issuance – should be carried out as efficiently as possible. He said that first steps of reform to ensure that the Vienna stock exchange meets international standards and works like a modern and efficient capital market had already been taken. For instance, in response to the numerous IPOs of young growth companies, Wiener Börse AG recently introduced the Vienna Dynamite Index (ViDX) as a second index next to the traditional ATX. The ViDX currently comprises 25% of the market capital and some 10% of the capitalization of the Austrian continuously traded stock. In the course of the year 2000, this index soared by some 50% and thus recorded a much better performance than comparable New Economy indices like the EASDAQ (Brussels), the Nouveau Marché (Paris) or the NMAX (Amsterdam). Even the SWX (Zurich), the most bullish of the previously mentioned, failed to keep pace with the ViDX. This market segment is to help double the capitalization from EUR 30 billion to approximately EUR 60 billion and to push the daily trading volume from currently almost EUR 100 million up to about EUR 300 million in the next few years. The federal government's privatization plans play a crucial role in this scenario.

According to *Andreas Treichl*, historically low interest rates, global excess liquidity, the fact that blue chips have no more upward price potential, and the high growth potential of New Economy enterprises are the reason for the high stock exchange performance and the above-average development of stock prices of technology-oriented companies in the past two years. Since technological progress is also of advantage to other enterprises, the Old Economy benefits, too, for instance through efficiency gains in the B2B and the B2C areas, but first and foremost through the ready availability of information. In his elaborations, which were based on an analysis of the development of worldwide stock markets in the 1990s, *Joe Rooney* came to a

similar conclusion. However, Treichl cautioned that investors should be careful about which New Economy shares they pick and that profits might not always turn out to be as high as anticipated. After all, like any other sector, the ICT industry consists of profitable enterprises, firms with a high potential, and those who have climbed on the New Economy bandwagon without realistic prospects of success. As Raidl has shown before, new criteria to evaluate businesses are urgently required. Treichl emphasized that it was crucial to distinguish between enterprises that are active in research and development, create value and have already established themselves on the market and those which have so far generated little more than hype but whose market capitalization has detached itself from the fundamental factors.

### **New Economy Enterprises Prefer to Go Public on the U.S. Stock Exchange**

Technological change has also had a massive impact on the behavior of stock markets' customers. Listed companies are becoming increasingly globalized, both in terms of their input and their output. According to *Josef Zechner*, in searching for new markets worldwide, these companies have globalized also their financing strategy. At the same time, investors – though they still prefer the home market – are also adjusting to globalization, since portfolios are becoming increasingly diversified. The Internet age and the suppliers of this information, which are both part of the New Economy, have fostered this development. The most important assets of New Economy firms are knowledge and know-how. They need investments for extensive periods, which they want to create by going public, before they generate positive cash flows. The question arises how the stock exchanges can succeed in the new technological environment. Empirical evidence shows that European firms are more frequently obtaining listings in the U.S.A., whereas U.S. firms are less likely to apply for a listing on one of Europe's exchanges. The expansive New Economy businesses prefer the American market not least because of apparently more desirable effects on leverage and growth. Zechner identified three reasons for that: First, the U.S. stock markets may be better able to evaluate New Economy firms, thereby providing funds more cheaply. Second, the more rigorous investor protection, disclosure and accounting standards are likely to give a stronger signal to the firm's product markets. Third, the size of the capital market seems to matter. Though the European exchanges started to catch up already in 1998, further efforts are required. An increasingly homogenous regulatory environment within the EU and harmonized accounting standards may prove helpful. Eventually, human capital and creativity will be the decisive factors in an environment determined by the growing interaction between technological progress and capital markets. Countries that are able to develop and attract these resources will ultimately succeed in attracting financial activity.

## **5 Technological Progress and Inflation**

### **The Growing Productivity Gap between the U.S.A. and Europe is Caused by Capital Inflows, Deregulation and Lower Cyclical Volatility rather than by the U.S. Technological Edge**

*Bernhard Felderer* considers the New Economy only a secondary influence on the differences between productivity and growth in the U.S.A. and Europe. He observes that the influx of capital – net capital flows of 2 to 3 percentage points of GDP per year in the second half of the 1990s – was more important, as it boosted stock prices and built up a bubble, above all in the New Economy. This contributed to the illusion that the wealth of American households had increased. Consequently, savings were reduced and consumption increased up to the point where the savings rate of current income was zero or even negative. The speaker stated that it was not clear how this increase in demand influenced productivity. Conversely, in Europe capital flows to the stock markets were perceptibly lower. Felderer observed that the elasticity of consumption demand was lower in Europe with respect to stock price changes, conceivably because European households were much less dependent on stock prices to secure their old-age income under the European pension system. Felderer identified the higher flexibility of U.S. markets, prompted by earlier and more comprehensive deregulation, as an additional reason for the widening of the productivity growth gap between Europe and the U.S.A.; the decline of business cycle amplitudes also reinforced this phenomenon. This diminished volatility was generally observed, though the phenomenon was more marked in the U.S. economy, which means that it could be kept closer to its capacity path for a longer period of time.

### **The Internet Boosts Welfare far less than the Revolutionary Inventions of the Past**

*Robert F. Gordon* posed the question of whether New Economy technology, above all the Internet, measured up to the great inventions of the past. He concluded that while the Internet revolution was a great success, some aspects were also disappointing. There was no doubt that the New Economy had caused productivity in durable consumer goods manufacturing to skyrocket, for three reasons: an acceleration of the multifactor productivity of computers, an investment boom accompanied by stepped-up capital deepening (an acceleration of the growth of capital relative to labor input), but also a rise in multifactor productivity in sectors other than telecommunications. This development went hand in hand with an increase in productivity performance in the entire economy and a drop in the rate of inflation, which gave the Fed room to delay monetary action even as unemployment was falling steadily. However, at the same time multifactor productivity in all sectors besides durables – covering some 88% of the industrial sector – trended downward. So the New Economy did not spill over into these areas, nor did trend labor productivity in these areas accelerate: the New Economy had virtually no effect on these sectors.

When comparing the computer and Internet revolution with the great inventions of the past – electricity, automobiles, aviation, the modern

chemical industry, the telephone, radio, television, to name a few – some of these inventions, in Robert Gordon's opinion, are more of a boon to consumers than the Internet – just take air conditioning. While surfing the net may bring a wealth of information to users' fingertips, it certainly represents less of a utility gain than the other inventions mentioned above. Electric lighting, or the exchange of information made possible by TV and radio, or the pharmaceutical, medical and environment-related inventions that enormously improved people's health and boosted life expectancy increased welfare much more. Gordon contended that tumbling computer prices indicated that the marginal utility of features such as speed and memory had declined sharply and that the real welfare-increasing effect of computers had taken place long before the technical upgrades of the second half of the 1990s.

#### **The Uncertainties of the New Economy and their Effects on Inflation Require Prudent Monetary Policymaking**

*Frank Browne* maintained that at the current juncture one could not judge whether a New Economy in fact existed in the U.S.A., conceding that the financial markets had voted in favor of the New Economy despite the mixed picture provided by rigorous statistical evidence. While Europe displayed some need to catch up, it stood a good chance of benefiting from the advantages of the New Economy, provided certain prerequisites were met (mainly the implementation of structural programs, above all aimed at the labor market). For monetary policymaking the time sequencing of supply and demand effects of the New Economy would be important, Browne asserted. If supply effects had a quicker impact, inflationary pressures could weaken by comparison to the Old Economy. If demand effects at first outweighed supply effects, however, this would warrant a higher interest rate level than in the former case. The uncertainties triggered by the New Economy will also have stronger repercussions on the information content of relevant economic variables (such as potential output) than in the past, which calls for even more caution in estimating current and future inflation than before. Browne declared that the monetary policy strategy of the Eurosystem was well equipped to handle any uncertainties arising from the New Economy.

#### **6 The New Economy – The Challenges to Economic Policy Knowledge-Based Growth as the Key to Full Employment**

*Pedro Solbes Mira* left no doubt that the changes involved in the new economic paradigm represented a great challenge to European economic policymaking. He maintained that the main characteristic of the New Economy was the move from the production of goods to the production of knowledge. In line with the broad economic policy guidelines adopted by the EU, it was key to strive to reattain full employment, a goal that appears within reach if the transition to a knowledge-based economy is fostered and proceeds smoothly. In addition, said Solbes Mira, the EU was called on to secure the quality and sustainability of public finances in order to cope successfully with the challenge of an aging population and to improve social

cohesion. Stepped-up structural reforms must be implemented to guarantee the flexibility required to succeed on a global scale. Additional liberalization steps will make goods and services markets more efficient, and advances in harmonization will pave the way toward an EU-wide capital market. The social partners are called on to exercise moderation in wage settlements so that wage increases remain compatible with the Eurosystem's price stability objective. Solbes Mira expressly called for intensified economic policy coordination, suggesting that the role of the Euro-11 group in the process of coordinating economic policy management should be strengthened.

### **Tax Breaks for Labor Incomes and Long-Term Budget Consolidation Efforts**

The official documents of international institutions such as the European Commission, the OECD, the IMF, and, of course, the Eurosystem show a remarkable degree of correspondence on the broad guidelines of economic policy. The stability-oriented policy all these institutions advocate calls for appropriate wage developments, sound public finances, and more efficient and more flexible labor, product and services markets. This new "orthodox consensus," as *Helmut Kramer* labels it, also comes with problems: it requires political support, social equity, a quick and efficient response to exogenous shocks and a high degree of international political coordination. Kramer considers two areas of economic policymaking – labor market policy and budgetary policy – particularly crucial. A lower tax burden on labor incomes would have a twofold effect: it would trigger additional individual efforts and result in a higher degree of employment, thus reducing the imbalance of tax incidence on the different functional income sources. However, such an orthodox consensus would be very hard to implement both nationally and internationally. The current budget consolidation efforts are to be considered only an intermediate target aimed at gaining the trust of the parties concerned, but it would be misleading to believe that they suffice to resolve transgenerational policy problems. If budget consolidation measures are to be sustainable, the question of redistribution between the generations would have to be resolved; additional budget funds for demographic burdens and an assessment of the structural and cyclical forces affecting the state would also be required.

### **Technological Innovation Boosts Welfare across the Globe**

*Ishaq Nadiri* confirms the statement that the technological revolution contributes significantly to growth and higher international welfare. Nadiri focused above all on the huge potential of developing countries, some of which do not even have simple communications technologies such as telephones. The demographic structure of these countries is also very different from that of western industrial nations, in that their population is very young on average, which means that embracing new technologies should not be a major problem. In the industrialized world, ICT (information and communication technology) development in Europe is lagging behind compared to the U.S.A. because of underinvestment in research and development.

### **Traditional Monetary Policy Concepts must be Reevaluated**

*Gertrude Tumpel-Gugerell* highlighted the challenges of the New Economy for monetary policy, emphasizing that price stability was the principal goal. However, against the background of New Economy developments, some of the traditional concepts of monetary policy would have to be reevaluated. There is a general consensus that monetary rules reduce the inflationary bias by orienting expectations on lower rates of price increase. The use of simple mechanistic rules, however, appears to have only limited justification because of uncertainties about the future path of economic growth. Above all, the output gap represents a special source of uncertainty in monetary policy decision making. The ECB's strategy is sufficiently flexible to respond adequately to the wide range of uncertainties. While Europe currently showed few signs of New Economy phenomena, Tumpel-Gugerell asserted, this might change quickly. European economy policymakers must continue to foster the transition to a knowledge-based economy, perhaps along the lines of the Finnish economy.

*Shigemitsu Sugisaki* notes that, irrespective of the challenges to the economic policy of the New Economy, the principal tasks of the IMF remain poverty reduction through the promotion of growth and managing the transition from centralized to market economies. To reach these objectives in the changed economic environment, policy implementation structures have to be overhauled, and the IMF itself must also be reformed. The IMF will continue to focus on the surveillance of various policy areas, such as financial market, budgetary and monetary policies, using new sets of consistent and harmonized codes and standards to guide the conduct of economic policy in individual countries. Together with the World Bank, the IMF has embarked on a Financial Sector Assessment Program (FSAP) to perform the core activity of surveillance. In this context, the IMF intends to improve cooperation with other standard-setting bodies for the financial markets. Sugisaki stressed the importance of providing comprehensive, timely, high-quality and accurate information to the markets as an essential element of international financial market reform. At the same time the IMF will also apply stricter rules to the provision of financial facilities to discourage undue reliance on the use of IMF resources to encourage access to private capital.

### **Implementing the Austrian Government's Program Marks a Break in Austrian Economic Policy**

In his statement, *Wolfgang Schüssel* emphasized the measures the Austrian government has already implemented under its program for the period 2000 to 2003 (such as compliance with the Money Laundering Directive) and outlined the most important issues to be tackled during the rest of the parliament's life. He regarded these measures a break with Austrian economic policymaking in the past, with budget consolidation representing a case in point. Schüssel stated that the government's goal was to fulfill the requirements of the Stability and Growth Pact by 2003, with a budget close to balance or in surplus. Additional key objectives of the program were to overhaul the pension system, to reduce administrative expenditure and to

improve public sector efficiency. More flexible labor markets, designed among other things to benefit from the New Economy, are to be the basis for creating 100,000 new jobs in the next few years and for moving toward the quite realistic goal of full employment. Another measure to support these reforms is to launch a training and education initiative. When dealing with labor market issues, termination benefits for employees should be reviewed, and models suited to stimulating the capital market should be discussed. The slated full privatization of state-owned enterprises will in any event provide a positive impulse for the stock exchange and the capital market. Schüssel mentioned transport as an additional area for efficiency issues, with a considerable cost-cutting potential of the Austrian Federal Railways and Österreichische Post, emphasizing that Austria must coordinate any meaningful effort to make rail transport more attractive with neighboring states.

#### **Expenditure Cuts, Stepped-Up Privatization and the Establishment of a Three-Pillar Pension System**

*Karl-Heinz Grasser* provided detailed information about Austria's budget plans until 2003. He confirmed Austria's goal of moving more rapidly toward stability, as announced at the ECOFIN meeting in Brussels in May 2000. Grasser intended to accelerate the budget deficit reduction from 0.1 percentage point a year to ½ percentage point per year from 1.7% in 2000 to 1.5% in 2001, 1.0% in 2002 and 0.5% of GDP in 2003. Grasser said that these steps represented a minimal austerity program, and that he would not rule out more stringent measures. Apart from slashing expenditure, Grasser envisaged a comprehensive administrative reform aiming above all at trimming the public debt. The potential for privatization was large not just in the case of federal government-owned companies, but also of regional and local government-owned firms. Grasser also reiterated the government's intention to cut the number of civil servants by 13,000. A renewal of the retirement system was also in the offing; the pay-as-you-go state pension system would have to be supplemented by private and occupational schemes to establish a three-pillar pension system.

#### **7 The Challenge Facing the Austrian University System**

*Georg Winckler* mapped out the changing relationship between university research and its relation to society. In recent years, the cooperation between industry and the universities on research has intensified, but direct financing of universities by firms has remained low. In most OECD countries, financing of university research remains a matter for governments and government agencies. Close cooperation with industry, though, has far-reaching consequences for universities. Traditionally, university research has been undertaken with no predetermined economic and social objectives, and has been purely curiosity-driven. Under such a system, science is a cultural rather than an economic activity. The growing influence of industrial research means that industry imposes the research program, which ultimately compels universities to orient their research on specific outcomes. Austria is trying to link tradition with the new demands and to

retain a large measure of freedom in university teaching and research. While the structure of Austrian industry – most firms in the sector are small and medium-sized – makes it easier for universities to retain this freedom, university researchers are frequently faced with the disadvantage of lacking competent counterparts in industry. This circumstance means that one important prerequisite for the transfer of knowledge into the New Economy is lacking. What is needed is a European network as a bridge between universities and industrial research.

### **8 The New Economy – An Attempt at a Synthesis**

Is there a New Economy or not? In an overview, the conference participants were largely skeptical. If a New Economy really existed, it would be too early to confirm this without a reasonable doubt using suitable parameters, whatever they might be. There is no definite sign to show that macroeconomic relations have systematically changed to a degree requiring a new economic policy. Some important parameters – such as potential output growth in the U.S.A. – appear to have shifted. But even in these cases, it cannot be stated with certainty whether these are permanent or temporary shifts. Some speakers were skeptical that the term IT “revolution” often cited in connection with the New Economy was justified: The discovery of electric power, for instance, was far more important in increasing welfare. Perhaps the U.S. economy’s productivity growth edge on Europe resulted not so much from the IT revolution, but more from a capital influx triggered by a wave of deregulation and the ensuing investment boom. Finally, the impact on society and social structures of a transition to a new paradigm in the wake of a factor like the New Economy must not be disregarded.

Obviously, faster U.S. productivity growth is a hard fact. Why, then, has Europe not succeeded in moving onto a similar growth path? There is no doubt that Europe has the potential, but as yet it lacks a suitable framework. Europe’s Achilles’ heels are slow progress with integration, the lack of a market for venture capital and of European networks for technology and science, and the oft highlighted inadequate flexibility of labor markets. Achieving full employment will only become possible once these shortcomings have been properly addressed. More and more areas of the economy are shifting away from the manufacture of products to the production of knowledge. Eventually, the crucial success factors will be the creativity of human capital and the ability to promote this creativity, which will be rewarded by how these companies’ stocks do on the market.

We can observe that the changed nature of some parameters has made it more difficult to interpret these parameters for economic policy purposes. Participants generally agreed that the monetary policy of the ECB, based as it is on a two-pillar strategy that allows for a broad range of variables to be monitored and hence for a flexible reaction, has enabled the ECB to establish a firm position in an environment marked by change.

**Contributions to the 28th Economics Conference of the OeNB on:**

**“The New Millennium – Time for a New Economic Paradigm?”**

**Challenges for the Monetary Policy of the Eurosystem**

Urban Bäckström	Governor, Sveriges Riksbank; President, Bank for International Settlements	The Inflation Targeting Approach
Alfred J. Broaddus, Jr.	President, Federal Reserve Bank of Richmond	Current Challenges for U.S. Monetary Policy
Franco Bruni	Professor Università Bocconi	Financial Stability Policies as Challenges for Modern Central Banking
Iwao Kuroda	Executive Director Bank of Japan	Monetary Policy in the New Millennium – A Japanese Perspective
Klaus Liebscher	Governor Oesterreichische Nationalbank	Herausforderungen für die Geldpolitik des Eurosystems
Allan H. Meltzer <sup>1)</sup>	Professor Carnegie Mellon University, American Enterprise Institute	The „New Economy“ in the 1920s and the 1990s

**New Sources of Economic Growth in Europe**

Jørgen Elmeskov and Stefano Scarpetta	Deputy Director, OECD; Principal Administrator of the Economics Department, OECD	New Sources of Economic Growth in Europe?
Vicente Salas Fumás	Professor Universidad Zaragoza	The Growth Prospects of the Spanish Economy
Timo J. Hämäläinen	Development Manager Finnish National Fund for Research and Development, SITRA	Catching Up and Forging Ahead: Explaining the Postwar Growth Experience in Finland
Jørgen Birk Mortensen	Chairman, Danish Economic Council; Associate Professor, Institute of Economics at Copenhagen University	Comment on Jørgen Elmeskov and Stefano Scarpetta: New Sources of Economic Growth in Europe
Wolfgang Polt and Helmut Gassler	Head, Institute for Technology and Regional Policy – Joanneum Research; Research Assistant, Institute for Technology and Regional Policy – Joanneum Research	Austria – A Case for a New Economic Paradigm?

**Technological Change, Stock Markets and Company Ratings**

Claus J. Raidl	Chief Executive Officer Böhler-Uddeholm AG.	Financial Markets: Technological Changes, Stock Markets and the Evaluation of Firms
Joe Rooney	Managing Director Lehman Brothers	The Ageing of the New Paradigm
Andreas Treichl	Chief Executive Officer and Chairman of the Managing Board, Erste Bank der oesterreichischen Sparkassen AG	Contribution to the panel discussion on technological change, stock markets and the evaluation of firms
Stefan K. Zapotocky	Member of the Board of Directors Wiener Börse AG	Zur Positionierung der Wiener Börse AG im Neuemissionsgeschäft
Josef Zechner	Professor University of Vienna	Technological Change and the Firm's Choices of Stock Markets

**Technological Change and Inflation**

Frank Browne	Advisor European Central Bank	Discussant of the papers by Robert F. Gordon and Bernhard Felderer
Bernhard Felderer	Director Institute for Advanced Studies	Why Do Long-term Economic Trends in the U.S. Differ from Those in Europe?
Robert F. Gordon	Professor Northwestern University	Does the “New Economy” Measure Up to the Great Inventions of the Past?

**New Economy -Challenges for Economic Policy**

Karl-Heinz Grasser	Federal Ministry of Finance of the Republic of Austria	Aktuelle österreichische Finanz- und Wirtschaftspolitik im europäischen Zusammenhang
Helmut Kramer	Director Austrian Institute of Economic Research	New Challenges for Economic Policy
Pedro Solbes Mira	Member of the European Commission	Challenges for Economic Policies
Wolfgang Schüssel	Federal Chancellor of the Republic of Austria	Aktuelle Fragen der Wirtschaftspolitik
Shigemitsu Sugisaki	Deputy Managing Director International Monetary Fund	The Challenges to Economic Policy
Gertrude Tumpel-Gugerell	Vice Governor Oesterreichische Nationalbank	Challenges for Economic Policy from the Perspective of a Central Bank

**Universities and the Innovation System**

Georg Winckler	Rector University of Vienna	Universities and Innovation System: The Case of Austria
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<sup>1)</sup> Presented by David E. Altig, Vice President of the Federal Reserve Bank of Cleveland.

## Abbreviations

AMS	Arbeitsmarktservice Österreich (Austrian Public Employment Office)	IHS	Institut für Höhere Studien (Institute for Advanced Studies)
ARTIS	Austrian Real Time Interbank Settlement	IIP	International Investment Position
BWA	Bundes-Wertpapieraufsicht (Federal Securities Supervisory Authority)	IMF	International Monetary Fund
BWG	Bankwesengesetz (amendments to the Banking Act)	NACE	Nomenclature générale des Activités économiques dans les Communautés Européennes (Statistical Classification of Economic Activities)
CAD	Capital Adequacy Directive	ÖCPA	Austrian version of the Classification of Products by Activities
CEECs	Central and Eastern European Countries	OECD	Organisation for Economic Co-operation and Development
COICOP	Classification Of Individual Consumption by Purpose	OeKB	Oesterreichische Kontrollbank
CPI	Consumer Price Index	OeNB	Oesterreichische Nationalbank
EC	European Community	ÖNACE	Austrian version of the Statistical Classification of Economic Activities
ECB	European Central Bank	ÖSTAT	Statistik Österreich
EEA	European Economic Area		Bundesanstalt öffentlichen Rechts (Statistics Austria)
EEC	European Economic Community	RTGS	Real Time Gross Settlement System
EGVG	Einführungsgesetz der Verwaltungsverfahrensgesetze (Introductory Act to the Administrative Procedure Acts)	SDR	Special Drawing Right
EMU	Economic and Monetary Union	SNA	System of National Accounts
EQOS	Electronic Quote and Order Driven System	TARGET	Trans European Automated Real Time Gross Settlement Express Transfer System
ERM	Exchange Rate Mechanism	TEU	Treaty on European Union
ERP	European Recovery Program	WIFO	Österreichisches Institut für Wirtschaftsforschung (Austrian Institute of Economic Research)
ESCB	European System of Central Banks		
ESNA	European System of National Accounts	WWU	Wirtschafts- und Währungsunion
EU	European Union		
Eurostat	Statistical Office of the European Communities		
GDP	Gross Domestic Product		
HICP	Harmonized Index of Consumer Prices		

# Legend

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

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

# Official Announcements of the Oesterreichische Nationalbank

Authentic German text published in the Official Gazette (Amtsblatt zur Wiener Zeitung)	Translation published in "Reports and Summaries" and "Focus on Austria" issue no
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## Official Announcements Regarding the Foreign Exchange Law

Please see the German-language publication "Berichte und Studien" for a list of all Official Announcements in German.

DL 1/91	Promulgation of the new Official Announcements regarding the Foreign Exchange Law; general provisions 1. Issuance of new Official Announcements 2. Definitions 3. Fees	Sept. 24, 1991	4/1991
DL 2/91	Granting of general licenses 1. General license 2. Waiver of obligation to declare; release 3. Nonbanks 4. Banks not engaged in foreign business 5. Foreign exchange dealers 6. Exchange bureaus 7. Special banks and financial institutions 8. Provisions applying to both banks and financial institutions	Sept. 24, 1991	4/1991
DL 3/91	Reporting requirements 1. General provisions 2. Exemptions from the reporting obligation 3. General reports 4. Reports by banks 5. Reports by nonbanks and financial institutions 6. Special reports	Sept. 24, 1991	4/1991
DL 4/91	Assets of nonresidents with residence (domicile) in Iraq	Oct. 29, 1991	4/1991
DL 2/93	Modification of the Official Announcement DL 3/91	May 5, 1993	2/1993
DL 1/95	Repeal of the Official Announcement DL 1/93; SC Resolution 1022 (1995) Concerning the suspension of the sanctions of the United Nations against the Federal Republic of Yugoslavia	Dec. 21, 1995	4/1995
DL 1/96	Modification of Official Announcement DL 3/91	Sept. 3, 1996	3/1996
DL 1/99	Modification of Official Announcements DL 2/91 and DL 3/91 to the Foreign Exchange Act	Dec. 21, 1998	4/1998
DL 2/99	Abrogation of Official Announcement DL 3/93 Sanctions of the United Nations against Libya	April 30, 1999	1/1999
DL 3/99	Modification of Official Announcement DL 3/91 with respect to the Foreign Exchange Act	Dec. 16, 1999	3/1999

# Council Regulations of the European Communities

Published in the  
Official Journal  
of the  
European  
Communities

## **Minimum Reserve Regulations**

No 2531/98	Council Regulation (EC) concerning the application of minimum reserves by the European Central Bank	Nov. 23, 1998
No 2532/98	Council Regulation (EC) concerning the powers of the European Central Bank to impose sanctions	Nov. 23, 1998
No 2818/98	Regulation (EC) of the European Central Bank on the application of minimum reserves	Dec. 1, 1998

# List of Reports, Summaries, and Studies<sup>1)</sup>

Published in  
"Focus on Austria"

Please see the German-language publication "Berichte und Studien" for a list of all German-language reports, studies and special publications of the OeNB.

## **Oesterreichische Nationalbank and Selected Monetary Aggregates**

Official Announcements Regarding the Foreign Exchange Law and Minimum Reserve Requirements – see preceding page	
Calendar of Monetary Highlights	1/1999
Calendar of Monetary Highlights	2/1999
Calendar of Monetary and Economic Highlights	3/1999
The Possibilities and Limitations of Monetary Policy – Results of the OeNB's 27th Economics Conference	3/1999
Calendar of Monetary and Economic Highlights	4/1999
Calendar of Monetary and Economic Highlights	1/2000
Calendar of Monetary and Economic Highlights	2/2000
Calendar of Monetary and Economic Highlights	3/2000
The New Millennium – Time for a New Economic Paradigm?	
Results of the OeNB's 28th Economic Conference of the Oesterreichische Nationalbank	3/2000

## **Austrian Financial Institutions**

Money and Credit in 1998	1/1999
Money and Credit in the First Quarter of 1999	2/1999
Austria's Major Loans Register in 1998	2/1999
Money and Credit in the First Half of 1999	3/1999
Money and Credit in the First Three Quarters of 1999	4/1999
Money and Credit in 1999	1/2000
The Austrian Supervisory Risk Assessment System	1/2000
Money and Credit in the First Quarter of 2000	2/2000
Venture Capital in Austria	2/2000
Risk Analysis of a Representative Portfolio of International Assets	2/2000
Calculating the Thresholds for the Notification of Merger of Banks – The New Legal Situation	2/2000
Money and Credit in the First Half of 2000	3/2000

## **Interest Rates**

An International Comparison of Term Structures – Estimations Using the OeNB Model	1/1999
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## **Austrian Real Economy**

Economic Background	1/1999
Financial Assets and Liabilities of Enterprises and Households in the Year 1995 to 1997	1/1999
Economic Outlook for Austria from 1999 to 2001	2/1999
Economic Background	2/1999
Economic Background	3/1999

<sup>1</sup> For a comprehensive list of reports, summaries and studies hitherto published please refer to issue no. 4/1999 of "Focus on Austria."

Published in  
"Focus on Austria"**Austrian Real Economy (cont.)**

Financial Accounts in Accordance with ESA 95 – Financial Assets and Liabilities of the Sectors of the Austrian Economy; First Release of Data for the Years 1995 to 1997	3/1999
Economic Outlook for Austria from 1999 to 2001 Fall 1999	4/1999
Impact of the Recent Upturn in Crude Oil Prices on Inflation in Austria – A Comparison with Historic Supply Shocks Economic Background	4/1999 1/2000
Financial Accounts in Accordance with ESA 95 Financial Assets and Liabilities of the Sectors of the Austrian Economy Results for 1998	1/2000
Economic Outlook for Austria from 2000 to 2002 Spring 2000	2/2000
Economic Background	3/2000

**External Sector**

Balance of Payments in the First Three Quarters of 1998	1/1999
Austria's International Investment Position in 1997	1/1999
Special Survey on the Regional Allocation of Nonresident Securities Held by Residents as of December 31, 1997	1/1999
Balance of Payments for the Year 1998	2/1999
New Concept of the Austrian Balance of Portfolio Investment	2/1999
Austrian Outward and Inward Direct Investment at the End of 1997	2/1999
Balance of Payments in the First Quarter of 1999	3/1999
Austria's International Investment Position in 1998	3/1999
Balance of Payments in the First Half of 1999	4/1999
Austrian Outward and Inward Direct Investment in 1997	4/1999
1997 Coordinated Portfolio Investment Survey	4/1999
Balance of Payments in the First Three Quarters of 1999	1/2000
Balance of Payments in 1999	2/2000
Austrian Outward and Inward Direct Investment at the End of 1998	2/2000
Balance of Payments in the First Quarter of 2000	3/2000
Austria's International Investment Position in 1999 – The External Sector of the Financial Account	3/2000

**Economic and Monetary Union**

Harmonized Indices of Consumer Prices – Progress and Unresolved Problems in Measuring Inflation	2/1999
Economic Policy Co-operation in EMU: European Economic Policy Challenges	2/1999
Effects of the Euro on the Stability of Austrian Banks	3/1999
The Austrian Banks at the Beginning of Monetary Union – The Effects of Monetary Union on the Austrian Banking System from a Macroeconomic Perspective	3/1999

# *List of Studies on Focus on Austria Main Topics*

## **Focus on Austria 2/2000:**

### **The Monetary Policy of the Eurosystem**

Monetary Policy and Monetary Policy Strategy in EMU:

New Framework – New Challenges

The Credibility of the Eurosystem

Monetary Growth during the Changeover to Economic  
and Monetary Union

Indicators for Assessing Price Changes

Estimate and Interpretation of the Taylor Rule for the Euro Area

Modification to the Monetary Policy Framework

and Structural Changes in the Austrian Money Market  
in Stage Three of EMU

## **Focus on Austria 3/2000:**

### **On a New Capital Adequacy Framework as Proposed by Basel and Brussels**

Regulatory Capital Requirements for Austrian Banks –

A Supervisory Tool Subject to Change

Supervisory Review

Credit Risk

Critical Evaluation of the Basel Committee's

and the European Commission's Proposals on the

Treatment of Other Risks in the New Capital Adequacy Framework

Interest Rate Risk in the Banking Book

# Publications of the Oesterreichische Nationalbank

## Periodical Publications

	Published
Statistisches Monatsheft	monthly
Focus on Statistics (English translation of "Statistisches Monatsheft")	<a href="http://www.oenb.at">http://www.oenb.at</a>
Leistungsbilanz Österreichs, revidierte Jahresdaten gegliedert nach Regionen und Währungen Berichte und Studien	annually quarterly
Focus on Austria (selected chapters from „Berichte und Studien“)	quarterly
Focus on Transition Geschäftsbericht	semiannually annually
Annual Report (English translation of "Geschäftsbericht") Volkswirtschaftliche Tagung (for a list of the topics discussed at the conferences, see below)	annually
The Austrian Financial Markets – A Survey of Austria's Capital Markets – Facts and Figures	annually

## Other Publications

New Developments in Banking and Finance in East and West (Kranichberg 1989)	1990
Erfahrungen Österreichs beim Übergang von administrativer Regulierung zur Marktwirtschaft (Moscow 1990)	1990
Challenges for European Bank Managers in the 1990s (Badgastein 1990)	1991
From Control to Market - Austria's Experiences in the Post-War Period (Warsaw 1990)	1991
The Economic Opening of Eastern Europe (Bergsten Conference Vienna 1991)	1991 <sup>1)</sup>
Erneuerung durch Integration – 175 Jahre Oesterreichische Nationalbank	1991
Striking a Balance – 175 Years of Austrian National Bank	1991
Transparente Dispositionen – Liberalisierter Devisenverkehr unter Beachtung internationaler Publizitätsverpflichtungen	1991
Ausgeglichene Position – Die neue Präsentation der österreichischen Zahlungsbilanz	1992
Aktive Bilanz – Ein Jahr vollständig liberalisierter Devisenverkehr in Österreich	1992
Economic Consequences of Soviet Disintegration (Bergsten Conference Vienna 1992)	1993
Neuorientierung – Internationale Vermögensposition und Außenwirtschaftliche Investitionsbilanz Österreichs	1993 <sup>1)</sup>
Bankwesengesetz 1993	1994 <sup>1)</sup>

<sup>1</sup> Out of print.

<b>Other Publications (cont.)</b>	Published
Internationale Vermögensposition 1992 – Die grenzüberschreitenden Forderungen und Verpflichtungen Österreichs	1994 <sup>1)</sup>
International Investment Position for 1992 – Austria's cross-border assets and liabilities	1994
Western Europe in Transition: The Impact of the Opening up of Eastern Europe and the former Soviet Union	1995
Die Oesterreichische Nationalbank als Unternehmen	1996
Monetary Policy in Central and Eastern Europe: Challenges of EU Integration 1996	1996 <sup>1)</sup>
Monetary Policy in Transition in East and West	1997
Die Auswirkungen des Euro auf den Finanzmarkt Österreich	1997 <sup>1)</sup>
Die Bank der Banken	1997
Die Zukunft des Geldes: Auf dem Weg zum Euro	
Grundlagen – Strukturen – Termine	1997
Geld & Währung	1997
Kompendium von Texten zur Wirtschafts- und Währungsunion	1997 <sup>1)</sup>
Nationalbankgesetz 1984 (as of January 1999)	1999
Information literature on banknote security	recurrently
Working Papers (for a list of the topics discussed in the papers, see below)	recurrently
 <b>Videos</b>	
Wie Mozart entsteht (banknote security)	1990
The Evolution of W. A. Mozart (English version of "Wie Mozart entsteht")	1995
Bank der Banken (tasks and functions of the OeNB)	1991
The Banks' Bank (English version of "Bank der Banken")	1991

<sup>1</sup> Out of print.

**List of the Topics Discussed at the Economics Conferences  
(Volkswirtschaftliche Tagungen)**

- 1975 Die ökonomischen, politischen und sozialen Konsequenzen der Wachstumsverlangsamung
- 1976 Störungsanfällige Bereiche in unserem ökonomischen und sozialen System
- 1977 Fiskalismus kontra Monetarismus
- 1978 Wirtschaftsprognose und Wirtschaftspolitik
- 1979 Technik-, Wirtschaftswachstums-, Wissenschaftsverdrossenheit: Die neue Romantik – Analyse einer Zeitströmung
- 1980 Probleme der Leistungsbilanz in den achtziger Jahren
- 1981 Systemkrisen in Ost und West
- 1982 Forschung und Wirtschaftswachstum
- 1983 Ausweg aus der Krise – Wege der Wirtschaftstheorie und Wirtschaftspolitik
- 1984 Der Weg zur Welthandelsnation
- 1985 Weltanschauung und Wirtschaft
- 1986 Vollbeschäftigung, ein erreichbares Ziel?
- 1987 Vollendung des Binnenmarktes in der Europäischen Gemeinschaft – Folgen und Folgerungen für Österreich
- 1988 Sand im Getriebe – Ursachen und Auswirkungen der Wachstumsverlangsamung in Österreich
- 1989 Banken und Finanzmärkte – Herausforderung der neunziger Jahre
- 1990 Wettbewerb und Kooperation im Finanzbereich
- 1991 Wirtschaftliche und politische Neugestaltung Europas – Rückblick und Perspektiven
- 1992 Zukunft regionaler Finanzmärkte in einem integrierten Europa
- 1993 Europäische Währungspolitik und internationaler Konjunkturverlauf
- 1994 Neue internationale Arbeitsteilung – Die Rolle der Währungspolitik
- 1995<sup>1)</sup> Die Zukunft des Geldes – das Geld der Zukunft
- 1996<sup>1)</sup> Auf dem Weg zur Wirtschafts- und Währungsunion – Bedingungen für Stabilität und Systemsicherheit
- 1997 Die Bedeutung der Unabhängigkeit der Notenbank für die Glaubwürdigkeit der europäischen Geldpolitik
- 1998 Wirtschaftspolitik 2000 – Die Rolle der Wirtschaftspolitik und nationaler Notenbanken in der WWU
- 1999 Möglichkeiten und Grenzen der Geldpolitik
- 2000 Das neue Millennium – Zeit für ein neues ökonomisches Paradigma?

<sup>1</sup> Out of print.

<b>List of the Topics</b>	Published
<b>Discussed in the Working Papers</b>	
No. 1 <sup>1)</sup> Hat Böhm-Bawerk recht gehabt? Zum Zusammenhang zwischen Handelsbilanzpassivum und Budgetdefizit in den USA <sup>2)</sup>	1990
No. 2 <sup>1)</sup> Ost- und Mitteleuropa auf dem Weg zur Marktwirtschaft – Anpassungskrise 1990	1991
No. 3 <sup>1)</sup> Die Wirtschaft Österreichs im Vergleich zu den EG-Staaten – eine makroökonomische Analyse für die achtziger Jahre	1991
No. 4 <sup>1)</sup> The Soviet Banking Reform	1991
No. 5 <sup>1)</sup> Die Auswirkungen der Finanzmarkt- und Kapitalverkehrs- liberalisierung auf die Wirtschaftsentwicklung und Wirt- schaftspolitik in Norwegen, Schweden, Finnland und Großbritannien – mögliche Konsequenzen für Österreich <sup>2)</sup>	1991
No. 6 <sup>1)</sup> Zwei Jahre G-24-Prozeß: Bestandsaufnahme und Perspektiven unter besonderer Berücksichtigung makroökonomischer Unterstützungsleistungen <sup>2)</sup>	1991
No. 7 <sup>1)</sup> Die Finanzoperationen der öffentlichen Haushalte der Reformländer ČSFR, Polen und Ungarn: Eine erste quantitative Analyse	1991
No. 8 <sup>1)</sup> Erfüllung der Konvergenzkriterien durch die EG-Staaten und die EG-Mitgliedswerber Schweden und Österreich <sup>2)</sup>	1992
No. 9 <sup>1)</sup> Alternative Strategies For Overcoming the Current Output Decline of Economies in Transition	1992
No. 10 <sup>1)</sup> Signaling a Hard Currency Strategy: The Case of Austria	1992
No. 11 <sup>1)</sup> The Impact of the Opening-up of the East on the Austrian Economy – A First Quantitative Assessment	1993
No. 12 <sup>1)</sup> The Scope for Regional Autonomy in Russia	1993
No. 13 <sup>1)</sup> EMU and the International Monetary System: A Transatlantic Perspective	1993
No. 14 <sup>1)</sup> Austria's Role as a Bridgehead Between East and West	1993
No. 15 <sup>1)</sup> Prospects for Growth in Eastern Europe – Some questions raised in the course of a macroeconomic forecasting exercise	1994
No. 16 A Survey of the Austrian Capital Market	1994
No. 17 Trade and Employment: Can We Afford Better Market Access for Eastern Europe?	1994
No. 18 Interdependence of Politics and Economic Development: Financial Stabilization in Russia	1994
No. 19 <sup>1)</sup> Austrian Exchange Rate Policy and European Monetary Integration	1995
No. 20 <sup>1)</sup> Monetary Spill-over Effects in the ERM: The Case of Austria, A Former Shadow Member	1995
No. 21 Investing in Insider-dominated Firms: A Study of Voucher Privatization Funds in Russia	1995
No. 22 Pessimism Confounded? Economic Recovery in Eastern Europe	1996
No. 23 Will Asymmetric Shocks Pose a Serious Problem in EMU?	1996
No. 24 Exchange Rates and Monetary Policy in Central Europe – a Survey of Some Issues	1997

1 Out of print.

<b>List of the Topics</b>		Published
<b>Discussed in the Working Papers</b>		
No. 25	Sources of Currency Crises: An Empirical Analysis	1998
No. 26	Structural Budget Deficits and Sustainability of Fiscal Positions in the European Union	1998
No. 27 <sup>1)</sup>	Trends in European Productivity: Implications for Real Exchange Rates, Real Interest Rates and Inflation Differentials	1998
No. 28	What Do We Really Know About Real Exchange Rates?	1998
No. 29	Goods Arbitrage and Real Exchange Rate Stationarity	1998
No. 30	The Great Appreciation, the Great Depreciation, and the Purchasing Power Parity Hypothesis	1998
No. 31	The Usual Suspects? Productivity and Demand Shocks and Asian Pacific Real Exchange Rates	1998
No. 32	Price Level Convergence Among United States Cities: Lessons for the European Central Bank	1998
No. 33	Core Inflation in selected European Union Countries	1998
No. 34	The impact of EMU on European unemployment	1998
No. 35	Room for Manoeuvre of Economic Policy in the EU Countries – Are there Costs of Joining EMU?	1998
No. 36	Heterogeneities within Industries and Structure-Performance Models	1998
No. 37	Estimation of the Term Structure of Interest Rates A Parametric Approach	1999
No. 38	On the Real Effects of Monetary Policy: Central Banker's View	1999
No. 39	Democracy and Markets: The Case of Exchange Rates	1999
No. 40	Central Banks in European Emerging Market Economies in the 1990s	2000
No. 41	Is there a Credit Channel in Austria? The Impact of Monetary Policy on Firms' Investment Decisions	2000
No. 42	Integration, Disintegration and Trade in Europe: Evolution of Trade Revolutions During the 1990s	2000

<sup>1</sup> Out of print.

# Addresses of the Oesterreichische Nationalbank

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