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*Alexis Derviz*

*The paper deals with the transmission of monetary policy within the financial sector. The objective is to link an optimizing stochastic model of portfolio decisions by a representative financial institution with a number of features that this optimizing behavior implies for monetary transmission and credit conditions in a transitional economy. The main example is the intermediation performance of the Czech financial sector in the years 1993 to 1999. In the theoretical part, the author introduces a discrete time model of portfolio optimizing under uncertainty extended to cover the case of cash flow constraints imposed on a financial intermediary. The current utility is liquidity-dependent. It also depends on a variable that measures the momentary assessment of future cash flows generated by the current items in the balance sheet. This specification has consequences for asset valuation, the term structure of interest rates and the uncovered return parity property of the expected exchange rate. In particular, monetary policy impulses receive different responses than in standard optimizing models, which are reflected either by the term structure of interest rates or by interest rates on new credit. In the empirical part, the author analyzes a number of observations about the function of Czech financial intermediation during transition and identifies those points that are relevant for the transmission mechanism.*

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*Stephan Barisitz*

*Economic and banking reforms have proved to be particularly difficult in member countries of the Commonwealth of Independent States (CIS). This study attempts to trace, analyze and compare the development of the banking sectors in Russia, Ukraine, Belarus and Kazakhstan since independence. Overall national developments and historic evolutions are outlined, legal foundations, banking supervision, banks' major sources of assets, liabilities, earnings and related changes, bank restructuring and the role of foreign banks and FDI are dealt with. While up to the mid-1990s, the four countries featured parallel developments in many respects, evolutions started to deviate in the second half of the decade, reflecting mainly differing reform policies. Russia and Ukraine have continued to, in effect, "muddle through," experiencing more or less disappointing records. Despite recurring dynamic changes in the Russian banking sector, the situation evolved in an unsustainable way and since the financial crisis of August 1998 has remained in limbo. Although Ukraine avoided succumbing to financial contagion from Russia, its banking system is less developed and subject to*

*stronger state influence. Belarus resorted to state interventionism and reintroduced elements of central planning into the banking sector. Kazakhstan has made some substantial reform efforts and benefited more than others from FDI in banking. Whereas banking sectors in all four countries remain fragile and do not sufficiently fulfill their function of financial intermediation, the Kazakhstani experience shows that serious reform efforts can make a difference.*

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*Jarko Fidrmuc and Thomas Nowotny*

*This contribution provides a survey of the current stage of discussion in applied economics of the effects of the EU's Eastern enlargement on Austria. Notwithstanding many differences in methods and results, there is general agreement that the effects of this Eastern enlargement upon Austria would be largely positive in the long run, both according to economic theory and to applied analyses. The integration of the CEECs into the EU will allow resources to be allocated more efficiently both in Austria and in the CEECs. However, the reallocation of resources may cause short-term adjustment costs. From this perspective, Austria has a specific position in the process of the Eastern enlargement of the EU. On the one hand, Austria can gain more than the other EU countries in the long run. On the other hand, adjustment costs, which are directly associated with integration gains, may also be higher in Austria than in other countries in the short run.*

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The views expressed are those of the authors and need not necessarily coincide with the views of the Oesterreichische Nationalbank.



The Oesterreichische Nationalbank's semiannual periodical *Focus on Transition*, first published in 1996, is addressed to all readers – researchers, policy-makers, students – with an interest in the analysis of developments in Central and Eastern Europe.

This volume of the *Focus on Transition* contains four parts: an update of recent economic developments in selected countries, a studies section with three studies, a summary of the latest activities of the Oesterreichische Nationalbank dealing with transition (lectures, discussions, technical cooperation) and a statistical annex.

The European Council of Helsinki in December 1999 gave the enlargement process a renewed impetus: it specified that the EU should be internally ready for enlargement by the end of 2002 and extended the accession negotiations to all Central and Eastern European candidate countries. To keep the accession process manageable even now that the Union is negotiating with a comparatively large number of countries, it will be essential to key the pace of negotiations as objectively as possible to the further progress of the candidate countries toward fulfilling the conditions for EU membership. This means that the speed of enlargement must not compromise its quality and that differentiation should be applied equally to all ten Central and Eastern European candidates. The recent economic developments in selected Central and Eastern European Countries (CEECs) should specifically be seen in the light of such deliberations.

The first study in this volume deals with the transmission of monetary policy within the financial sector. In the theoretical part, the author introduces a stochastic model to explain the functioning of the credit channel of monetary transmission. The model is based on an optimizing decision-making of a financial institution restricted by liquidity and cash flow constraints. In the empirical part, the author analyzes a number of observations about the function of Czech financial intermediation during transition and identifies those points that are relevant for the transmission mechanism. Confronting the formal analysis with the empirical evidence, he concludes that the credit channel is present in the Czech economy and cannot be ignored, that the consequences of a credit channel blockage can be particularly severe for corporate debt with short maturities, and that the short-long interest rate transmission in the Czech economy can be explained by the cash flow effect in the term structure. Since the cash flow variable is likely to be volatile in transitional economies, the asset-liability management considerations of firms in the financial sector can either suppress the original monetary policy signal of the key rates or multiply its effect to an undesirable magnitude.

Economic and banking reforms have proved to be particularly difficult in member countries of the Commonwealth of Independent States (CIS). The second study traces, analyzes and compares the development of the banking sectors in Russia, Ukraine, Belarus and Kazakhstan. The authorities in these four countries followed more or less parallel policies in the first years of transition: Price liberalization, loose monetary policies, weak banking regulations and weak tax enforcement. In 1994/95 monetary policies and banking supervision were tightened in all four countries, and the enforcement of banking regulations was stepped up. In the second half of the 1990s, reform

policies started to deviate. Russia and Ukraine continued to muddle through, which on the whole yielded disappointing results. Belarus after 1995 opted for a return to a kind of administrative command system, using the banking sector as the preferred means to execute orders from above and thus deprived it of any meaningful role of its own. In contrast, Kazakhstan brought serious reform efforts to bear, including active restructuring and privatization measures for larger banks. Admittedly, all four banking systems have remained in a difficult state. The main need for adjustments is still to establish and consolidate the rule of law in the area of bankruptcy law and creditors' rights, to curtail direct state intervention in the banking sector, to remove regulatory or legal obstacles to the entry of foreign banks and to enhance central bank independence.

The third study elaborates on the effects of the EU's Eastern European enlargement on Austria. An applied analysis shows that the overall effects on Austria will be more strongly positive than on other EU members, even though in the short run the adjustment costs associated with the integration gains may also be higher in Austria than in other EU countries. The overall positive effects reflect the intensive trade between Austria and the CEECs and the resulting potential for both the trade creation effect and the benefits from the dynamic effects on integration.

Finally, I would like to draw your special attention to the Olga Radzyner Award. The Oesterreichische Nationalbank has established this award to commemorate Olga Radzyner, former Head of its Foreign Research Division, who died in a tragic accident in August 1999. The Olga Radzyner Award will be bestowed on young economists for excellent research focused on monetary and finance issues in economics. This volume of the Focus on Transition contains an invitation to submit applications and the conditions for participation.

We further invite you to address any comments or suggestions you may have about this publication or any of the studies in it to:

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Klaus Liebscher  
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# RECENT ECONOMIC DEVELOPMENTS

# Developments in Selected Countries

Peter Backé  
and Cezary Wójcik<sup>1)</sup>

## Introduction

Recent growth developments in the Czech Republic, Hungary, Poland, Slovakia and Slovenia display considerable variation.<sup>2)</sup> During the course of 1999, growth accelerated from intermediate to dynamic rates in Hungary and Poland, while the Czech Republic moved out of recession, recording modest positive growth rates in the second half of the year. Slovenia grew quickly throughout 1999, with a peak in the second quarter, while Slovakia exhibited more moderate growth rates throughout the year as a consequence of an austerity package. Growth appears to have accelerated in the first quarter of 2000, as compared to the last quarter of 1999, in most, if not all countries under review. Accelerating growth in the European Union underpinned, to varying degrees, growth in the five countries under review.

Average CPI inflation rates continued to decrease in 1999 in all five countries except for Slovakia. The decline was particularly pronounced in the Czech Republic, where inflation was reduced to low levels. Annual average figures mask a major downturn of inflation in most countries in the aftermath of the Russian crisis into early 1999 and a renewed upturn in the remainder of 1999. In the first months of 2000, the upward trend continued in all five countries except Hungary, which has recorded lower twelve-month inflation rates from January 2000 onwards. Poland's inflation rate returned to a downward path in March and April 2000, while that of the Czech Republic and Slovakia peaked in March 2000, before falling again in April 2000. It remains to be seen whether this is the beginning of a renewed and more lasting down-trend. Slovenia's inflation was still moving up in April. Changes in commodity prices, in particular oil prices, aggregate demand developments and country-specific factors like the adjustment of regulated prices and changes in indirect taxes, were the main common factors underlying inflation developments. Furthermore, the weakening of the euro versus the U.S. dollar may have also added somewhat to inflation in the countries under review.

Current account developments were diverse. Slovakia succeeded in reducing its deficit significantly from very high levels; Hungary and the Czech Republic recorded more moderate but still notable improvements. In contrast, Poland's current account deficit widened considerably to comparatively high levels, and Slovenia recorded its first tangible, though limited current account deficit after several years of balanced current accounts. 1999 trends continued into the first months of this year for Hungary, Poland, Slovakia and Slovenia, while no current account figures were available yet for the Czech Republic.

Full-year fiscal results came fairly close to original targets in all countries in 1999. General government deficits ranged between 0.6% of GDP in Slovenia and 3.9% of GDP in Hungary. However, due to substantial differences in fiscal accounting methodologies among the five countries, the comparability of budgetary figures is limited. In Hungary and Poland, fiscal performance benefited considerably from the upturn in economic activity in the

<sup>1)</sup> We gratefully acknowledge valuable contributions relating to factual information by Franz Schardax (on the Czech Republic) and Jarko Fidrmuc (on Slovakia).

<sup>2)</sup> Unless stated otherwise, comparisons are year on year.

second half of 1999. For the year 2000, Hungary, Poland and Slovakia are targeting a reduction in general government deficits, measured as a share of GDP, while Slovenia aims at a basically unchanged deficit-to-GDP ratio. The Czech Republic, in turn, targets a markedly increased public sector deficit, but rather than reflecting a loosening of the fiscal stance, the rise is largely due to the belated covering of losses from bank rehabilitation.

Structural, legal and institutional reforms consisted mostly of individual measures in specific policy fields. Legal harmonization in the economic field was continued, though with different degrees of vigor. Progress was made with the privatization of corporates. The overhaul of bankruptcy laws featured near the top of some review countries' agendas. Financial sector reform concentrated on supervision structures, adjustment to EU rules and further sales of state stakes in banks or on the preparation of such transactions.

The EU accession process advanced further during the review period. Accession negotiations with the Czech Republic, Hungary, Poland and Slovenia went on with the opening of further chapters and the preliminary closure of a few additional chapters. By mid-May, 25 of the 31 chapters had been opened, while 10 chapters had been provisionally closed with Hungary and Poland and 11 chapters with the Czech Republic and Slovenia. The remaining chapters (with the exception of the chapters "Institutions" und "Other") are planned to be opened by the end of June 2000. Apart from some minor issues regarding the adoption of the EU banking directives, no central bank-related topics were touched upon in the negotiations during the review period. Accession negotiations between the EU and Slovakia were launched in February 2000, in line with the conclusions of the European Council in Helsinki in December 1999.<sup>1)</sup> In the meantime, 8 chapters have been opened. Against the backdrop of proceeding accession negotiations, the discussion about the appropriate timing of the first accessions has gained some momentum in the spring of 2000. While the Czech Republic, Hungary, Poland and Slovenia intend to enter the Union in 2003 and Slovakia's target date is 2004, some voices from within the Union (such as those of the German Chambers of Industry and Commerce, DIHT, and the Friedrich Ebert Stiftung, one of Germany's leading political foundations) have argued either for a phased accession of the advanced transition countries or for a certain delay of the accession in order to mitigate potential adjustment shocks resulting from accession. The European Commission has made the case for a first round of enlargement in 2005 at the latest. It has indicated its readiness to submit a proposal on a timeframe for the completion of accession talks with the most advanced candidate countries by the fall of this year. The EU Member States have not yet taken up this proposal.

In the wake of the Helsinki meeting between the Eurosystem and the central banks of the applicant countries in November 1999, the dialogue between the Eurosystem and candidate countries' central banks has further strengthened. Technical meetings have been held in a number of areas, inter alia on legal harmonization issues and on payment systems. In the spring of

1 See *Focus on Transition 2/1999*.

2000, the Eurosystem discussed the issue of currency board arrangements and EU/EMU integration.<sup>1)</sup> Moreover, the Eurosystem has recently set up a coordination mechanism for technical cooperation activities with the applicant countries. The next high-level meeting between the Eurosystem and the central banks of the applicant countries will take place in mid-December 2000 in Vienna.

## 2 Individual Country Reports

### 2.1 The Czech Republic

In 1999 real GDP in the Czech Republic contracted by 0.2%. However, during the second half of the year, economic activity recovered modestly, with 1% growth both in the third and in the fourth quarters. In 1999, net exports had a positive impact on GDP developments; real exports rose by 8.7%, outpacing import growth (+6.0%). Private consumption was up 1.4%, while public consumption stagnated. Gross fixed investment fell by 5.5%, which was mainly because banks were increasingly reluctant to lend to troubled enterprises. Industrial production declined by 3.1% and construction output fell by 2.4% last year.

In the first quarter of 2000, the economic recovery became somewhat more pronounced. In this period, industrial production rose by 4.8% and construction output went up by 4.0%, while retail sales increased by 6.4%. The Czech authorities expect GDP to grow by 1.5% this year.<sup>2)</sup> Most domestic and international observers forecast a growth rate of 1.5% to 2%.

Unemployment has tended to rise. It peaked at 9.8% in January 2000. In the following months, it fell (April: 9.0%) but was still higher than in the corresponding months a year earlier (April 1999: 8.2%). The fall in recent months appears to be mainly due to seasonal factors, while inflows of foreign direct investment may have also had some positive impact on employment.

Real gross wages recovered in 1999 (+6.0%) after falling by 1.3% in 1998. In industry, real wage growth was less pronounced (+4.4%) but higher than advances in labor productivity (+2.2%). In the first quarter of 2000, real wage growth decelerated, at least in industry, for which figures are available (+3.2%). Labor productivity in industry increased by 10% in the first quarter of this year.

Average inflation significantly fell during 1999 to reach 2.1% (from 10.7% in 1998). In addition to the general factors pertaining to all five countries, low domestic demand and a fairly strong exchange rate also furthered disinflation last year. In January 2000, due to an increase in administrative prices, consumer prices rose tangibly by 3.4% (year on year). In the follow-

1 On April 13, the Governing Council of the ECB concluded that the appropriateness of currency board arrangements will be assessed on a case-by-case basis. The Eurosystem neither encourages nor discourages the adoption of euro-based currencies boards. A euro-based currency board cannot be regarded as a substitute for two years' participation in ERM II, but if deemed sustainable it may serve as a unilateral commitment augmenting the discipline within the exchange rate mechanism. Within ERM II, the central parity against the euro will have to be set by common accord.

2 The central bank revised its forecast from 1.1% to 1.5% at the end of April 2000, while the finance ministry has retained its original projection of 1.5%.

ing three months, the price level remained practically stable, and twelve-month inflation rate figures came in at 3.7%, 3.8% and 3.4%.

In 1999, the current account deficit contracted somewhat from USD 1.3 billion to USD 1.1 billion, which corresponds to 2% of GDP. Concomitantly, the trade deficit fell from USD 2.6 billion to USD 2.1 billion. Net foreign direct investment inflows reached USD 4.9 billion in 1999, while portfolio investment outflows came to USD 1.4 billion and outflows other investment to USD 1.0 billion.<sup>1)</sup> Official foreign exchange reserves stood at USD 12.9 billion at the end of 1999, slightly higher than a year ago. During the first months of 2000, the level of reserves did not change perceptibly and corresponded to somewhat more than five months of imports. Gross external debt decreased by USD 1.5 billion to USD 22.9 billion (approximately 43% of GDP) in the course of 1999.<sup>2)</sup>

During the review period, the koruna was quite stable against the euro, oscillating between CZK 35.5/EUR and CZK 37.2/EUR. The central bank indicated at several occasions that the koruna was too strong. At the end of March 2000, it intervened on the foreign exchange market, which slightly weakened the koruna. In March 2000, the government established a special account with the Czech National Bank for foreign currency proceeds from privatization aimed at easing future appreciation pressure on the Czech currency.

The Czech National Bank (CNB) has followed a direct inflation targeting strategy since 1998. The Bank targets net inflation.<sup>3)</sup> As in 1998, last year's target (twelve-month net inflation rate in December: 4% to 5%) was clearly undershot at 1.5%. The end-2000 target for net inflation was set at 3.5% to 5.5%. In its most recent inflation report published at the end of April 2000, the CNB forecast end-year net inflation at between 2.2% and 3.5%. The inflation target for 2001, which was announced in April 2000, extends from 2% to 4% (twelve-month net inflation in December 2001). Since November 1999, the CNB has kept its main interest rate, the two-week repo rate, constant at 5.25%.

In 1999 the central government budget deficit amounted to 1.6% of GDP. The general government deficit came in at 0.6% of GDP, which includes sizeable extraordinary revenues of municipalities (mostly privatization revenues). Without these proceeds, the public sector deficit would have amounted to 2.1% of GDP. However, it has to be noted that the 1999 budget did not take on the losses of *Konsolidační banka* and other state institutions to which large volumes of nonperforming loans were transferred during the course of bank rehabilitation. The central budget for 2000 was adopted by parliament in early March 2000. It envisages a deficit of 1.8% of GDP

1 Full-year figures mask considerable intrayear fluctuations. A moderate inflow of portfolio investment during the first three quarters was followed by an outflow of USD 1.6 billion in the fourth quarter, prompted by a significant fall in Czech interest rates and, even more, in the interest rate differential with the euro area and the United States. Other investment recorded strong outflows in the second and third quarters of 1999, while there were massive inflows in the fourth quarter.

2 Balance of payments figures for the first quarter and foreign debt figures for March 2000 will not be published until June 2000.

3 The net inflation index excludes regulated prices and the impact of tax changes.

and is based on real GDP growth of 1.5% and a year-end inflation rate of 4.2%. The authorities' target for the general government deficit is 3.7% of GDP. This figure includes budgetary transfers to cover losses of Konsolidační banka and other state institutions involved in the management of bad debt carved out from commercial banks, while significant privatization revenues are counted as revenues.<sup>1)</sup> The central budget appears to have been largely on track in the first four months of 2000, although a conclusive assessment is complicated by the tangible role of one-off factors in budgetary developments. The reduction of VAT on selected services to 5% from 22%, adopted by parliament in December 1999, took effect on April 1, 2000.

Legal adjustment to EU standards has been noticeably speeded up in recent months, presumably in reaction to a fairly critical assessment of the Czech performance with regard to the adoption of the *acquis communautaire* in the European Commission's October 1999 report on the progress of the country toward EU accession. Probably the most important recent change in the laws governing the economy was taken in April 2000, when parliament passed an amendment to the country's insolvency law, which came into force on May 1, 2000. The amendment improves the position of creditors and is designed to speed up bankruptcy proceedings. It is hoped that this will improve the payment discipline of Czech companies.

Further legal change is in the pipeline. In early May 2000, the government approved an amendment to the banking law which aims at further harmonization with EU banking directives. The bill raises the deposit insurance limit and extends coverage to foreign currency deposits. Furthermore, it ensures adherence to the EU regulations for the supervision of banks on a consolidated basis. Parliament will discuss the bill during the remainder of this year, so that it could enter into force at the beginning of 2001. On April 1, 2000, a CNB decree which sets requirements ensuring that banks have adequate capital to cover both credit and market risks, adopted in mid-1999, took effect.

Parliament is also currently discussing an amendment to the central bank act. The original draft of the amendment was aimed at adjusting this law further to EU norms. However, during the parliamentary process, a number of changes were proposed. Two of these motions would, as they stand, actually prompt a reversal of the legal harmonization that had already been achieved in the former law and infringe on central bank independence. According to the modified draft amendment, parliament may reject the regular report on monetary policy which the governor will have to present to parliament under the new law. In this case, the central bank would be obliged to take into account the parliament's objections into the final version of the report. Secondly, the present draft states that the central bank would have to

1) The Czech finance ministry has also released another public sector deficit figure which it calculated according to European Union rules. This figure amounts to 3.8% of the GDP (excluding transfers to Konsolidační banka as well as privatization receipts). The OECD has indicated that the general government deficit figure for 2000 is on the order of 5.8% of GDP, if the 1999 losses of Konsolidační banka are counted as expenditures and privatization proceeds are treated as a financing item. This figure does not include the 1998 losses of Konsolidační banka, which came to 0.8% of GDP.

consult the government on “important decisions,” a term which is not defined more precisely in the bill but would include, in the view of the head of the parliament’s budget committee, the whole range of monetary policy measures. Both of these provisions would clearly be incompatible with the Treaty on European Union.

During the review period, structural reforms continued to focus mainly on the banking sector as well as on large, highly-indebted industrial conglomerates, typically the banks’ main debtors.<sup>1)</sup> Bank privatization was carried on with the sale of the 52% state stake in Česká Spořitelna, the second-largest Czech bank in terms of assets, to the Austrian Erste Bank for CZK 18.4 billion (USD 500 million) in March 2000.<sup>2)</sup> The last large state-owned bank, Komerční banka, the biggest Czech bank in terms of assets, is to be privatized later this year, but this process may prove to be somewhat more time-consuming and has indeed moved ahead more slowly, in its first stages, than originally planned. During the course of the first quarter of 2000, the share of nonperforming loans fell from 32.1% to 28.3% of the overall loan volume of the banking sector. The fall was entirely due to a state bailout of Komerční banka, which was accorded at the end of 1999 and effected in early 2000.<sup>3)</sup>

The privatization of corporates has also been continued. The privatization of the energy sector is expected to begin later this year, after the impending decision of the government on the actual privatization strategy for the sector. In general, the authorities plan to sell substantial stakes in the largest power-generating utility CEZ, in the regional electricity distributors as well as in the gas utility Transgas and the gas distributors.

The Revitalization Agency founded in 1999 has begun with the restructuring of nine large enterprises. One of these nine companies, the engineering concern ZPS Zlin, was sold to a foreign investor through a tender procedure in May.

In May 2000, the Czech Republic ratified the agreement on the federal property division that had been concluded with Slovakia in November 1999. According to the settlement, which Slovakia ratified in February 2000, the Czech government cancels Slovakia’s debt of CZK 25.8 billion (USD 700 million) to the Czech National Bank and returns to Slovakia 4.5 tons of gold which the CNB has been detaining as collateral for the claim. In return, the agreement stipulates the mutual exchange of shares in the Czech Komerční banka owned by Slovakia and of a less valuable stake in Slovakia’s Všeobecná úverová banka (VUB) owned by the Czech side, a swap which is hoped to facilitate the future privatization of these two banks.

1 See Focus on Transition 2/1999.

2 As part of the transaction, the Czech government provides guarantees on bad loans which arose before the sale (these loans can be transferred to Konsolidační banka during the course of the next five years), but also on performing commercial loans which can be reviewed and reclassified until June 2001. Erste Bank, in turn, undertook the obligation to increase the capital of the bank by CZK 4 billion (USD 110 million) within the next two years and to modernize the bank as well as to make considerable investments in the Czech economy in general. (CZK figures converted at an exchange rate of CZK 36.8/USD.)

3 See Focus on Transition 2/1999.

## 2.2 Hungary

Hungary's real GDP rose by 4.4% in 1999. Quarterly growth figures increased in the course of the whole year, reaching 5.9% in the last quarter. GDP growth in 1999 was mainly driven by private consumption, which rose by 4.6%, and by gross fixed investment, which grew at a rate of 6.6%. Public consumption increased by 2.2%. Growth was also influenced by the favorable foreign trade performance: Real exports were up 13.2%, while real imports expanded by 12.3%. During the course of the year, real exports accelerated much more dynamically than real imports, so that the contribution of net exports to growth, which had been negative in the first half of 1999, turned positive in the second half of the year. Industrial output grew by 10.5% in 1999, whereas construction activity was up by 6%.

In the first quarter of 2000, the dynamic economic expansion continued. Industrial output, driven by soaring export sales, accelerated by 21%, while construction output rose by 7.3%. Retail sales increased by 5.2% in the first two months of the year, while gross real wages advanced by 3.2%. First estimates put real GDP growth in the first quarter 2000 at more than 6%. Most forecasters expect a further continuation of positive output trends through the rest of the year and estimate annual GDP to expand by around 5%.

The economic recovery contributed to the fall of Hungary's unemployment rate to 6% in March 2000, 0.7 percentage points less than a year ago.<sup>1)</sup>

Real gross wages grew by 5.5% in 1999. In industry, real wage growth was outstripped by advances in labor productivity (+9.9%). In the first quarter of 2000, real wage growth decelerated to 3.2%, while labor productivity in industry increased by a remarkable 21% in the same time period (as employment in industry barely changed compared to the first quarter of 1999).

Average CPI inflation amounted to 10% in 1999. As in 1998, annual disinflation was on the order of 4 percentage points. The joint government and central bank forecast for inflation in this year was originally 6% to 7%. During the first four months of 2000, inflation crept down only slowly to reach 9.2% in April. In mid-May, the finance ministry revised its forecast upwards to between 7% and 8%. This figure is fairly close to that of most independent experts, who expect prices to rise by around 8% or slightly more.

Hungary's current account deficit in 1999 was marginally lower than a year before (most market participants had expected it to increase somewhat), coming in at USD 2.1 billion, which constituted 4.2% of GDP. Net direct investment in the Hungarian economy accounted for USD 1.7 billion in 1999, a slight increase compared to 1998. The net inflow of portfolio investment stood at USD 2.0 billion in 1999, i.e. at the same level as in 1998, and the inflows of other investment amounted to USD 1.0 billion (1998: outflows of USD 0.8 billion). At the end of 1999, Hungarian gross external debt ran to USD 29.3 billion (approximately 61% of GDP), USD 2 billion

<sup>1</sup> It should be noted that Hungary switched to calculating unemployment rates according to the ILO methodology as of January 2000.

more than a year earlier. During the course of 1999, official foreign exchange reserves increased by USD 1.7 billion to USD 11 billion.

The positive trend in the development of the external position continued into early 2000. In the first quarter of this year, the current account deficit amounted to USD 373 million (about 3% of GDP),<sup>1)</sup> compared to USD 598 million in the same period of 1999. Net direct investment inflows came in at USD 245 million. The strong inflow of non-FDI capital which had set in toward the end of 1999 continued during the first two months of 2000, reaching USD 1.1 billion, but reversed in March 2000, when an outflow of USD 725 million was recorded. Likewise, official foreign exchange reserves augmented further to USD 11.5 billion at the end of February 2000, falling back to USD 10.7 billion one month later (which is close to six months of imports).

Capital inflows were attracted by the country's good macroeconomic performance and speculation that the authorities might widen the relatively narrow fluctuation band of the forint ( $\pm 2.25\%$ )<sup>2)</sup> and that the currency would appreciate after such a move, at least in the short run. Initially, the main response of the National Bank of Hungary (NBH) was sterilized intervention, coupled with moderate interest rate cuts. When inflows persisted, the NBH lowered interest rates more tangibly. Moreover, at several occasions the central bank issued statements that the exchange rate regime would not be altered. In addition, the central bank introduced further measures to cope with the capital inflows. The bank reduced the access of commercial banks to the two-week NBH deposit facility from twice to once a week, introduced a new three-month central bank bond, with the aim to maintain yields at reasonable levels, and stepped up cooperation with the finance ministry on the issuance of domestic public debt. Moreover, the NBH indicated that it would be ready, as a last resort, to take administrative measures to limit capital inflows. In the event, capital inflows into the Hungarian economy abated in March. Further interest rate cuts were effected in late March and in late April, amounting to 75 basis points. This brought the main interest rate, the two-week deposit rate, down to 11%.

The 1999 consolidated public sector deficit came in slightly below the target of 4% of GDP. The central government budget deficit, in turn, amounted to 2.9%. When assessing Hungary's overall fiscal performance in 1999, it should be noted that substantial privatization proceeds from the sale of company shares were recorded as revenues, although according to international standards such items should be treated as financing items. If these privatization receipts were recorded appropriately, the consolidated public sector deficit would have come in at approximately 4.5% of GDP.

1 Since January 2000, the central bank has published Hungary's balance of payments and international investment position data in EUR. The data presented here were converted into U.S. dollars at the prevailing reference rate of the ECB in order to make them readily comparable with the figures of the four other countries covered in this report.

2 Since March 1995, Hungary has operated a narrow-band crawling peg regime. The forint was linked to a currency basket until end-1999 (most recently to a 70% EUR/30% USD basket). According to a joint decision of the government and the central bank in April 1999, the currency was linked solely to the EUR at the beginning of this year (see *Focus on Transition* 1/1999 and 2/1999).

Moreover, in order to reach the target, public investment, in particular on infrastructure, had to be cut considerably, although such expenditure will have to increase in view of Hungary's EU accession aspirations; moreover, significant one-time concession fee revenues played an important role in the final fiscal outcome for 1999.

The target for the general government deficit in 2000 is set at 3.5% of GDP. The central government budget, as adopted by parliament, contains a deficit target on the order of 3% of GDP. The budget is based on a 4.5% GDP growth forecast and an average inflation forecast of 6% to 7%. In the first four months of 2000, general government budget developments came very close to the fiscal authorities' projections, with the deficit settling at 36% of the full-year target. Higher-than-planned GDP in nominal terms (primarily due to higher inflation) will probably entail significant additional revenues, which should have a positive impact on the development of fiscal balances if expenditures are kept in line with the budget law. The general government deficit is to be reduced further to 3% of GDP in 2001.

The process of privatization and structural reform continued during the review period. After a 14% stake in OTP Bank, the country's largest bank, was sold via a public offer to domestic investors in October 1999, bank privatization was continued in March 2000, when the remaining state-owned stake in the K&H bank, the third-largest bank in Hungary, was sold to the Belgian KBC bank. In conjunction with a capital injection, BKC bank's share in K&H bank's capital rose from 33% to 72%. In the corporate sector, the privatization of the national television broadcaster Antenna Hungaria is in the pipeline. Furthermore, a privatization plan for the Hungarian airline Malév is to be proposed shortly. The authorities expect total privatization revenues for 2000 to be in the rough order of 1% of GDP.

As of April 1, 2000, the Hungarian Financial Supervisory Authority (PSZAF) started operation. This new institution was created by merging the three former financial sector watchdogs, the Hungarian Banking and Capital Market Supervision agency (APTF), the Insurance Supervision Agency and the Pension Fund Supervision Agency.

Other recent reform steps include changes in the unemployment benefit system (reduced duration and abolition of a specific supplementary benefit scheme) and the introduction of a new subsidized housing loan program as of February 2000. A first step toward the reform of the health care system was also made in February 2000, when parliament approved a law on the privatization of doctors' practices.

### **2.3 Poland**

After a significant slowing of GDP growth rates in the fourth quarter of 1998 and the first quarter of 1999, economic activity strongly rebounded in the remainder of last year. For the whole of 1999, real GDP growth reached 4.1% compared to 4.8% in 1998; in the fourth quarter the economy augmented by 6.2%. The main engine of growth was domestic demand, which rose by 4.9%: Private consumption grew by 5% and gross fixed capital formation increased by 6.9%. Real exports expanded by 7.7%, while real

imports were up 9.5%. Industrial production (sales) advanced by 4.3% in 1999, while construction output gained 3.8%.

The momentum of economic activity was maintained in the first quarter of 2000. Growth stood at somewhat more than 6% according to first estimates and continued to be driven essentially by domestic demand. Industrial output and construction output surged by 10.7% and 4.3% respectively,<sup>1)</sup> while retail sales climbed by 8.8%. For the whole of 2000, the authorities expect real GDP to grow by 5% or slightly more. This is in line with the projections of most domestic and international observers.

The acceleration of growth in 1999 and early 2000 was not accompanied by a fall of the unemployment rate, which has in fact increased, standing at 13.9% in March 2000 compared to 12.1% a year earlier. In part, this rise is due to increased incentives to register as unemployed as a consequence of recent health care reforms (in particular in order to gain access to medical services).

Gross real wages increased by 3.4% in 1999, while labor productivity increased by 9.7%. In the first quarter of 2000, gross real wages rose by 4.7%, whereas labor productivity in the industrial sector rose by 17.8% (as employment in industry fell by 6.5% compared to the first quarter of 1999).

After a sharp fall in the aftermath of the Russian crisis, the twelve-month inflation rate was on an upward-creeping trend between March 1999 and February 2000, when it peaked at 10.4%. Since March 2000, inflation has again moved downward, in particular in April 2000, when it fell to 9.8%.

Poland's current account deficit widened to USD 11.7 billion (7.6% of GDP) in 1999. The worsening was mainly due to a significantly falling surplus in border trade and a higher deficit in the services balance. The (official) trade balance also expanded, but at a more moderate pace. The current account deficit was, to a significant extent, financed by foreign direct investment inflows, which hit USD 6.3 billion net in 1999. Net portfolio investment inflows contributed USD 1.4 billion, while other investment flows were balanced in 1999.<sup>2)</sup> Official foreign exchange reserves went down somewhat during 1999 to USD 24.5 billion (essentially due to the strengthening of the U.S. dollar during the course of the year). At the end of 1999, Poland's external debt amounted to USD 60.5 billion (approximately 39% of GDP), up from the end of 1998, when it had stood at USD 56.9 billion. 12% of these obligations were short-term.

In the first quarter of 2000, the current account deficit widened further to USD 3.6 billion (compared to USD 2.2 billion in the first three months of 1999), which is more than 8% of GDP. Most of this further deterioration was due to a widening of the trade deficit, reflecting falling exports (in U.S. dol-

1 It should be noted that the rise in industrial production decelerated tangibly in March 2000 (+6.7%). It remains to be seen whether this is a transient phenomenon or the beginning of a more prolonged period of less energetic output growth in this sector.

2 Full-year figures mask considerable intrayear fluctuations. Portfolio investment inflows jumped to USD 1.8 billion in the fourth quarter, after much lower flows in the first three quarters. Other investment recorded strong inflows during the first seven months (USD 1.7 billion) and equally large outflows during the remainder of the year.

lar terms). Net foreign direct investment inflows amounted to USD 1.1 billion, while net portfolio inflows surged to USD 2.4 billion. Other investment posted a net outflow of USD 0.7 billion. During the first three months of 2000, official foreign exchange reserves were virtually stable and corresponded to somewhat more than seven months of imports.

Poland's high current account deficit in 1999 and early 2000 has initiated a discussion about the sustainability of the country's external position and about the vulnerabilities the widening deficit may imply. Views on this issue are diverse. While current account deficits in the present order cannot be sustained in the longer run, the standard indicators typically employed to assess short-term vulnerability are quite solid: In March 2000, the M2/official reserve ratio was at 257%, while the official reserve/short-term foreign debt ratio amounted to 345% at the end of last year. In this context, it is noteworthy that the renowned rating agency Standard & Poor's raised Poland's sovereign rating for long-term foreign obligations from BBB to BBB+ in mid-May 2000, assessing the country's current account deficit as sustainable, provided that macroeconomic and structural policies remain on track.

The central government budget recorded a deficit of 2.1% of GDP in 1999, thus exactly meeting the target laid down in the budget law for last year. The public sector deficit came in at 3.2% of GDP, slightly above target (2.9% of GDP). The 2000 budget targets for the central government budget deficit and the consolidated public sector deficit were set at 2.3% and 2.7% of GDP, respectively. In the first four months of 2000, central government budget developments went ahead broadly in line with projections.<sup>1)</sup>

Since January 1999, the National Bank of Poland (NBP) has pursued a policy of direct inflation targeting, while retaining its crawling peg regime with wide fluctuation bands for a time.<sup>2)</sup> The latter changed on April 12, 2000, when the zloty was floated. The decision corresponds to the Polish central bank's medium-term monetary policy strategy. This policy document passed in late 1998 provides for the flotation of the zloty, stating that a free float of the Polish currency would help establish the proper (market-determined) level of the zloty, before returning, upon EU accession, to an exchange rate peg within the context of ERM II participation. The NBP has pointed out that the full flotation of the exchange rate is also a precondition for fully adhering to and implementing its direct inflation targeting strategy, and hence for further reducing the inflation rate. It should be noted that the NBP has not intervened in the foreign exchange market since early summer 1998. Thus, the qualitative change between the former and the present regime is less pronounced than it may seem at first glance.

The NBP targets consumer price inflation. It overshot its inflation target for last year. Twelve-month CPI inflation was at 9.8% in December 1999, while the target had been set at 6.6% to 7.8% in March 1999.<sup>3)</sup> For end-

1) *Budgetary plans for 2001 were to be discussed by the government and made public in the second half of May.*

2) *Under this regime, the zloty was most recently pegged to a 55%EUR/45%USD basket, the crawl rate was 0.3% per month and the fluctuation band had a size of  $\pm 15\%$ .*

3) *Originally, the target had been at 8% to 8.5% year on year, but was lowered subsequently (see Focus on Transition 1/1999 and 2/1999).*

2000 the central bank set an ambitious target for CPI inflation of 5.4% to 6.8%. In mid-May, the NBP expected annual inflation to come in at the upper edge of the band.

Against the backdrop of rising inflation, the central bank substantially tightened monetary policy in the fall of 1999.<sup>1)</sup> Interest rates were raised by another 100 basis points in February 2000. This brought the central bank's main lending rate, the intervention rate, to 17.5%, and the discount and lombard rates to 20% and 21.5%, respectively.

The zloty is traditionally a rather volatile currency, and developments in recent months did not constitute an exception. The zloty entered the year 2000 at about 2% above its central parity, i.e. on the strong side of the band. Until early April, it moved up to 7.5% above parity, before falling to 5.4% right before the decision to float the zloty was taken. Directly after the change in the exchange rate regime, the zloty appreciated to about 6% above the former parity. Subsequently, it has again tended to weaken against the euro and more so against the U.S. dollar until the end of the review period. Short-term volatility has remained considerable, but it neither increased nor decreased markedly after the change in the exchange rate regime.<sup>2)</sup>

In the area of structural reforms, Poland continued to work on resolving some implementation problems which had emerged after introducing sweeping reforms of the pension system, the health care system, the education system and the state administration enacted in the first months of 1999.<sup>3)</sup>

In April 2000, the Polish parliament passed an amendment to the law on the commercialization and privatization of state firms earmarking 7% of the shares of a large group of state-owned companies for free distribution to all Polish citizens (universal enfranchisement program).<sup>4)</sup> As a precondition for implementing this scheme, which is politically highly contested, a further law regulating the details of the enfranchisement program would have to be passed. Furthermore, the amendment to the commercialization and privatization law lays down that a minimum of 10% of the revenues from the privatization of these state-owned companies will be available for the reform of the social security system, while 5% of the shares will be allocated to a re-privatization reserve fund.<sup>5)</sup>

In May 2000, parliament approved an amendment to the telecom law, which lifts previously existing privatization restrictions on the state-owned telecom company TPSA, creates an independent regulatory body to oversee

1 See Focus on Transition 2/1999.

2 To avoid an overly strong appreciation of the zloty as a consequence of strong capital inflows induced by a number of impending large-scale privatizations, a special central bank account has been opened, where a portion of privatization inflows will be set aside.

3 See Focus on Transition 1/1999 and 2/1999.

4 Precisely, the amendment extends to those Treasury-owned companies which were established as a result of commercialization and which will not have started privatization by the time the amendment comes into force. According to the Polish Treasury, this group of enterprises is worth about USD 12.5 billion (converted at an exchange rate of PLN 4/USD), which means that the enfranchisement program would have a volume of USD 875 million.

5 This fund will compensate former owners of property confiscated during the communist period.

the telecom sector and provides for the liberalization of domestic services from 2002 and the opening up of international services from 2003 onwards.

Privatization revenues in 1999 reached USD 3.1 billion,<sup>1)</sup> 74% more than planned. The privatization plan for 2000 is even more ambitious, with envisaged revenues of USD 5 billion.<sup>2)</sup> A 35% stake in TPSA is currently being privatized, with final talks ongoing with two Western European telecom companies. The privatization of the energy sector has begun with the sale of several power plants. Large-scale deals in the pipeline in this sector include Gdansk refinery, Poland's second-largest fuel processor, and Huta Katowice, the country's largest steel mill.

The privatization of the last two remaining fully state-owned banks, Poland's largest retail banks PKO BP and BGZ Bank, which are burdened by large amounts of nonperforming loans, is still at an early stage. Parliament is currently discussing a law on the restructuring and privatization of BGZ Bank. PKO PB Bank has recently been transformed into a joint stock company, which is a precondition for later privatization. The remaining state stake of 10.3% in Powszechny Bank Kredytowy is up for sale later this year.

Poland has recently seen a struggle over the control of two large banks, Bank Handlowy and BIG BG. In December 1999, shareholders of Bank Handlowy and BRE voted in favor of merging these two institutions. However, the merger has not proceeded because a court ruled that minority shareholders' rights were violated. The process was held up by PZU, the country's largest insurer, and the Treasury for fear that it would constitute an effective takeover of the merged bank by Commerzbank, which owns 10% of Handlowy and 50% of BRE, at a price considered to be too low. In early 2000, PZU sold its stake in Bank Handlowy to Citigroup, which forced Commerzbank to give up the fight for the merger. In the spring of 2000, Deutsche Bank took effective control of BIG BG, one of the Poland's last leading banks without a strategic investor, after winning four of nine seats on BIG's supervisory board and securing the support of the other five supervisory board members. However, legal action by BIG's executives led to a suspension of the newly elected supervisory board by a local court, and the final outcome was still unknown at the time of writing.

#### **2.4 Slovakia**

Real GDP growth in Slovakia decelerated in 1999, amounting to 1.9% as compared to 4.4% in 1998. Growth was lowest in the third quarter with 0.6%; in the fourth quarter it quickened to 2.4%. Economic activity was mainly dampened as a result of austerity measures taken in January and May 1999 to address Slovakia's massive budget and current account deficits, which had accumulated in the years up to 1998.<sup>3)</sup> First and foremost, the austerity measures affected gross fixed capital formation, which declined by 18.2% last year. Private and public consumption virtually stagnated

<sup>1</sup> Converted at a 1999 average exchange rate of PLN 3.9671/USD.

<sup>2</sup> Converted at an exchange rate of PLN 4/USD.

<sup>3</sup> See Focus on Transition 1/1999.

(+0.5% and +0.3% respectively). Net exports, by contrast, had a substantially positive impact on growth: Real exports rose by 7.0%, while imports declined by 2.5%. Industrial production decreased by 3.3% in 1999, while construction output plummeted by 25.8%.

Industrial production was up 4.5% in the first quarter of 2000, with high single-digit growth in February and March. Construction output, in turn, continued to contract by 16.6%. Retail sales were down 1.7%. For the whole year, the Slovak government expects the GDP to grow by 2.5% in real terms, while the National Bank of Slovakia (NBS) anticipates a 2% growth rate. This is in line with most observers' forecast of continued moderate growth of 2% to 2.5%.

The unemployment rate was rising during the course of 1999, and at the end of the year it amounted to 19.2%, 3.6 percentage points up on the end-1998 figure. In early 2000, the unemployment rate edged up to 19.5% in January and February, while it eased to 19.3% in March.

Gross real wages contracted by 3.1% in 1999, while labor productivity stagnated (-0.5%). Gross real wages were practically constant in the first quarter of 2000 (-0.3%), while labor productivity in the industrial sector climbed by 10.8%.

Average annual inflation stood at 10.6% in 1999. Substantial rises in regulatory prices doubled twelve-month inflation figures to around 14% in the second half of 1999, as compared to the first half of last year. Inflation rose further in the first months of 2000 (March 2000: 16.6%). In April, however, it dropped slightly to 15.9%.

The current account deficit was USD 1.1 billion in 1999 (5.6% of GDP), almost half of the 1998 figure. This considerable reduction was mainly attributable to the fall in the foreign trade deficit, which amounted to USD 1.1 billion, down from USD 2.4 billion in 1998. The net inflow of foreign direct investment amounted to USD 701 million, while the net inflow of portfolio investment was USD 624 million and other investment recorded a net inflow of USD 313 million. Capital inflows were particularly strong in December 1999, running to almost USD 1 billion. Official foreign exchange reserves, which had been stable at around USD 2.8 billion between June and November 1999, surged to USD 3.4 billion in December 1999. At the end of 1999, Slovakia's gross external debt was USD 10.5 billion (approximately 56% of GDP), about USD 1.4 billion lower than in December 1998.

The positive trends of last year continued into early 2000. The current account deficit dropped to USD 26 million<sup>1</sup>) in the first two months of 2000 (about 1% of GDP) from USD 147 million in the same period of the preceding year.<sup>2</sup>) Official foreign exchange reserves increased further during the first months of 2000, surpassing USD 4 billion in mid-April (import cover: more than four months).

The general government deficit reached 3.7% of GDP in 1999, which was lower than in 1998, when it had been at 4.8% of GDP, but higher than the original target of 3% of GDP. The fiscal adjustment was significant, as the

1 Converted at an exchange rate of SKK 42/USD.

2 Data on capital flows were only available for January 2000 and are not reported here.

deficit would have risen further without the corrective measures that were taken.<sup>1)</sup> The central government deficit last year corresponded to 2.2% of GDP. For this year, the deficit of the public sector was set at 3% of GDP. The central government budget for 2000 contains a deficit target of 1.9% of GDP. During the first four months of 2000, central government budget developments were on track. However, it may prove to be difficult to keep the other components of public finances and especially of the social security system fully in check, and there may thus be a limited overrun of the general government deficit target.<sup>2)</sup> For 2001, a temporary rise of the general government deficit to between 3.5% and 4% of GDP is envisaged as a result of lower revenues due to the abolition of the import surcharge introduced last year and the effects of the corporate tax reform adopted in 1999 and owing to additional spending related to bank recapitalization and enterprise restructuring.

The monetary policy of the National Bank of Slovakia follows a composite strategy, which contains a strong monetary targeting element, with M2 as an intermediary target. At the same time, the bank has announced inflation targets, which pertained to net inflation in 1999 and to core inflation this year.<sup>3)</sup> Moreover, monetary policy is also concerned, to a certain extent, with the development of the exchange rate. In 1999 the M2 target, which had been set in a range of 6% to 8.8%, was overshoot, as M2 grew by 12.3%. The revised net inflation target (6% to 7.5% in December 1999), however, was met, as net inflation came to 6.1% in December 1999.<sup>4)</sup> For the end of 2000, the core inflation target was set at between 4.5% and 5.8%. In April 2000, core inflation stood at 6.4%. This year's M2 target was set at 9.3%.

In February 2000, the central bank introduced overnight repos as a new monetary policy instrument. The interest rate was set at 8% for liquidity-absorbing and at 12% for liquidity-providing transactions. At the beginning of April the rates were reduced to 7.5% and 10.5% respectively. Two-week repos are to be launched shortly as a further step towards developing the set of monetary policy instruments.

In December 1999, the NBS began to intervene steadily in order to stem a further nominal appreciation of the Slovak koruna, which had strengthened against the euro in nominal terms since late May 1999.<sup>5)</sup> By doing so, the NBS aimed at stabilizing the domestic currency at an approximate level of SKK 42.3/EUR. At the beginning of March, faced with continuing capital inflows (as foreign exchange reserve developments suggest), the NBS let the koruna appreciate somewhat further to between SKK 41.5 and SKK 41.7/EUR, where it remained until early May. Subsequently, the

1 See Focus on Transition 1/1999 and 2/1999.

2 In spring 2000, the finance ministry expected the deficit for this year to come in at between 3.0% and 3.4% of GDP.

3 Core inflation differs from net inflation in that it includes food prices. Like net inflation, core inflation excludes changes in regulated prices, indirect taxation and subsidies from the full consumer price basket.

4 In fact, the NBS also met its original net inflation target for 1999, which had been between 5% and 7%.

5 For the exchange rate developments during 1999, see Focus on Transition 2/1999.

koruna weakened to SKK 43.2/EUR within a few days and then stabilized at around SKK 43/EUR.

Structural reforms have been continued in a number of areas during the first months of 2000. The government has passed an amendment to the bankruptcy act which is aimed at strengthening the rights of creditors, facilitating composition settlements, speeding up the liquidation of nonviable enterprises which allows potentially profitable parts of insolvent companies to be split off and sold off. The bill is now being discussed in parliament. In the financial sector, a capital market watchdog is to be set up on July 1, 2000; the government will pass the related draft law still in May and will ask parliament to deal with the bill in June under the accelerated procedure. The privatization process for the three large state-owned banks is progressing further. After recapitalization and the transfer of substantial volumes of non-performing assets to Konsolidačná banka and Slovenská konsolidačná at the end of 1999, privatization advisors were appointed and a second carving out of bad loans from the balance sheets of the two biggest banks was prepared.<sup>1)</sup> Besides, the stake in Slovenská sporiteľňa to be sold was increased to two thirds. Meanwhile, substantial stakes in two smaller banks were sold to strategic foreign investors in the spring of 2000, and the central bank has moved forcefully to deal with some other smaller banks which face liquidity and/or solvency problems.

The privatization of corporates and utilities has moved ahead as well, although a number of transactions have proved to be more time-consuming than originally thought. The sale of a majority stake in the Slovak telecom company and of the 36% state-owned shares in the mobile phone company Globtel are to be concluded in the summer of 2000, pending the approval of a new telecom law by the Slovak parliament. In March 2000, a memorandum of understanding was signed by VSZ, the large Slovak steelmaker, U.S. Steel and the Slovak government, stipulating acquisition by U.S. Steel of the core steel-production part of VSZ; the transaction is to be completed by the end of June. Furthermore, in March 2000, the Hungarian oil company Mol acquired a 36% share in the Slovak oil company Slovnaft.

## 2.5 Slovenia

Slovenia's real GDP in 1999 increased by 4.9%. The quarterly growth pattern differed somewhat from that of the four other countries, with a peak in the second quarter (+7.4%) before the introduction of a value-added tax system at the beginning of July 1999. Growth in 1999 was essentially driven by domestic demand. Gross fixed investment grew by 16.1%, while private consumption rose by 5.4% and public consumption expanded by 5.7%. Real exports mounted by 1.8% (which is a small increase compared to the other

<sup>1</sup> This second carve-out is to be implemented until end-June 2000. As a consequence of the first carve-out in December 1999, the share of nonperforming loans of these banks fell from 47% to 27%. With the second carve-out, it is to be reduced to below 20%. Owing to the capital injection into the large banks in December 1999 (see Focus on Transition 2/1999), the risk-weighted capital adequacy ratio of these banks reached 9% at the end of last year.

four countries), while real imports rose by 7.3%. Industrial production stagnated in 1999, while construction output expanded by 14.4%.

During the first three months of 2000, industrial production picked up by 7.2%, while construction output accelerated by 2.4%.<sup>1)</sup> In the year 2000, the authorities expect the Slovene economy to grow by 4%, a figure which corresponds to the forecasts of most observers.

The unemployment rate (national definition) has tended to decrease during the review period but is still rather high. In March 2000, it stood at 12.6%, one-and-a-half percentage points below that of March 1999.<sup>2)</sup>

Gross real wages increased by 2.8% in 1999, in line with labor productivity developments (+3.1%). In the first quarter of 2000, labor productivity in the industrial sector rose by 11%.<sup>3)</sup>

Average annual CPI inflation in Slovenia was at 6.1% in 1999. Since July 1999, twelve-month inflation rates have been on the rise, reaching 9.2% in April 2000 (as compared to 4.6% a year earlier). Apart from the general factors pertaining to all five countries, the introduction of VAT in July 1999 plays an important role in explaining recent price level developments in Slovenia.

Slovenia recorded a substantial current account deficit in 1999, totaling USD 581 million (3% of GDP). This was the first sizeable deficit since the country's independence, after surpluses in 1992 to 1994 and balanced current accounts between 1995 and 1998. The shortfall resulted mainly from a deterioration of the trade deficit by USD 380 million and by a reduction in the services surplus by USD 150 million. While exports of goods and services fell measured in U.S. dollars, imports remained practically unchanged.

The current account deficit was largely financed by debt-creating inflows, as foreign direct investments and equity portfolio investment were negligible, and to some extent also by drawing on foreign exchange reserves. Net FDI came in at USD 40 million, portfolio investment at USD 365 million<sup>4)</sup> and other investment at USD 39 million. Official foreign exchange reserves decreased by close to half a billion U.S. dollars during the course of 1999. At the end of last year, they amounted to USD 3.2 billion, which implies an import coverage of almost four months. Slovenia's gross foreign debt totaled USD 5.5 billion (approximately 27% of GDP) at the end of last year, displaying an increase of about USD 0.5 billion during the course of 1999.

In the first quarter of 2000, the current account deficit amounted to USD 175 million (above 3% of GDP), as compared to USD 33 million a year earlier. The increase was mainly attributable to a larger trade deficit in goods of USD 318 million, while the services balance remained virtually

1 Retail sales figures for the first quarter of 2000 were not available.

2 Measured by the ILO method, unemployment has always been much lower, averaging 7.7% for the last four months of 1999.

3 Figures about wage developments for the first quarter of 2000 were not available.

4 This was mainly a consequence of the issue of a ten-year eurobond with a volume of EUR 400 million in March 1999.

unchanged. Net direct investment flows were zero, while there was a large inflow of portfolio investment (USD 339 million)<sup>1)</sup> and some inflow of other investment (USD 46 million). Official foreign exchange reserves increased moderately to USD 3.3 billion, while gross foreign debt rose to USD 5.9 billion (end-March 2000).

Slovenia's monetary policy, which is based on monetary targeting, but also places a strong de facto weight on exchange rate developments, remained basically unchanged during the first months of 2000. The discount and lombard rates remained unaltered at 8% and 9%, where they had stood since January 1, 1999. However, the Bank of Slovenia has indicated that the increasing inflationary pressures the country has experienced recently may, if they persist, induce the Bank to tighten its monetary policy stance. The monetary target relates to M3; for 2000, this aggregate is to grow by 12% to 18%. Last year, the target had been set at between 16% and 24%, and it was met with an actual expansion of M3 by 16%. Between early January and mid-May 2000, the tolar depreciated by 3% against the euro. In real terms, it appreciated moderately (by around 4%) compared to the same period of 1999.

Slovenia's general government deficit for 1999 came in at 0.6% of GDP, which was below the finance ministry's forecast of 0.9%. The central government budget deficit amounted to 0.5% of GDP. For 2000, the government aims at a public sector deficit of 1.1% of GDP and a central government budget deficit of 1% of GDP. The budget is based on a 4% growth target and an annual average CPI inflation of 6.2%. During the first four months of 2000, the central government budget recorded a deficit that exceeded the full-year target by more than 60%. However, this is not necessarily cause for serious concern, provided that the budget records sizeable surpluses in the second half of the year, as it did in 1999.

After a quickening pace of legal and institutional changes in 1999,<sup>2)</sup> the momentum of change was less pronounced during the first months of 2000, partly because the former governing coalition broke up in April 2000 and the subsequent focus of the political process was on the formation of a new cabinet and the upcoming parliamentary elections due in November 2000. The pension reform approved in late 1999 was implemented as planned from the beginning of this year. In January 2000, parliament adopted a new insurance act designed to bring the relevant Slovenian regulations in line with EU standards and a law on the transformation of insurance companies into joint stock companies and their subsequent privatization, which is intended to be started later this year. In February 2000, parliament passed the Public Fund Law. It provides a framework for the borrowing of, and the control over the financial transactions of, funds set up by central government and local communities, a measure which fits into the broader picture of recent budgetary reforms aimed at an overhaul and increased transparency of public finance structures. In the area of portfolio capital flows, transaction costs were

1 This was largely because Slovenia placed a new ten-year eurobond with a volume of EUR 400 million in March 2000. The bond was priced at 73 basis points above ten-year German bunds.

2 See Focus on Transition 1/1999 and 2/1999.

reduced a bit further, as the Bank of Slovenia marginally lowered the quarterly fee to be paid by foreign investors engaging in short-term portfolio transactions. Slovenian authorities consider it necessary to further improve prudential regulations for the financial sector as a precondition before further progress in the area of freeing capital movements can be pondered.

Bank privatization has been on the agenda of the Slovenian authorities for a long time. Last year, the government had agreed upon a privatization strategy for the country's two largest banks, Nova Ljubljanska banka (NLB) and Nova kreditna banka Maribor (NKBM). This program included the sale of minority packages of shares in both banks to foreign portfolio investors by the end of 1999 as well as a transfer of 10% of the shares in NLB and NKBM to the pension fund and to the indemnity fund.<sup>1)</sup> In the meantime, the sale of bank shares to foreign investors has become a politically very contested issue and was thus postponed, while the handover of the bank shares to the two funds was effected in April 2000. In early 2000, NKBM signed a letter of intent for a merger with the privately owned SKB, Slovenia's third largest bank. The fusion is intended to come into effect at the beginning of 2001, if it is approved by the shareholders and the Bank of Slovenia and if the state sells part of NKBM during this year so that its share in the new merged bank would be less than half. At the same time, both NLB and NKBM have announced their intentions to take over a number of smaller Slovenian banks, heralding an acceleration of the consolidation process in the country's banking sector.

Review period: January 1 to May 15, 2000.

*1 This fund will compensate owners of property which was confiscated before the start of systemic transformation in Slovenia and which will not be returned in kind.*

S T U D I E S

# Monetary Transmission and Asset-Liability Management by Financial Institutions in Transitional Economies – Implications for Czech Monetary Policy

Alexis Derviz<sup>1)</sup>

## I Introduction

Two links of the monetary policy transmission chain are hidden in the function of the financial sector: first, the transmission of central bank key rate decisions into the money market and to other fixed income interest rates and second, the transmission of money market rate movements into the rates of lending to nonbanks. The two additional questions often invoked in the monetary transmission context are the importance of autonomous factors in the quantity of money growth, and the money market rate's impact on the exchange rate.

As could be expected, the effects of changes in monetary policy on the interaction between the financial and the real sectors in the Czech economy are very poorly explained by macroeconomic models of the VAR type (see Kodera and Mandel, 1997; and Izák, 1998, for an empirical overview). Nor is the Neo-Keynesian “extended IS-LM” approach initiated by Bernanke and Blinder, 1988, very helpful, since its core assumption – the posited interest rate-driven demand for credit – refers to the factors lying outside the financial sector. Especially troubling for policymakers are the many observed periods when the credit conditions for the nonbanking public were reluctant to react logically to central bank key rate decisions. This reality calls for an extension of the presently existing models of the financial sector to enable them to account for the specific features of transitional economies. In particular, the models should accommodate such phenomena as autonomous behavior of the monetary aggregates, volatility at the long end of the yield curve, credit crunches, the behavior of the forward premium on the national currency in the forex market, etc. In a transitional economy like the Czech Republic, the need for a new modeling approach is especially strong. For one thing, the Czech financial markets are still far less transparent than those of the leading industrial countries, for which modern international finance theory has been created, or even those of other Visegrad countries. For another thing, the Czech post-reform development shows that the formal process of financial liberalization and capital market evolution conceals deep structural deficiencies. Even an attempt to understand the true reasons of many seemingly illogical processes in the Czech financial sector, let alone guide these processes in the sense of a gradual convergence to the industrial world standard, calls for a synthesis of many existing formal approaches. A synergy of financial market microstructure theory, stochastic finance and international macroeconomics would be desirable. The present paper constitutes a move in the direction of such a synthetic approach.

Juxtaposing the available evidence about the monetary transmission between the central bank, commercial banks and private customers with the existing views on optimizing investor behavior, one soon arrives at the need to focus on one distinctive motive of the behavior of financial intermediaries. That is, one models an agent who is acting in two financial market segments, the interbank money market and the market for private securities.

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At the same time, the financial firm invests funds it does not own, i.e. the deposits of the public, which means that it is subject to unpredicted infusion and withdrawal of those funds. Therefore, the flow of earnings must be managed in such a way as to absorb uncertain shocks to liquidity at all future dates. Accordingly, should the model elucidate the actions of the financial intermediary, it seems reasonable that the gaps between future incoming and outgoing payments (referred to as cash flow constraints below) be reflected by the set of restrictions entering its optimization problem. This is why the model that I introduce in the paper describes the behavior of a financial institution facing two types of constraints: the liquidity constraint and the cash flow constraint.

A convenient consequence of the abovementioned constraints is that the model generates a demand for securities which is not entirely determined by the standard risk-sharing reasons, but also reflects the current asset-liability management considerations. Due to this, monetary policy plays a role in the model regardless of whether its changes are expected or not, which is an ideal feature for the transmission mechanism applications that I am studying.

The model works with the concept of the financial system represented by a single firm, which is a competitive price taker in the asset markets. Modeling the behavior of the financial sector in this way might have become too complex had one dealt with matters like deposit market structure, optimal corporate liability design and other microfinance problems. However, the topic of this study – the relevance of asset-liability management decisions by financial firms for credit creation and monetary policy transmission – can, if necessary, be viewed from a strictly macroeconomic perspective. The fact that the results do not involve the exercise of market power by the firms in the financial services industry justifies the representative agent simplification.

The most important concept which arises in the solution of the model is that of so-called *shadow asset prices*. They are generated by the co-state variables of the individual optimization problem, provided that the available asset holdings are regarded as state variables. In the present discrete time and time-separable utility setting, I do not need to invoke the co-states explicitly to derive the first-order conditions of optimality. Therefore, in this paper, in a slight abuse of terminology, I call the shadow security price a variable equal to the ratio of its “true” shadow price to the shadow price of cash. The correct names of the variables can easily be regained by treating the same problem in the Lagrange multiplier form. In the present understanding, the shadow price has the property of clearing the market under the representative investor assumption and no outside supply or demand for the asset in question. Put differently, if the actual price is equal to the shadow price, the agents have no incentive to transact. As it turns out, the shadow prices satisfy the conventional no-arbitrage relationships regardless of the degree to which the actual prices of the same assets are distorted by the presence of transaction costs, information asymmetries and other microstructural effects. All of the named factors are summarized in the model under the concept of the *transaction function* of the corresponding market segment, making the portfolio reshuffling cost an increasing, strictly convex function of the transaction volume.

One of the principal consequences of the selected approach is the derivative notion of the *shadow interest rate* on a loan granted by the financial institution to a nonbank. One obtains this rate by first deriving the shadow price of said loan as if it were one of the regularly traded assets. The actual price of the loan contract must be equal to unity at the date of issue, meaning that one looks at a loan with unit principal. On the other hand, the already mentioned no-arbitrage relations between the shadow prices of traded assets allow the loan, viewed as a temporal sequence of the coupon and the principal payments, to be linked to the shadow prices of discount bonds traded in the money market. The result is the shadow rate – the coupon rate at which the financial institution is willing to grant the loan of the desired amount of unity. More generally, the shadow rate characterizes the lending conditions the borrower would have to observe if he abided by the preferred loan size and only negotiated the interest rate. Since, in aggregate, the lender-borrower bargaining should result in a joint determination of *both the loan amount and the lending rate*, the shadow rate very seldom coincides with the actual one. Instead, it provides a measure of the current credit conditions: Its growth indicates a contraction, its fall a relaxation of the credit channel of monetary policy transmission. (The main, or money channel, condition corresponds to the general level of money market rates.)

The selected inferences of the model have the objective of covering the four already named aspects of the monetary transmission in an open economy, namely the propagation of central bank rate changes along the zero coupon yield curve, the impact of money market rates on the lending rates to nonbanks, controllability of monetary aggregates and the exchange rate effects of the key rate changes. All four aspects are analyzed by comparing the inferences of the model with the available Czech data.

By way of international comparison, I had a valuable opportunity to collect some data on the Austrian banking sector and take a look at them in the context of the findings for the Czech Republic.

The paper is structured as follows. In section 2, I define the model of an optimizing financial intermediary (subsections 2.1 to 2.3), the method of solving the optimization problem for optimal investment/lending policies involving the concept of shadow asset prices (subsection 2.4) and discuss the equilibrium (subsection 2.5). Section 3 gives some applications of the model, including the term structure of interest rates (subsection 3.1), shadow and actual pricing of private sector debt contracts (subsection 3.2) and the uncovered return parity condition on the exchange rate (subsection 3.3). Next, selected phenomena of the Czech financial markets and monetary transmission are related to distinctive elements of the model. In this context, I discuss the propagation of the central bank key rate shocks along the yield curve in section 4. Private sector credit conditions and their dependence on the term structure of interest rates are dealt with in section 5. The autonomous behavior of the monetary aggregates and the forward premium for the exchange rate are briefly touched upon in section 6. Section 7 concludes with some observations on the relevance of the paper's findings for Czech monetary policy.

## **2 Optimizing by a Financial Institution under Cash Flow Constraints**

The objective of sections 2 and 3 is to develop a formal framework to study the channels of monetary policy transmission within the financial sector of a transition economy, based upon individual optimization under uncertainty. The model proposed to this end departs from the conventional view of the representative financial firm as a classic portfolio optimizer under uncertainty by adding an additional variable to its current utility function. Said variable expresses, for the given moment, the assessment of netting asset incomes and liability service payments at all subsequent moments in the future, assuming that the asset and liability holdings are frozen at the levels attained at the moment of measurement. The proposed approach to the preference structure captures the spirit of the capital adequacy requirements imposed on banks and other financial intermediaries by regulatory authorities. A rationale for this seemingly subrational asset-liability management (ALM) argument in financial firm utility can be found, along with other capital market imperfections, in the fact that a number of assets in its portfolio are illiquid. The market participants are aware that the firm is unable to become 100% liquid on short notice. Therefore, agents must take into account the costs and benefits of firm ownership regardless of whether the company can be marketed immediately or not. Specifically, in transitional economies, a cash flow valuation of the mentioned firm may express the high cost uncertainty about the future access to the markets, or it may be a substitute for the termination value component of standard portfolio optimization. Indeed, in the mainstream finance literature, the termination possibility is dealt with by means of the liquidation price of the firm based on the resale value of its assets at a random stopping time (see Karatzas et al., 1987). The asset-liability manager in a transition economy, however is forced to keep in mind a continuously updated measure of readiness to decisively redefine the company's activities or, at least, some form of profound restructuring of the company. Under such circumstances, the resale possibility may be either nonexistent or prohibitively expensive, and the direct cash flow measure seems to be the sole tangible alternative. Nevertheless, the definition to be given will be consistent with the resale alternative in an efficient capital market where, after all, the asset price should be fully reflected by future cash flows.

Another specific feature of period utility used in the model is its dependence on the current liquidity variable. This dependence serves as a substitute for a hard no-bankruptcy constraint (the same approach for continuous time portfolio optimization is discussed in Derviz, 1999a). The additional arguments in the period utility function, i.e. the current cash level variable and the future cash flow assessment variable, constitute two state variable constraints in the "soft" form. Among other things, this specification helps to restrict the optimal behavior of the financial intermediary to the paths with nonexplosive short positions.

Naturally, the additional elements in period utility described above entail several other important consequences for optimal investment and the overall outcome of the model. The fact will become clear as soon as the basic result

of the optimal demand for new corporate securities is compared with the monetary policy impact on discount bond prices.

In the chosen definition of utility, I avoid any explicit measure of inflation. The decision-maker can take it into account by discounting all arguments of the utility function – dividends, current cash and future cash flows – by a common inflationary multiplier. Then, just as in standard portfolio optimizing models with money, the inflation factor will appear in all asset pricing results that involve marginal utilities and pricing kernels. In the present setting, however, the object of interest is the totality of “ALM effects,” which will be shown to involve only *marginal utility ratios*. The common inflationary multiplier cancels out such ratios, making the most important ALM effects inflation-neutral. Thus, the inflationary effects, although implicitly present and easily recovered if necessary, are played down in the notations, so that the focus of the paper on nominal asset-liability constraints is not unduly blurred.

## 2.1 The Model

Consider a financial company which can trade in  $N$  securities of domestic or foreign origin comprising the set  $N$ . The bulk of these securities are corporate stocks and commercial paper. Time is discrete and changes take place between 0 and infinity. The number of shares/bonds of security  $k$  held by the company at time  $t$  is denoted by  $x_t^k$ , its price by  $P_t^k$  ( $k = 1, \dots, N$ ). A negative value of  $x_t^k$  means that the company has a liability in the  $k^{\text{th}}$  security.

Security  $k$  is characterized by the flow of dividends (coupons and the principal if it is a bond), equal to  $I_t^k$  of units of account at time  $t$ . Of course, in reality, time intervals between dividend payouts are long, so that this variable is different from zero only for a small number of dates. However, dividends will receive an additional characterization in the present model, which will be nontrivial in every period. At every time  $t$ , the market participants form an assessment of security  $k$  payments in the time moments following  $t$ :  $(\gamma_t^k)^s, s \geq t + 1$ . For common stock, these are beliefs about future dividends; for fixed income securities, the known coupon and principal payments over the security’s lifetime, adjusted by the default risk, if relevant. The definition should be appropriately modified to cover other security forms, e.g. indices or derivatives.

The amount by which the company increases (decreases if negative) the position in the  $k^{\text{th}}$  security between times  $t - 1$  and  $t$  is denoted by  $\varphi_t^k : x_t^k = x_{t-1}^k + \varphi_t^k$ .

To shorten the notations, I will use symbols  $x, I, \gamma^s, \varphi$  and  $P$  to denote the vectors of security holdings, current payoffs, expected payoffs at time  $s$ , sales/purchases and prices, respectively, with the current date in the subscript. The security index  $k$  will also be omitted wherever possible. In fact, many results below can be formulated in an economy with only one composite security. Only some examples will require partitioning the set  $N$ .

Further, I introduce the notion of cash, or liquidity holdings of the company. Namely, it is assumed that all transactions (a sale of one security and a purchase of another) happen with the help of a liquid medium of exchange,

whose current level in the company's till at time  $t$  is denoted by  $x_t^0$ . At every time period, income is added to the start-of-the-period level of  $x^0$  while expenditures are subtracted from it. That is, no direct swaps of different securities are allowed, and the current level of cash indicates how far into debt the company is allowed to go in exercising the transactions (too negative cash levels are punished by disutility, see below).

In addition to the general security set  $N$  described above, there are pure discount bonds, distinguished by maturity alone. A discount bond maturing at time  $s$  pays one unit of account at that time. The time  $t$  position in the  $s$  discount bond will be denoted by  $\Phi_t^s, s \geq t + 1$ , the current market price of one such bond by  $B_t^s$ . Thus, according to our definition,  $\Phi_t^s$  is the totality of all discount bonds existing at time  $t$  and maturing at time  $s$ , *regardless of the issue date*. Accordingly, at every time  $t$  preceding the maturity they are priced equally (by  $B_t^s$ ), so that all price deviations of individual bonds are ignored. Specifically, there is no default risk, and the defined discount bonds can be identified with the tools of the monetary policy traded in the money market.

The amount by which the company increases (decreases if negative) the position in the  $s$  bond between times  $t - 1$  and  $t$  will be denoted by  $\varphi_t^s : \Phi_t^s = \Phi_{t-1}^s + \varphi_t^s, s \geq t + 1$ .

It is important to clarify what happens for  $s = t$ , i.e. how does one decide at time  $t$  what amount shall become available in cash at time  $t + 1$  without investing infinitely in the bonds maturing in the next period, i.e.  $\Phi_t^{t+1}$ . The question is resolved by using a one-period ("overnight") interest rate  $i_{t+1}$ , at which the free end-of-period- $t$  liquidity is deposited. This cash becomes part of the liquidity available at the beginning of period  $t + 1$  for further transactions.

In some periods, the company is supposed to pay dividends out of its free cash before making the overnight deposit. Just like the dividends or coupons it earns on securities of other issuers, these dividends would be nonzero only at selected predefined dates. However, to avoid cumbersome specifications of the payment regime, I assume that a contribution  $\rho_t$  to the dividend fund is made in every period  $t$ .

Looking at the specific situation of the deposit-taking financial institutions, i.e. banks and mutual funds, one should recognize the demand deposits of the nonbanking public as a special liability category in the model. For simplicity, I assume that the interest paid on demand deposits is zero, and ignore the exact motives of the public to hold them. The net increase in the deposit level at time  $t$  will be denoted by  $K_t$ , and the time  $t$ -expected net deposit increase at date  $s \geq t + 1$  by  $K_t^s$ . If the financial company is not entitled to take deposits, variable  $K$  shall be understood as the company-specific income term, which is not a function of the marketed securities' characteristics. The presence of exogenous income shocks represented by  $K$  will play no particular role in the present paper. It is, however, a convenient shortcut to define and explain the nonzero volumes of security trade caused by agent heterogeneity and should, therefore, be kept in mind when interpreting the results.

All other loan and deposit types, i.e. those that cannot be withdrawn at sight, are treated as regular securities belonging to the set  $N$ , as defined ear-

lier. For example, I include in  $N$  the taken (or granted) credit lines, in spite of their “duality” with demand deposits, as pointed out by Kashyap et al., 1999.

Finally, I will need an auxiliary state variable  $x^f$  to denote the current state of financial technology available to the company. Without upgrading investment, the financial technology becomes obsolete. The obsolescence rate  $f$  works as the exponential decline rate of  $x^f$ . To offset it, the company can invest in an upgrade rate  $\rho^f$ . Altogether, the technology level follows the rule  $x_t^f = x_{t-1}^f(\rho_t^f - f_t)$ . By investing in  $x^f$ , the financial company prevents the administrative expenditure from becoming too high. In other words, it reduces the future transaction costs, as explained below.

The sources of exogenous uncertainty in the model are discrete-time stochastic processes  $\Gamma$ ,  $K$  and  $f$ . They generate information filter  $F = (F_t)_{t \geq 0}$ , so that  $F_t$  denotes information publicly available at the beginning of day  $t$ . Symbol  $E_t[\dots]$  denotes the expectation conditional on  $F_t$ . The values  $\Gamma_t$ ,  $K_t$  and  $f_t$  are known to the decision-maker at the start of period  $t$ , when he chooses the values of  $\rho_t$ ,  $\rho_t^f$ ,  $\varphi_t$  and  $\varphi_t^s$ ,  $s \geq t + 1$ . Also, the optimizing financial firm is a price taker, so that the asset price vector  $P_t$  applicable during period  $t$  is known at the start of that period (accordingly, process  $P$  is adapted to filter  $F$ ). Besides, the short-term interest rate  $i_{t+1}$  is known at time  $t$  as well. In order to make this assumption consistent with the requirement that all prices and return rates in the model are endogenous, I adopt the natural convention  $B_t^{t+1} = \frac{1}{1+i_{t+1}}$ . For reasonable preferences and transaction functions, this assumption implies  $\varphi_t^{t+1} = 0$ . Indeed, while dealing in the overnight debt market is costly, the same interest rate  $i$  can be earned costlessly if all the end-of-period- $t$ -cash is deposited. Note that the time  $t$  assessments of date  $s$  cash flows  $\gamma_t^s$ ,  $K_t^s$  and  $\Phi_t^s$  are all known at time  $t$ . Naturally, in the case of the former two, it does not mean that the assessments are always correct, but rather that they are known to those who form them. In the case of discount bonds, the certainty follows from the assumption of zero default risk.

## 2.2 Transaction Costs

To generate nontrivial supply and demand schedules in the secondary markets for securities, it is necessary to introduce nonlinearity in the transaction variables  $\varphi$  and  $\varphi^s$ . Logically, this nonlinearity can enter either the utility function or the state-transition rules. I choose the latter variant, i.e. I introduce transaction costs which are nonlinear functions of the corresponding position change variables.

Take security  $k$  from the set  $N$  first. Nonzero transaction costs mean that, in order to add  $\varphi^k > 0$  to the stock  $x^k$ , one must spend the amount  $P^k j^k \varphi^{(k)} > P^k \varphi^k$ . Analogously, by selling  $\varphi^k < 0$  units of security  $k$ , one obtains the amount of cash  $P^k j^k (-\varphi^k) < P^k (-\varphi^k)$ . Consequently, the transaction function  $j^k$  can be defined as strictly increasing and strictly convex, with the value of zero corresponding to the zero transaction level. To accommodate the reduction effect of advanced technology on transaction costs, I assume that  $j^k$  is a strictly decreasing function of its second argument,

$x^f$ . So, the technology level attained in the previous period drives down the cost level for the current transaction volume:  $j_t^k = j^k(x_{t-1}^f, \varphi_t^f)$ . Note the  $t$  subscript replacing the full list of arguments – the shorthand notation to be frequently utilized below. Another natural assumption is the zero marginal transaction cost at the origin:  $j_\varphi^k(x, 0) \equiv 1$  for all values of  $x$  ( $\varphi$  subscript indicates partial derivative).

As the principal example to keep in mind I invoke the linear-quadratic transaction function resembling the capital installation cost in Tobin's  $q$  models:

$$j^k(x, \varphi) = \varphi + \frac{b^k \varphi^2}{2x},$$

where  $b^k$  is a positive constant. For the values of  $\varphi^k/x^f$  not exceeding a certain negative level (i.e. for all but all too speedy sellouts), this functional form satisfies the partial derivative sign and the convexity requirements stated above.

It is assumed that the same beginning-of-period financial technology level has a reducing effect on transaction costs for trades in all securities in the current period. Then, variable  $x^f$  enters the transaction functions  $j^k$  for all  $k$  and the analogously defined transaction functions  $j^b$  in the discount bond market, for all  $s$ :  $j_t^b = j^b(x_{t-1}^f, \varphi_t^s)$ ,  $s \geq t + 1$ . As regards the cost of technology upgrade itself, I assume the existence of a strictly increasing and concave function  $v$  such that the upgrade at rate  $\rho_t^f$  at time  $t$  costs  $x_{t-1}^f v(\rho_t^f)$ .

### 2.3 State-Transition Equations,

#### Preferences and the Optimization Problem

Summing up the above definitions of incomes and expenditures, we are able to formulate the state transition equation for the liquidity variable,  $x^0$ , together with the remaining variables, i.e.  $x$ ,  $\Phi^s$  and  $x^f$ :

$$x_t^0 = (1 + i_t)x_{t-1}^0 + \Phi_{t-1}^t + x_{t-1} \cdot \Gamma_t - x_{t-1}^f v(\rho_t^f) + K_t - \rho_t - P_t \cdot j(x_{t-1}^f, \varphi_t) - \sum_{s \geq t+1} B_t^s j^b(x_{t-1}^f, \varphi_t^s), \quad (1a)$$

$$x_t^k = x_{t-1}^k + \varphi_t^k, k = 1, \dots, N, \quad (1b)$$

$$\Phi_t^s = \Phi_{t-1}^s + \varphi_t^s, s \geq t + 1, \quad (1c)$$

$$x_t^f = x_{t-1}^f (\rho_t^f - f_t). \quad (1d)$$

Here and in the sequel, scalar products indicated by dots are used to simplify the notations concerning the security set  $N$ , wherever they do not cause ambiguity.

As stated in the introduction, I want the company to make a continuous assessment of future cash flows (positive and negative), as far as they are generated by the current asset holdings. For this purpose, let us introduce variable  $R_t^s$  ( $s \geq t + 1$ ) as follows:

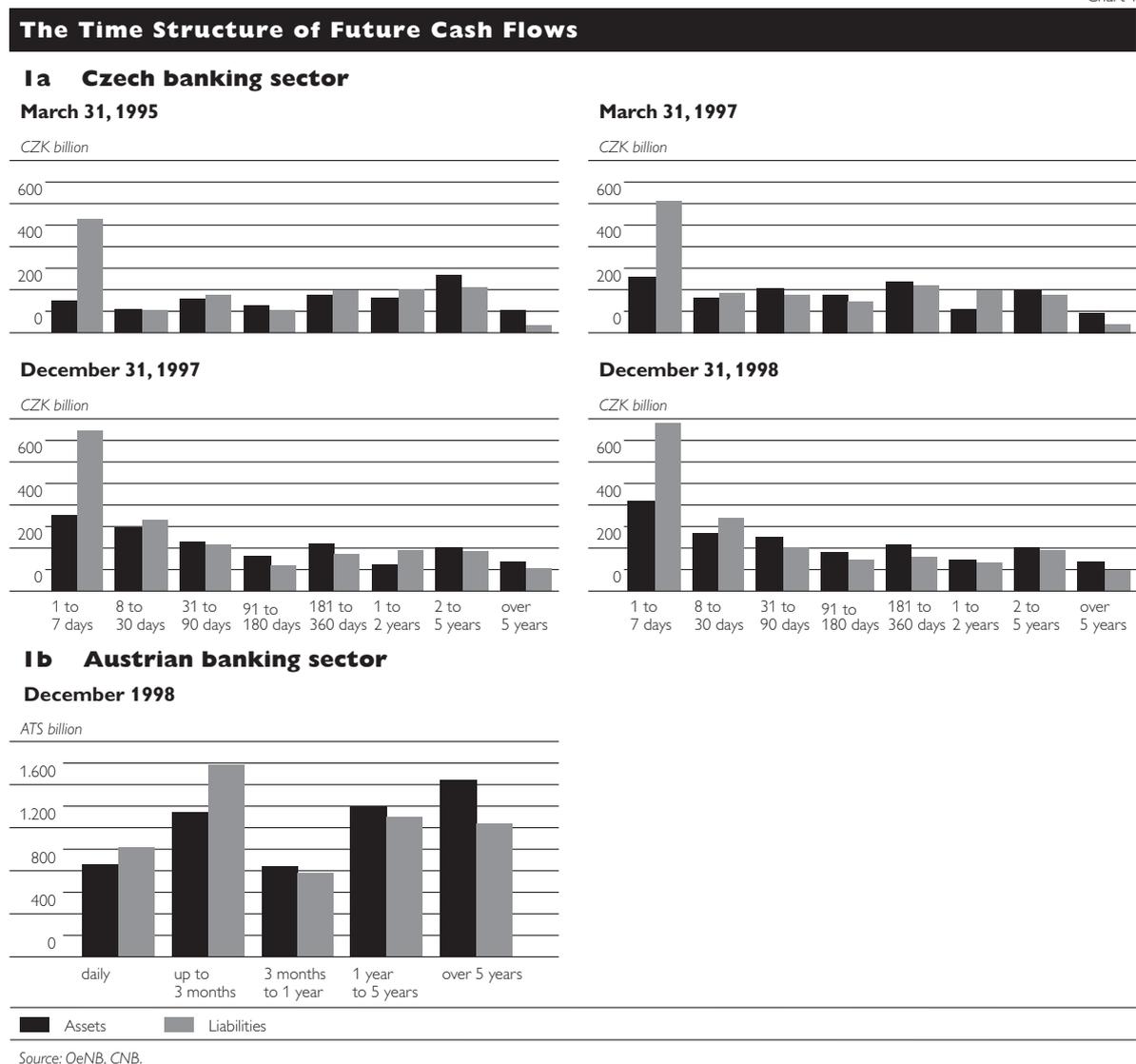
$$R_t^s = \Phi_t^s + x_t \cdot \gamma_t^s + K_t^s. \quad (2)$$

The first two terms on the right hand side of (2) are subjective assessments at date  $t$  of the net income from maturing discount bonds and the

income from other securities at date  $s$ , respectively (the corresponding term is negative in the case of a negative position). Term  $K$  stands for the date  $t$  assessment of the exogenous income shock at date  $s$ . In the case of the deposit-accepting institutions, the main source of  $K$  is the net change of the deposit level.

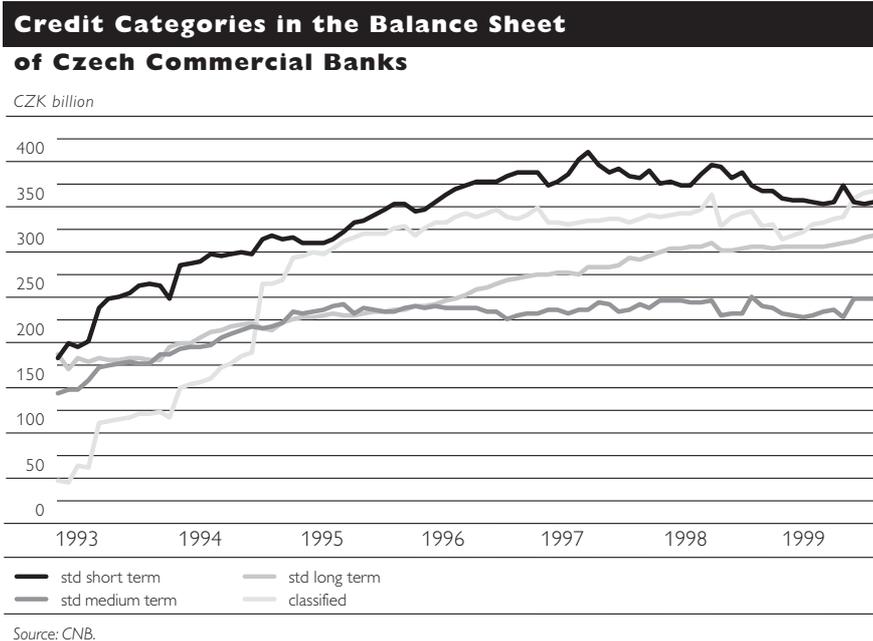
A few words should be said about the dynamics of the net future income variable  $R_t^s$ . First of all, banking statistics confirm that its sign usually changes from period to period. Besides, the distribution of its highs and lows for a given measurement date  $t$  is variable in  $t$  and can differ from country to country. Chart 1 illustrates this with the example of future in- and out-payment schedules for the Czech and the Austrian banking sectors. The Czech case is covered by a sequence of four diagrams (chart 1 a). This was enabled by the daily data availability from the beginning of 1995. The last snapshot in chart 1 a (December 1998) is matched by the comparative diagram for Austrian banks in chart 1 b.

Chart 1



Finally,  $R_t^s$ , regarded as a function of parameter  $t$ , can be very volatile if the financial sector portfolio contains many assets with a default risk. This is exactly the case in the Czech Republic, as chart 2 shows. Obviously, the dominant weight of classified loans in the commercial banks' portfolios (ranging from minimal to total losses) suggests a potential of frequent expectation revisions. All this supports the view adopted in this paper of the important role that the estimates of future net cash flows play in the decision-making of financial intermediaries, at least in the Czech economy today.

Chart 2



Next I introduce the date  $t$  valuation of the net after- $t$  income.

Let  $v$  be a strictly increasing and strictly concave function of the real variable, with  $v(0) = 0$ . Also, let  $(a_t)_{t>0}$  be a sequence of positive and sufficiently big numbers, to be used in the after- $t$  internal discount factors  $A_t^s$  as follows:

$$1 + A_t^s = \prod_{n=t+1}^s (1 + a_n), s \geq t + 1, A_t^s = 0.$$

Define the future cash flow valuation variable  $w$  as

$$w_t = \sum_{s \geq t+1} (1 + A_t^s)^{-1} v(R_t^s). \quad (3)$$

Weights  $(1 + A_t^s)^{-1}$  express two things. First, their average level corresponds to the inflationary discount applied to the valuation of future cash flows. Second, their variability in parameter  $s$  expresses the relative importance of net cash flows on different dates in the future, be it in view of changes in the expected inflation rate across dates  $s$ , or for some other reason, e.g. special monitoring at preselected future moments. (Accordingly, if one is not interested in variable inflation or privileged monitoring dates, all

parameters  $a_t$  can be assumed equal.) The weights must decrease with sufficient speed to make the sum in (3) converge. The period value function  $v$  goes to minus infinity more quickly than any straight line when its argument becomes increasingly negative, generating an increasingly adverse marginal valuation of growing dominance of income outflows over inflows. This happens thanks to the strict concavity of  $v$ . The same concavity property assures a decreasing marginal valuation of very high positive cash flows. If  $v$  were chosen very close to a linear function, then  $w_t$  would be almost proportional to the standard “fundamental” price of the modeled financial company, i.e. the discounted sum of future net cash flows. By choosing a strictly concave  $v$  instead, I stress the role of perceived market imperfections in the company asset valuation.

Observe that  $w_t$  in (3) contains no  $t$ -conditional uncertainties since, as was noted at the end of subsection 2.1, all components of  $R_t^s$  are known at time  $t$ .

Next, define the period utility function of the financial company as a smooth function  $(x^0, w, \rho) \mapsto u(x^0, w, \rho)$ , where the dependence on the dividend rate,  $\rho$ , is strictly increasing, concave and satisfies the Inada conditions. Observe that the *current liquidity level*  $x^0$  and the *current valuation of future net investment incomes* (net cash flows)  $w$  are entering the period utility separately. That is, the measures of ALM performance and solvency are treated as imperfect substitutes. Otherwise, one would have to include variable  $x_s^0$  in the future income variable  $R_t^s$  in (2). However, the usual ALM performance valuation practices speak in favor of the imperfect substitute definition chosen here.

Function  $u$  admits negative values of both  $x^0$  and  $w$ , but is strictly concave in each of them with

$$\lim_{x^0 \rightarrow -\infty} u(x^0, w, \rho) = \lim_{w \rightarrow -\infty} u(x^0, w, \rho) = -\infty,$$

so that a fall into debt or an adverse expected future cash flow results in a big disutility. Strict concavity also generates diminishing marginal utility of increased cash holdings and future cash flows.

Let  $\Theta$  be the time preference parameter of the financial company. Its optimization problem is that of maximizing

$$E \left[ \sum_{t \geq 1} (1 + \Theta)^{-t} u(x_t^0, w_t, \rho_t) \right] \quad (4)$$

with respect to time paths of the variables of choice  $\varphi$ ,  $\varphi^s$ ,  $\rho$  and  $\rho^f$ , subject to constraints (1), (2), (3) and given the initial asset and technology values  $x_0^0, x_0, \Phi_0^s$  and  $x_0^f$ . Alternatively, (4) is to be maximized with respect to the trajectories of  $x^0, x, x^f$ , and  $\Phi^s$  after  $\varphi, \varphi^s, \rho$  and  $\rho^f$  have been substituted away using the state-transition equation system (1). Note that transversality conditions on the state variables are not needed in this setting, since the restrictions on growth of optimal  $x^0$  and  $w$  follow from their presence in the utility function.

The solution to (4) is described in the next subsection.

## 2.4 Solution of the Optimization Problem and Shadow Prices

As mentioned above the solution to the problem (1) to (4) can be obtained by substituting the decision variables with their expressions following from (1) (see Obstfeld and Rogoff, 1996, for the comprehensive exposition of the technique). Two other ways of finding a solution are by formulating and analyzing the Jacobi-Bellman equation, and by the Lagrange multiplier method. Under either approach, the imposed strict concavity conditions on the period utilities  $u$  and  $v$  and the strict convexity conditions on transaction functions  $j$  guarantee that the solution is an internal one, characterized by the first order conditions. Multiple explosive paths can be excluded by an appropriate transversality condition on the marginal utility of dividends,  $u_\rho = \frac{\partial u}{\partial \rho}$ , at infinity. The latter can either be

$$\lim_{T \rightarrow \infty} (1 + i_{t+1})^{-1} \cdots (1 + i_{t+T+1})^{-1} (1 + \Theta)^{T+1} u_\rho(t + T + 1) = 0$$

or even weaker, just imposing the finiteness of the said limit. (The time argument by the marginal utility is a shorthand which will be used throughout the text to avoid long argument lists with individual time subscripts, for example,  $u_\rho(t) = u_\rho(x_t^0, w_t, \rho_t)$ ). It shall be noted that marginal utility  $u_\rho$  is a complete analogue of the marginal utility of consumption found in traditional optimal portfolio models.

The list of first order conditions of optimality is given below. Symbols  $u_0$  and  $u_w$  stand for the corresponding partial derivatives of the utility function; symbols  $j_\varphi^s, j_x^s, j_\varphi$  and  $j_x$  have analogous meaning.

Optimal transactions are represented as follows:

$$P_t^k j_\varphi^k(x_{t-1}^f, \varphi_t^k) = Q_t^k, B_t^s j_\varphi^s(x_{t-1}^f, \varphi_t^s) = X_t^s, s \geq t + 1, X_s^s \equiv 1, \quad (5a)$$

$$u_\rho(t) Q_t^k = u_w(t) \sum_{m \geq t+1} \frac{v'(R_t^m)}{1 + A_t^m} (\gamma^k)_t^m + E_t \left[ \frac{u_\rho(t+1)}{1 + \Theta} \Gamma_{t+1}^k \right] + E_t \left[ \frac{u_\rho(t+1)}{1 + \Theta} Q_{t+1}^k \right], k = 1, \dots, K, \quad (5b)$$

$$u_\rho(t) X_t^s = u_w(t) \frac{v'(R_t^s)}{1 + A_t^s} + E_t \left[ \frac{u_\rho(t+1)}{1 + \Theta} X_{t+1}^s \right], s \geq t + 1. \quad (5c)$$

The optimal dividend payment (marginal rate of substitution between dividend payments at two subsequent dates, in relation to the liquidity constraint) is represented as follows:

$$u_\rho(t) = u_0(t) + E_t \left[ \frac{u_\rho(t+1)}{1 + \Theta} \right] (1 + i_{t+1}). \quad (5d)$$

Optimal investment in financial technology (with the abbreviation  $v(t) = v(\rho_t^f)$ ) is represented as follows:

$$u_\rho(t) v'(t) = E_t \left[ \frac{u_\rho(t+1)}{1 + \Theta} \left\{ v'(t+1) \frac{x_{t+1}^f}{x_t^f} - v(t+1) - \sum_{s \geq t+2} B_{t+1}^s j_x^b(x_t^f, \varphi_{t+1}^s) - P_{t+1} \cdot j_x(x_t^f, \varphi_{t+1}) \right\} \right]. \quad (5e)$$

Equation (5 a) describes the form of instantaneous demand for securities, or their supply, depending on the sign of the marginal transaction cost  $j_\varphi - 1$ : Remember that at the origin, the marginal transaction cost is zero and the partial derivatives  $j_\varphi$  are strictly decreasing in  $\varphi$ . These pricing schedules are formulated in terms of shadow values  $Q$  and  $X$ . The choice of names is motivated by the following. It can be verified that  $Q^k$  is equal to the ratio of the Lagrange multiplier of constraint (1b) to the Lagrange multiplier of cash constraint (1a), provided problem (4) is solved by the corresponding method. The same, with constraint (1b) replaced by (1c), is valid for  $X^s$ . Naturally, the rigorously correct terminology would assign the name “shadow price” to the multiplier/co-state variable itself. However, as I will not need the co-state corresponding to (1a), separately, reserving the denomination “shadow price” for the indicated ratios will cause no confusion.

Condition (5 a) can be interpreted in the following way. If the current price  $P^k$  of security  $k$  is greater than its shadow value,  $Q^k$ , the optimal value of  $\varphi^k$  must be negative, i.e. the firm sells the security shares; if  $P^k$  is lower than  $Q^k$ , the security shares are purchased ( $\varphi^k$  is positive). For the price at its shadow level ( $P^k = Q^k$ ), there would be no transactions. The same is true for the current,  $B_t^s$ , and the shadow,  $X_t^s$ , price of the discount bond maturing at time  $s$ .

Equation (5 b) can be solved forward (given the transversality condition) with respect to  $Q_t$ . This (fundamental) solution would show that the shadow security price is the sum, for all future times, of the discounted dividend payments plus *the discounted weighted sums of the future dividend assessments in subsequent periods*. The weights are, naturally, determined by the subsequent marginal cash flow valuations  $(1 + A_t^s)^{-1}v'(R_t^s)$ . If the agents did not care about the value of future cash flows  $w$ , the shadow price would contain only the expected future dividends. Besides, under zero transaction costs ( $j^k(x^f, \varphi^k) \equiv \varphi^k$ ) or on condition of continuously clearing markets for security  $k$  and the existence of a representative investor ( $\varphi^k \equiv 0$ ), the shadow and the actual price would be equal. In that case, (5 b) would reduce to the standard Consumption-based Capital Asset Pricing Model (CCAPM) formula in discrete time (see Ross, 1976; Breeden, 1979).

Equation (5c) describes the term structure of interest rates. It links the time  $t$  shadow price of the bond maturing at date  $s$  to the expected discounted shadow price of the same bond a period later plus the marginal rate of substitution between an expected income at time  $s$  and the current dividend payment. The latter term comes about only if the agents have separate preferences for the cash flow value variable  $w$ , which is the principal outstanding feature of the present model. Again, if there are no transaction costs or if the market for this bond clears in all periods under the representative agent condition, the shadow and the actual bond price coincide and (5 c) reduces to the usual term structure formula implied by the expectations hypothesis. The role of the stochastic discount factor/pricing kernel is played by ratio  $\frac{u_\rho(t+1)}{(1+\Theta)u_\rho(t)}$ , just like in standard discrete time term structure models (see Campbell et al., 1997). This ratio is characterized by (5 d). The latter condition, involving the marginal utility of cash, does not appear in standard

CCAPMs, but has its analogues in optimizing models with money in the utility function, such as Brock, 1974; Kouri, 1977; or Branson and Henderson, 1985. This equation can be characterized as the law of motion for the shadow price of liquidity, whose driving variable is the marginal utility of cash balances,  $u_0$ . The liquidity shadow price itself happens to equal  $u_\rho$ , as follows from the current value Hamiltonian optimization (for the shadow price technique in deterministic models with money, see Sidrauski, 1967; for stochastic models in continuous time, see Derviz, 1999a).

Finally, equation (5 e) links the current marginal cost of financial technology improvement to its discounted future value and the discounted future impact on liquidity. Discounting happens by means of the same stochastic factor as in (5 b) to (5 d).

## 2.5 Equilibrium

As was mentioned in subsection 2.1, the presence of future cash valuation  $w$  and the company-specific income factor  $K$  drives the present model away from the representative agent setup. Particularly, even if the market for a given security clears in aggregate, the mentioned trader heterogeneity generates a nontrivial subset of sellers and the complementary subset of buyers in every period. For the applications of the model to monetary policy transmission issues, it is important that there are always security markets of relevance that have a nontrivial exogenous supply side. More precisely, companies in nonbanking sector issue new debt and other securities belonging to set  $N$ . The consequences of the money market rate change for financial companies' demand for these new issues constitute the core of the financial-to-real link in the monetary transmission chain.

In the money market itself, supply and demand generated outside the modeled set of financial institutions play a crucial role. The most important example here is an intervention by the central bank effectuated through the key rate change of the discount bond with a selected maturity. This intervention roughly corresponds to the announcement of a supply/demand schedule of the central bank in the corresponding market segment (see Derviz, 1996, where a continuous time optimizing model addresses the analogous problem of the central bank supply/demand schedule in the foreign exchange market). It is especially important to remember that every such intervention in the discount bond market has an impact both on the immediate change in the liquidity level of the financial sector and on the reverse cash flow at a future date. Both effects have consequences for optimal demand *in all securities markets* and in the resulting new equilibrium of the yield curve, as stated by equations (5 a) to (5 d). These effects are, fortunately, rather transparent, since both the monetary authority and the financial companies take them into account in the course of decision-making. Another effect having to do with the change in the level of deposits, however, has the nature of an externality. Indeed, deposit-taking financial institutions regard the deposit flow as exogenous. Conversely the central bank ought to be aware of the consequences of infusing liquidity of amount  $B_t^s j^b(x_{t-1}^f, \varphi_t^s)$  in period  $t$ , because at first such an infusion generates increased purchases of corporate paper. Subsequently, one is faced with a deposit-increasing potential in all periods following  $t$ .

Finally, there emerges a deposit-decreasing potential induced by  $-\varphi_t^s$  (volume of the redeemed discount bills), in all periods following the redemption date  $s$ . Inversely, a liquidity contraction (negative  $\varphi_t^s$ ) would generate a pair of effects that are mirror images of the ones described above.

In this paper, I adopt the view of a financial institution that takes investment decisions without endogenizing the deposit flow factor. Nevertheless, firms do take into account the consequences of aggregate monetary expansion or contraction for prospective deposit flows, e.g. when building up or depleting the buffer stock of liquid reserves to accommodate the anticipated deposit changes. The relevant information is, indeed, used in the formation of expectations on the  $K_t^s$  variable. The exogeneity of  $K$  means that, in spite of the information acquired about future  $K$ s in aggregate, they do not belong to the private state variables controlled by an individual financial company. Unlike the latter, the monetary authority can make a direct use of the link between its money market actions and the deposit flow factor in the investment decisions of the financial sector. Or, at least, it can derive useful lessons for itself by analyzing the workings of this link observed from the outside.

In the next section, I derive a set of corollaries from the first order conditions of the financial company optimization problem, which are then used in a number of policy examples.

### 3 Consequences and Examples

The first order conditions (5 b to 5 d) of the financial company optimization problem (1) to (4) have a common structure of backward stochastic difference equations. To facilitate their analysis, I formulate an auxiliary result to be used throughout the text of this section.

Lemma: Let stochastic processes  $x$ ,  $c$  and  $f$  in discrete time be adapted to an information filter  $F = (F_t)_{t \geq 0}$ , and let  $x$  satisfy the backward difference equation

$$x_t = f_t + E_t[(1 + c_{t+1})x_{t+1}], t \geq 0.$$

Put  $1 + C_t^s = \prod_{\tau=t+1}^s (1 + c_\tau)$ ,  $C_s^s \equiv 0$ . Then, given the value of  $x$  at  $t = 0$ ,

$$x_t = (1 + C_0^t)^{-1}x_0 - \sum_{n=0}^{t-1} (1 + C_n^t)^{-1}g_{n+1}$$

for an  $F$ -adapted process  $g$  such that  $E^t[g_{t+1}] = f_t$  for all  $t \geq 0$ . In addition,  $x$  satisfies the forward difference equation

$$x_{t+1} = (1 + c_{t+1})^{-1}(x_t - g_{t+1})$$

and the iterated backward equation

$$x_t = E_t \left[ (1 + C_t^s)x_s \sum_{n=t}^{s-1} (1 + C_n^t)^{-1}f_n \right], s \geq t.$$

Proof: The last equation can be obtained by straightforward iteration. A direct check shows that every solution of the backward equation must be of the form  $x_t = (1 + C_0^t)^{-1}(x_0 + \zeta_t) - \sum_{n=0}^{t-1} (1 + C_n^t)^{-1}f_n$ , where  $\zeta$

is a martingale with  $\zeta_0 = 0$ . One can then easily prove that  $g_{t+1} = f_t - (1 + C_0^t)^{-1}(\zeta_{t+1} - \zeta_t)$  •.

It will be convenient to have a compact symbol for the stochastic discount factor mentioned in subsection 2.4. Therefore, put

$$\Lambda_{t_1}^{t_2} = \frac{u_\rho(t_2)}{(1 + \Theta)^{t_2 - t_1} u_\rho(t_1)}.$$

Evidently, the definition is admissible for any combination of  $t_1$  and  $t_2$ ; the formula  $\Lambda_{t_1}^{t_2} \Lambda_{t_2}^{t_3} = \Lambda_{t_1}^{t_3}$  holds for any three time dates  $t_1$ ,  $t_2$  and  $t_3$ ; and, finally,  $\Lambda_{t_2}^{t_1} = (\Lambda_{t_1}^{t_2})^{-1}$ .

### 3.1 The Term Structure of Interest Rates

The above lemma will now be applied to equation (5 c), which is first divided by  $u_\rho(t)$  and then regarded as a difference equation for  $X^s$ . The role of  $(1 + c_{t+1})$  is played by  $\Lambda_t^{t+1}$ , and the role of  $f_t$  by  $\frac{u_w(t) v'(R_t^s)}{u_\rho(t) 1 + A_t^s}$  (note that character  $f$  is used here in a different meaning than in section 2). As a result, (5 c) is restated as

$$\begin{aligned} X_t^s &= \Lambda_t^0 X_0^s - \sum_{n=0}^{t-1} \Lambda_t^n \left( \frac{u_w(n) v'(R_n^s)}{u_\rho(n) 1 + A_n^s} - \Lambda_n^0 \varepsilon_{n+1} \right) \\ &= \Lambda_t^0 X_0^s - \sum_{n=0}^{t-1} \Lambda_t^n \frac{u_w(n) v'(R_n^s)}{u_\rho(n) 1 + A_n^s} + \Lambda_t^0 \sum_{n=0}^{t-1} \varepsilon_{n+1}, \quad s \geq t, \end{aligned} \quad (6)$$

where  $\varepsilon$  is a purely random noise.

A special case of this formula is obtained when  $s = t$ . First, observe that in view of (5 d),

$$\begin{aligned} E_{s-1}[\Lambda_0^s] &= E_{s-1}[\Lambda_0^{s-1} \Lambda_{s-1}^s] = \Lambda_0^{s-1} E_{s-1}[\Lambda_{s-1}^s] \\ &= \Lambda_0^{s-1} \frac{1}{1 + i_s} \left( 1 - \frac{u_0(s-1)}{u_\rho(s-1)} \right). \end{aligned}$$

Since  $X_s^s = 1$  and the original date 0 is arbitrary, a special case of (6) can be obtained by putting  $t = s$ , taking  $(s - 1)$ -conditional expectations of both sides and replacing 0 by  $t$ :

$$\begin{aligned} X_t^s &= \Lambda_t^{s-1} \frac{1}{1 + i_s} \left( 1 - \frac{u_0(s-1)}{u_\rho(s-1)} \right) + \\ &\quad \sum_{n=t}^{s-1} \Lambda_t^n \frac{u_w(n) v'(R_n^s)}{u_\rho(n) 1 + A_n^s}, \quad s \geq t + 1. \end{aligned} \quad (7)$$

On condition of perfect markets, the sum on the right hand side of (7) would vanish, whereas  $X$  would be the prices of discount bonds undistorted by transaction costs. Equation (7) then reduces to the standard term structure formula.

In its general form, (7) implies the recursive formula

$$X_{t+1}^s = \Lambda_{t+1}^t \left( X_t^s - \frac{u_w(t) v'(R_t^s)}{u_\rho(t) 1 + A_t^s} \right), \quad (8)$$

from which it follows that the noise terms  $\varepsilon$  in (6) are zero.

Note that (7) is an equality between  $F_{s-1}$ -measurable random variables (although  $X_t^s$  is  $F_t$ -measurable), which means that it describes the term structure of interest rates, observed at date  $t$ , only indirectly. That is why it includes, among other things, the marginal valuation of  $s$  date cash flow assessments  $R_n^s$  made *at times after the present moment*. These are not particularly natural measures in practice. Therefore, the analysis based on (6), where only past values of  $R_n^s$  are involved, is often more convenient. To obtain a direct date  $t$  term structure formula, one must take  $t$ -conditional expectations of both sides of (7) and make a reasonable assumption about the mechanism of private  $R_n^s$  assessment updating. For example, under the assumption of a Markovian nature of all involved random processes and a Bayesian rationality of the optimizing firm, the outcome would be of the form

$$X_t^s = E_t \left[ \Lambda_t^{s-1} \frac{1}{1+i_s} \left( 1 - \frac{u_0(s-1)}{u_\rho(s-1)} \right) \right] + G(t, s) \frac{v'(R_t^s)}{1+A_t^s} \quad (9)$$

for some nonnegative  $F_t$ -measurable random variables  $G(\cdot, s)$ . The exact expression for function  $G$  proves to be very involved unless simplifying assumptions about  $u$ ,  $v$  and the belief-updating procedure are made, and its derivation would be outside the scope of the paper.

According to (9), the *current shadow price* of the bond maturing at time  $s$  is influenced by the current valuation of the expected cash flow on the redemption date  $s$ . As follows from (6), high values of expected  $s$  income push the shadow price of the bond up, since the first derivative of  $v$  is a decreasing function. Therefore, it is more probable that the shadow price will exceed the actual one, and the bond will be purchased rather than sold (see the discussion in subsection 2.4).

Another consequence of (9) is that discount bonds have higher prices in the presence of cash flow constraints than in the standard models that do not include them. The difference is equal to the second term on the right hand side. Given that function  $G$  does not decrease in  $s$  and that the future cash flow values are bounded from above, (9) can serve as an explanation of frequent episodes of downward sloping yield curves observed in many transitional economies.

The shadow bond price corresponds to the equilibrium price level at which the market clears without external interventions. If such an intervention takes place, the equilibrium price and transaction volume depends on the whole supply/demand curve. The latter follows from the transaction costs, i.e. the marginal transaction function, as described by (5 a). The reservation price schedule for the redemption date  $s$  segment can be written as

$$B_t^s = \frac{X_t^s}{j_\varphi^b(x_{t-1}^f, \varphi_t^s)}.$$

For example of linear-quadratic transaction function mentioned earlier,

$$j_\varphi^b = 1 + \frac{b^s \varphi_t^s}{x_{t-1}^f}.$$

Therefore, the slope of this curve is an increasing function of parameter  $b^s$  and a decreasing function of the level of financial technology. That is, the less significant the role of the transaction cost factors expressed by parameter  $b$  is, the flatter the supply/demand schedules of the money market participants are.

We are particularly interested in the outcomes of a key money market interest rate change in this context. Suppose that the maturity at which the central bank intervenes is  $s - t$  (e.g. 2W in the Czech case). Setting the key rate  $r_t^s$  for this maturity at time  $t$  is equivalent to announcing the price

$$M_t^s = \frac{1}{1 + r_t^s}$$

for the  $s$  bills at which the central bank is prepared to trade in period  $t$  and afterwards. Let us assume that in the previous period the  $s$  segment of the money market was in equilibrium with no trade, i.e.  $B_{t-1}^s = X_{t-1}^s$ . At date  $t$ , the outcome will depend on the relation of  $M_t^s$  and this date's shadow price  $X_t^s$ . If  $M_t^s < X_t^s$ , the financial sector will buy the bills from the central bank and reduce its liquidity; if  $M_t^s > X_t^s$ , it is the central bank that buys, while the liquidity flows into the financial sector. Since it is logical to expect a weak influence of transaction costs on the money market (equivalently, high price elasticity of demand or supply), even small changes in the key rate induce large movements of liquidity, both in the model and in reality. Observe that the conventional association of a monetary relaxation (tightening) with a reduction (hike) of the central bank rate tacitly relies on the stickiness of the shadow price  $X^s$  around the previous period's equilibrium value. However, if the shadow price moves substantially between the periods, the key rate change may fail to induce the expected change in the money supply.

Chart 3

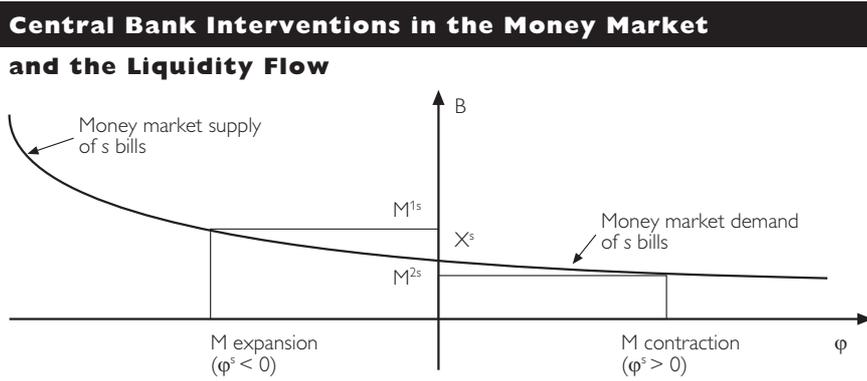


Chart 3 shows the two possible relations of the  $s$  bill shadow price and the central bank-imposed actual price during the intervention. In the first variant, the actual price  $M^{1s}$  is set higher than the shadow price, and monetary (abbreviated to M) expansion occurs. On the negative  $\varphi$  axis, the financial institution reservation price schedule of chart 3 is to be understood as inverse supply. In the second variant, the actual price  $M^{2s}$  lies under the shadow one, and the result is an M contraction. The same reservation price

schedule now works in the area of positive  $\varphi$  values and has the meaning of  $s$  bill demand.

### 3.2 The Financial Sector's Demand for New Corporate Securities

Optimizing behavior of the financial institution described in subsection 2.4 implies the form of its demand for a generic security  $k$  from the set  $N$ .

Analogously to the previous subsection, the lemma will now be applied to equation (5 c), which is first divided by  $u_\rho(t)$  and then regarded as a difference equation for  $Q^k$ . The role of  $(1 + c_{t+1})$  is again played by  $\Lambda_t^{t+1}$ , and the role of  $f_t$  by

$$\frac{u_w(t)}{u_\rho(t)} \sum_{m \geq t+1} \frac{v'(R_t^m)}{1 + A_t^m} (\gamma^k)_t^m + \Lambda_t^{t+1} \Gamma_{t+1}^k.$$

As a result, one derives the following formula for the shadow value  $Q^k$  of security  $k$ :

$$Q_t^k = \Lambda_t^0 Q_0^k - \sum_{n=0}^{t-1} \Lambda_t^n \left( \frac{u_w(n)}{u_\rho(n)} \sum_{m \geq n+1} \frac{v'(R_n^m)}{1 + A_n^m} (\gamma^k)_n^m + \Lambda_n^{n+1} \Gamma_{n+1} + \Lambda_n^0 \delta_{n+1} \right),$$

where  $\delta$  is a purely random noise. According to (8), the latter can be transformed by making the substitution

$$\frac{u_w(n)}{u_\rho(n)} \frac{v'(R_n^m)}{1 + A_n^m} = X_n^m - \Lambda_n^{n+1} X_{n+1}^m,$$

to get the following expression for  $Q_t^k$ :

$$Q_t^k = \Lambda_t^0 Q_0^k + \sum_{n=0}^{t-1} \Lambda_t^n \sum_{m \geq n+1} (\Lambda_n^{n+1} X_{n+1}^m - X_n^m) (\gamma^k)_n^m - \sum_{n=0}^{t-1} \Lambda_t^{n+1} \Gamma_{n+1} - \Lambda_t^0 \sum_{n=0}^{t-1} \delta_{n+1}. \quad (10)$$

This equation has the advantage of containing observable variables, and can, therefore, be subjected to a rigorous statistical test.

An important category of securities is the one with dividend or coupon payments extended over a finite horizon. Suppose that such a security, with the face value of unity, was issued at time 0, to be repaid at time  $T$ . Beside the principal at maturity, the security holder receives an uncertain flow of cash income of  $h_t$  for all time periods  $t$  between 1 and  $T$ .

As usual, valuation of this security type has a lot in common with that of the discount bonds. In particular, its finite life span allows one to derive pricing formulae that, in contrast with (10), contain no noise terms  $\delta$ . The result obtained will also demonstrate the natural role of shadow price measures  $Q$  and  $X$  in the arbitrage-free properties of the asset market.

Proposition: The shadow price  $Q^h$  of the security issued at  $t = 0$ , with a unit time  $T$  redemption value and a finite flow of random incomes  $h_t (1 \leq t \leq T)$ , is given by

$$Q_t^h = \sum_{m=t+1}^T X_t^m E_t[h_m] + X_t^T, 0 \leq t \leq T-1. \quad (11)$$

Proof: It is easiest to proceed by backward induction. Due to the final time span of security  $h$ , one can use the equality  $Q_T^h = P_T^h = 1$  for the last day ex-dividend (shadow) price to derive the induction base from the first order condition (5 b):

$$\begin{aligned} Q_{T-1}^h &= \frac{u_w(T-1) v'(R_{T-1}^T)}{u_\rho(T-1) 1 + a_T} E_{T-1}[1 + h_T] + E_{T-1}[\Lambda_{T-1}^T(1 + h_T)] \\ &= X_{T-1}^T E_{T-1}[1 + h_T]. \end{aligned}$$

The second equality here follows from (8) for  $t = T - 1$ . The induction step is now a trivial combination of (5b) and (8) for the current time value  $\bullet$ .

The above proposition shows that the undisturbed arbitrage-free relationships between assets with finite life horizons exist and are valid for their *shadow prices*, i.e. those hypothetical prices for which the corresponding asset markets clear without outside participation. In the example of equation (11), these are shadow prices  $Q^h$  and  $X$ . Most important is that for *actual prices* ( $P^h$  and  $B$  in this example), no-arbitrage relationships are distorted by transaction costs and bid-ask spreads, i.e. the model behaves exactly like reality. However, no matter how much the actual market clearing price is distorted by transaction costs, the no-arbitrage property can be traced down to the shadow price values.

I now offer two applications of pricing equation (11).

Pricing of interest rate swaps: Consider a swap contract involving a fixed coupon rate  $c$  and the flexible interest rate  $r^\Delta$  charged on discount bonds maturing  $\Delta$  periods from the issuance date. (The relation to the discount bond price defined earlier is given by  $B_t^{t+\Delta} = \frac{1}{1+r_{t+\Delta}^\Delta}$ .) There are  $M$  payment instances, so that the life horizon of the swap agreement is  $T = M\Delta$ . Let us consider a contract with no default risk. Then, according to (11), the shadow price  $Q_0^{sw}$  of the swap (for the receiver of fixed payments) at time  $t = 0$  is

$$Q_0^{sw} = \sum_{m=1}^M X_0^{m\Delta} E[c - r_{m\Delta}^\Delta] = \sum_{m=1}^M X_0^{m\Delta} c - \sum_{m=1}^M X_0^{m\Delta} E[r_{m\Delta}^\Delta].$$

The accepted convention defines the swap *fair rate* as such value of  $c$  for which the initial price  $P_0^{sw}$  of this contract (and, therefore, its shadow price  $Q_0^{sw}$  as well) is zero:

$$c = \frac{\sum_{m=1}^M X_0^{m\Delta} E[r_{m\Delta}^\Delta]}{\sum_{m=1}^M X_0^{m\Delta}}. \quad (12)$$

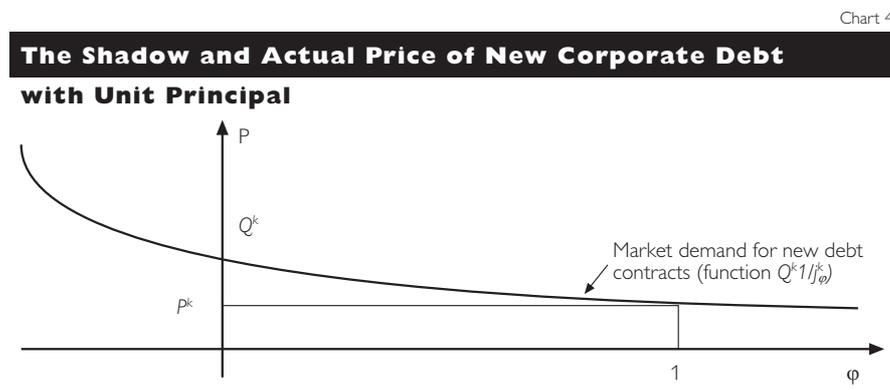
This equation is the reason why long swap rates are usually considered indicators of the expected future short interest rates. According to (12), the fair swap rate is a weighted sum of all expected short rates for the dates of coupon payments prior to and at maturity. The slope of the zero coupon yield curve determines which of these expected rates receive higher weights.

Interest rates on new corporate loans: This application deals with the demand for corporate outstanding debt, in other words, the supply of credit to the real sector. Price  $P^k$  in this case corresponds to the terms of credit,

whereas  $\Gamma^k$  and  $\gamma^k$  denote the actual and the credit risk-adjusted anticipated interest and principal payments on the loan. The objective of the following exercise is to determine the fair coupon rate  $a$  on a one unit principal of a corporate loan issued at  $t = 0$  and maturing at  $T = \Delta M$ . As in the previous example, coupons are to be paid at intervals  $\Delta$  between  $t = \Delta$  and  $t = \Delta M$ .

For simplicity, I consider a loan with no risk of default. Also, I assume that the loan can be traded in a secondary market. That is, the lender can sell the debt to another holder or exercise an equivalent operation, such as pledging it as collateral on another loan taken from a third party. Then, it is admissible to talk of the actual price  $P^k$  and the shadow price  $Q^k$  of this loan in the secondary market for any date up to the maturity of the contract. The shadow price is given by (11) with  $h_t$  replaced by  $a$ .

The relation of the actual and the shadow price in this example is illustrated by chart 4.



Just like in the case of the swap considered above, the loan has a specific price at the time of issue. By definition, one must have  $\varphi_0^k = x_0^k = 1$ ,  $P_0^k = 1$ , since the borrowed principal equals unity. If the transaction function  $j^k$  of the lender is known, then the shadow price  $Q_0^k = P_0^k j_\varphi^k(x_{-1}^f, 1) = j_\varphi^k(x_{-1}^f, 1)$  is known as well (see [5 a]). Substituting for the known values in (11), obtain

$$a = \frac{j_\varphi^k(x_{-1}^f, 1) - X_0^T}{\sum_{m=1}^M X_0^{m\Delta}} = j_\varphi^k(x_{-1}^f, 1) \frac{1 - B_0^T}{\sum_{m=1}^M X_0^{m\Delta}}. \quad (13)$$

The second equality in (13) follows from the natural assumption that  $X_0^T = B_0^T j_\varphi^k(x_{-1}^f, 1)$  for the same transaction function  $j^k$ . Indeed, there is good reason to assume that the transaction function which services the operations with the discount bond maturing at  $t = T$ , is the same as the one applicable to the loan contract maturing at that date.

A slightly more involved case of corporate lending is represented by a loan with the same formal parameters, but taken out abroad. I will denote foreign variables corresponding to the domestic counterparts defined earlier with asterisks. The coupon paid out in domestic currency is denoted by  $a^*$ . The actual price of the loan contract (in foreign currency terms) is  $P^* = 1/S$ , where  $S$  is the nominal exchange rate. The (foreign currency) shadow price of the same contract at time 0

is  $Q_0^* = P_0^* j_\varphi^*(x_{-1}^f, 1) = \frac{j_\varphi^*(x_{-1}^f, 1)}{S_0}$ . At the coupon payment times  $t = \Delta m, m = 1, \dots, M$ , the expected payments to the foreign lender (in his currency) are  $h_t^* = a^* E[\frac{1}{S_t}]$ . Then, according to the proposition, the shadow price of the loan satisfies the equation

$$j_\varphi^*(x_{-1}^f, 1) = Q_0^* = \sum_{m=1}^M X_0^{*\Delta m} E\left[\frac{1}{S_{\Delta m}}\right] a^* + X_0^{*\Delta M} E\left[\frac{1}{S_{\Delta M}}\right],$$

which implies the following international analogue of (13):

$$a^* = \frac{j_\varphi^*(x_{-1}^f, 1) - X_0^{*T} E\left[\frac{S_0}{S_T}\right]}{\sum_{m=1}^M X_0^{*m\Delta} E\left[\frac{S_0}{S_{\Delta m}}\right]} = j_\varphi^*(x_{-1}^f, 1) \frac{1 - B_0^{*\Delta M} E\left[\frac{S_0}{S_{\Delta M}}\right]}{\sum_{m=1}^M X_0^{*m\Delta} E\left[\frac{S_0}{S_{\Delta m}}\right]}. \quad (14)$$

Analogously to (13), I assume in the second equation above that the transaction function  $j^*$  is the same for the  $T$  discount bond and the fixed coupon loan with maturity  $T$ .

### 3.3 Cash Flow Determinants of the Forward Exchange Rate Premium

In this subsection, I analyze the difference between the yield differential and the exchange rate change, i.e. the disparity term in the generalized uncovered interest rate parity formula (Derviz, 1999 b), which is the same as the forward exchange rate premium.

Assume that there is a subset  $F \subset N$  of securities that earn their returns abroad (in short, *foreign securities*). For a given foreign security  $f \in F$ , the price and dividend in foreign units of account are  $P^{*f}$  and  $\Gamma^{*f}$ . The domestic investor, who uses home cash units, faces the price equal to  $P^f = SP^{*f}$  and the dividend equal to  $\Gamma^f = S\Gamma^{*f}$ . The foreign shadow price  $Q_t^{*f} = P_t^{*f} j_\varphi^f(x_{t-1}^f, \varphi_t^f)$  of security  $f$  is defined in the same way as the domestic shadow price  $Q_t^f$  in (5 a), so that  $Q_t^f = S_t Q_t^{*f}$  for all times  $t$ . (Observe that this time, character  $f$  is used in a sense different from that in subsections 2.4, 3.1 and 3.2.) Next, I define the *effective total returns*  $y^k$  and  $y^{*f}$  on any domestic security  $k \in N \setminus F$  and foreign security  $f \in F$ , by

$$1 + y_{t+1}^k = \frac{Q_{t+1}^k + \Gamma_{t+1}^k}{Q_t^k}, \quad 1 + y_{t+1}^{*f} = \frac{Q_{t+1}^{*f} + \Gamma_{t+1}^{*f}}{Q_t^{*f}}.$$

Values  $y^k$  and  $y^{*f}$  stand for the yields earned by an investor facing the transaction costs.

Now, dividing (5 b) by the shadow security price and using the above definition of effective total yields, I rewrite the first order condition (5 b) for  $k \in N \setminus F$  and  $f \in F$  as

$$u_\rho(t) = u_w(t) \sum_{m \geq t+1} \frac{v'(R_t^m)}{1 + A_t^m} \frac{(\gamma^k)_t^m}{Q_t^k} + E_t \left[ \frac{1 + y_{t+1}^k}{1 + \Theta} u_\rho(t+1) \right], \quad (15a)$$

$$u_\rho(t) = u_w(t) \sum_{m \geq t+1} \frac{v'(R_t^m)}{1 + A_t^m} \frac{(\gamma^f)_t^m}{Q_t^f} + E_t \left[ \frac{1 + y_{t+1}^{*f}}{1 + \Theta} \frac{S_{t+1}}{S_t} u_\rho(t+1) \right], \quad (15b)$$

and apply the lemma to process  $u_\rho(t+1)$  in both these difference equations.

The result is

$$u_\rho(t+1) = \frac{1 + \Theta}{1 + y_{t+1}^k} \left( u_\rho(t) - u_w(t) \sum_{m \geq t+1} \frac{v'(R_t^m) (\gamma^k)_t^m}{1 + A_t^m Q_t^k} + \eta_{t+1}^k \right),$$

$$u_\rho(t+1) = \frac{S_t}{S_{t+1}} \frac{1 + \Theta}{1 + y_{t+1}^{*f}} \left( u_\rho(t) - u_w(t) \sum_{m \geq t+1} \frac{v'(R_t^m) (\gamma^f)_t^m}{1 + A_t^m Q_t^k} + \eta_{t+1}^k \right)$$

for some processes  $\eta^k$  and  $\eta^f$  for which  $E_t[\eta_{t+1}^{k,f}] = 0$ . These two equations can be combined to render

$$1 + y_{t+1}^k = (1 + y_{t+1}^{*f}) \frac{S_{t+1}}{S_t} \frac{1 - \frac{u_w(t)}{u_\rho(t)} \sum_{m \geq t+1} \frac{v'(R_t^m) (\gamma^k)_t^m}{1 + A_t^m Q_t^k} + \frac{\eta_{t+1}^k}{u_\rho(t)}}{1 - \frac{u_w(t)}{u_\rho(t)} \sum_{m \geq t+1} \frac{v'(R_t^m) (\gamma^f)_t^m}{1 + A_t^m Q_t^f} + \frac{\eta_{t+1}^f}{u_\rho(t)}}. \quad (16)$$

Taking conditional time  $t$  expectations and approximating the right hand side of (16), one gets

$$E_t \left[ y_{t+1}^k - y_{t+1}^{*f} \right] \approx E_t \left[ \frac{\Delta S_{t+1}}{S_t} \right] + h^0$$

$$+ \frac{u_w(t)}{u_\rho(t)} \sum_{m \geq t+1} \frac{v'(R_t^m)}{1 + A_t^m} \left( \frac{(\gamma^f)_t^m}{Q_t^f} - \frac{(\gamma^k)_t^m}{Q_t^k} \right). \quad (17)$$

Here,  $h^0$  is the term originating from conditional covariances. It is usually small and close to a constant. Equations (16) and (17) render two formulations of the generalized uncovered asset return parity. The approximate form (17) is closer to the standard statements of uncovered parity in that it separates the forward exchange premium from the yield differential in an additive way.

The interpretation of the forward premium follows from that of the terms in brackets summed up on the right hand side of (17). The ratios  $\frac{(\gamma^k)_t^m}{Q_t^k}$  and  $\frac{(\gamma^f)_t^m}{Q_t^f}$  are time  $t$ -expected effective period  $m$  returns on investment in  $k$  and  $f$ , for the domestic investor. In the home country of security  $f$ , however, the same return on investment is evaluated as  $\frac{(\gamma^{*f})_t^m}{Q_t^{*f}}$ . The difference in returns appearing in (17) is equal to

$$\frac{(\gamma^f)_t^m}{Q_t^f} - \frac{(\gamma^k)_t^m}{Q_t^k} = \frac{S_m^t}{S_t} \frac{(\gamma^{*f})_t^m}{Q_t^{*f}} - \frac{(\gamma^k)_t^m}{Q_t^k},$$

where  $S_m^t$  is the date  $m$  spot exchange rate expected at date  $t$ . Let us take the simplest case when the *national* returns on investment are equal for both securities, i.e.  $\frac{(\gamma^{*f})_t^m}{Q_t^{*f}} = \frac{(\gamma^k)_t^m}{Q_t^k}$ ,  $m \geq t + 1$ . Then a high expected depreciation in late periods (high values of  $S_m^t$ ) generates a high forward premium, so that the depreciation in the next period is not expected to be too high, and vice versa. Contributions of future expected depreciations to the current forward premium are weighted by  $\frac{v'(R_t^m)}{1 + A_t^m}$ . Since  $v'$  is a decreasing function,

periods with high expected cash flow contribute less to the forward premium than periods with low cash flow. According to (17), the forward premium is a nonconstant autoregressive process.

#### 4 Transmission of CNB Rates along the Yield Curve

The results of the model discussed in the previous two sections indicate that the properties of monetary transmission in the modeled economy are significantly dependent on the properties of the term structure of interest rates. The latter, in turn, is determined by a number of factors beyond of the short rate statistics, unlike in the standard theories. In particular, the shape of the yield curve in the present model accommodates three distinct aspects of optimal behavior. The most traditional one is intertemporal risk sharing, expressed by the marginal utility of current dividends entering the stochastic discount factor. Another conventional aspect is the solvency requirement, which, somehow less traditionally, is in this model associated with the marginal utility of current cash holdings. The third aspect is more novel and has to do with the asset-liability management decisions of financial intermediaries. Technically, the presence of these decisions in the model is reflected by the marginal utility of the net expected future cash flow as well as other future income valuation terms in the term structure formulae.

In the sections to follow, I investigate the ability of the model to take account of monetary policy actions and their transmission, most importantly via the credit channel.

Since the central banks of many countries control overnight rates, the question of short-long rate transmission is most often posed in the same way in theory, i.e. the instantaneous rate statistics are linked to the prices of all other discount bonds. This approach would be difficult to apply to the Czech situation, where monetary policy is exercised by means of 2W repo limit rates and some other auxiliary rates of longer maturities, particularly 3M. The overnight rate is not controlled and, indeed, shows a lot of excessive technical (nonfundamental) volatility out of line with other money market instruments. The model of sections 2 and 3 accommodates this property by making the one-period interest rate endogenously dependent on the current liquidity and preference structure of the agents, in contrast with all other rates, where explicit market segments are subsumed. The short-long rate transmission is traced to the mutual dependence of the prices of discount bonds that mature later than in the period immediately following the current one.

The transmission of the 2W repo rate into the immediately corresponding maturities in the money market can be regarded as an indirect consequence of the model asset price formulae. Indeed, let the 2W repo be expected to remain constant during the next  $T = \Delta M$  periods from now, where  $\Delta = 14$  days and  $M$  is the number of two-week periods before the maturity of the discount bond whose return we want to know.

Let  $t = 0$  be the date when the 2W bond market segment is in equilibrium with no net flow of liquidity to or from the central bank. In terms of the notations of subsection 2.4, this means that the shadow price  $X_0^\Delta$  of the 2W discount bond is now equal both to the repo bill price and the

actual price  $B_0^\Delta$  of the 2W bond. Now, consider a swap agreement of  $M$  fixed payments of a rate  $c$  against  $M$  payments of the actual (variable) 2W money market rates (equal to  $\frac{1}{B_t^{t+\Delta}} - 1, t = \Delta, 2\Delta, \dots, M\Delta$ , at time intervals of  $\Delta$ ). As follows from the formula for the swap rate derived in subsection 3.2,  $c$  is a weighted sum of the expected future values of the 2W rate, with the weights determined by the current shape of the yield curve. If the 2W segment of the money market is expected to remain in equilibrium with the unchanged level of the repo rate for the next  $T$  days, then the swap rate  $c$  must be equal to this central bank key rate as well. In other words, the market is indifferent between the fixed and the flexible rate of return for maturity  $T = \Delta M$ , since it offers the same rate on both sides of the swap agreement. Therefore, the annualized return on the  $T$  discount bond must also be fairly close to the same value. The same conclusion is valid for the other maturities, even if they are not exactly divisible by  $\Delta$ . That is, a swift transmission of the key rate into other money market rates is achieved on condition of a reliable time horizon of the constant key rate policy, whereas the discount bond returns stay close to the key rate *for the maturities lying inside this constant policy interval*.

The model offers one more inference concerning the shape of the zero-coupon yield curve. Namely, it predicts a much higher occurrence of downward sloping yield curve episodes than the term structure models coming from standard portfolio optimization settings. A formal argument in support of this statement was presented in subsection 3.1. Informally, the presence of constraints on payment maturity mismatches (in the form of an additional state variable in the utility function measuring individually assessed future net income) is a factor that pushes up the prices of discount bonds with long maturities. Equivalently, long interest rates are pushed down. This effect becomes more pronounced for periods in which the current state of the balance sheet predicts large negative cash flows in the future, e.g. an accumulation of debt service payments within a substantial time interval. The intuition behind this phenomenon has to do with the positive correlation between the predictable debt service accumulation in a future period and the current period prices of hedging instruments (in the present context, of the discount bonds) related to the same future dates. In other words, when a financial institution knows it will have to disburse money later, its cash flow constraint dictates it to compensate this negative future cash flow now by trading some of the current liquidity against future liquidity.

The traditional theory would typically result in a flat or upward sloping yield curve, depending on the short rate statistics. Therefore, the depressing effect of the cash flow constraint in the present model is insufficiently offset by the short rate factor at times at which the market expects its decrease. What one gets is a fairly realistic picture of the term structure in a transitional economy, where positive and negative slopes can be observed equally often.

## 5 The Shadow Interest Rate on New Loans and the Actual Credit Conditions

In the Czech economy, there is a distinct difference between the short-term and the medium-to-long-term credits granted by banks to nonbanks. While the volume of short-term loans has been growing on average during the reform years, credit volumes in the other two categories have been stagnating (chart 5). As regards the interest rates, all three categories more or less reflect the developments in the money market, even if the connection of the short-term credit conditions with the corresponding PRIBOR (Prague Interbank Offered Rate) rates is much more pronounced than in the other two groups (chart 6). For the above reason and given its weight in the total credit volume, short-term credit seems to be the best object with which to analyze the transmission mechanism.

Chart 5

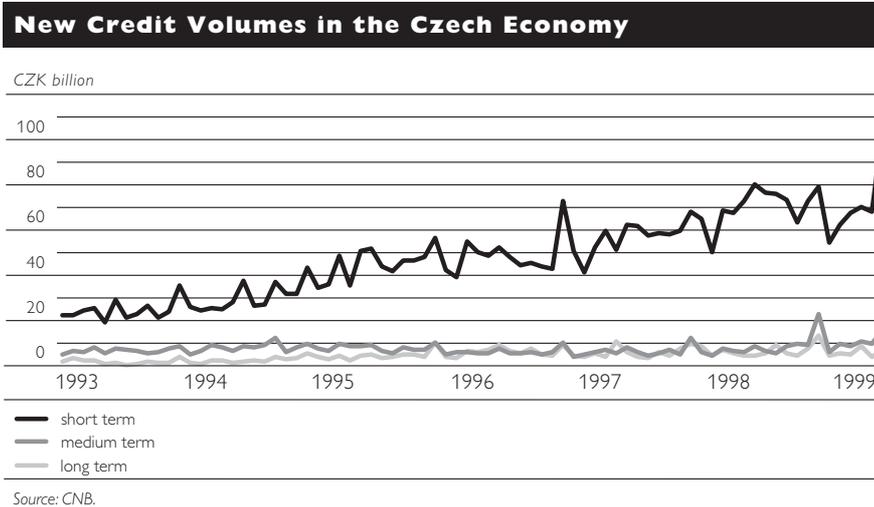
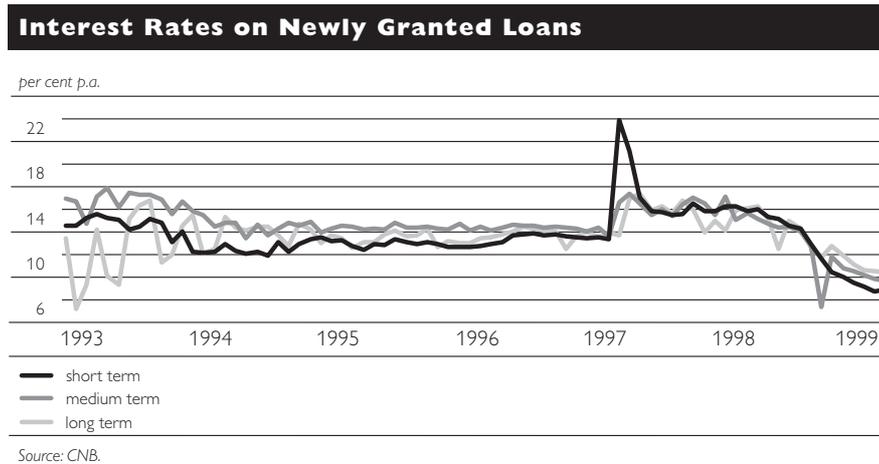


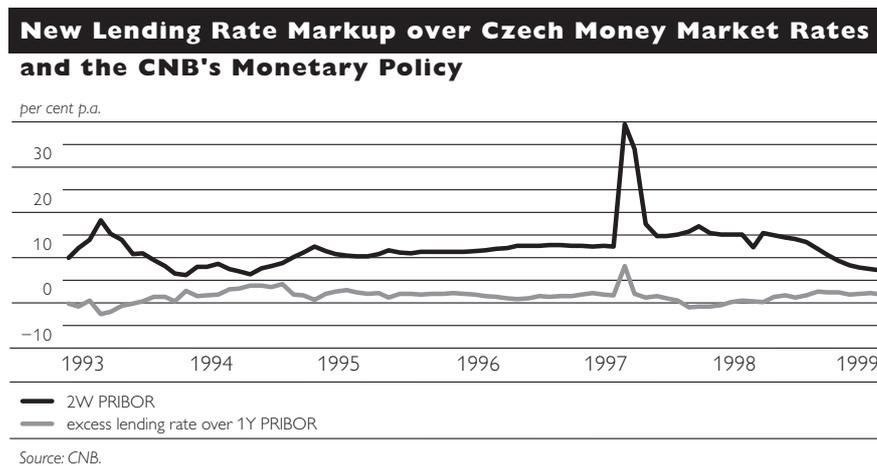
Chart 6



The dependence of new corporate loan rates on the money market rates will be checked in three ways. First of all, I investigate the general wisdom about the new loan rate being a simple markup over the chosen interbank rate. Most typical for the Czech reported conventions is the 1Y PRIBOR. Chart 7 shows the difference between the average interest rate charged on

a new short-term loan and the average 1Y PRIBOR value for the same month, together with a simple indicator of the monetary policy stance, expressed by the 2W PRIBOR. (Deviations of the latter from the 2W repo rate set by the Czech National Bank prove to be negligible.)

Chart 7



There are two messages to be read off chart 7. First, the data do not confirm the claimed simple mark up rule for setting new loan interest rates. The credit conditions seem to be much softer than such a rule would imply. Near-zero or negative deviations from 1Y PRIBOR, falling into periods of strict monetary policy, are particularly conspicuous. Second, the overall correlation of the mark up with the monetary conditions is doubtful. In short, despite the widespread view of the Czech private credit market as an area of bank dominance, the data suggest a fairly limited market power of lenders over borrowers. At some points in time, borrowers were able to negotiate credit conditions that hardly remunerated the lenders at all.

Next, I regress the same short-term lending rate as above, which I denote  $r^{sh}$ , on the four relevant money market rates, i.e. the PRIBOR values for three, six and nine months and one year,  $i^{3M}$ ,  $i^{6M}$ ,  $i^{9M}$  and  $i^{1Y}$ . The result of this regression exercise is the following (standard errors in parentheses):

$$r^{sh} = 5.41 + 1.32i^{3M} - 1.65i^{6M} - 0.58i^{9M} + 1.59i^{1Y},$$

(0.46) (0.24) (0.90) (1.41) (0.77)

$R^2=0.86$ , the standard error of regression is 0.86, and the Durbin-Watson statistic is 2.01.

Let me say a few words about the risk of multicollinearity in the above equation. Several findings on Czech money market rates suggest that the only rate suffering from probable full spanning by other maturities is  $i^{9M}$ . However, an alternative regression omitting this maturity renders qualitatively similar results. Therefore, I will refer to the formulation including all four rates in the regression, so that I can compare it with the nonlinear formula for  $r^{sh}$  resulting from the model of sections 2 and 3, to be spelled out shortly. Another comment has to do with alternative regressions of lending rates on money market rates, known from the literature, particularly those utilizing first differences of the variables instead of their levels (Bernanke and

Blinder, 1992; or Cook and Hahn, 1989). For the purpose of the present study, first differences would not be the right tool, since we are looking for explicit credit-granting mechanisms and not just the general impact of the interbank market on credit conditions. Therefore, the regression of first differences, whatever its outcome might be, is unable to provide enough information about the lending policy of banks.

Arguably, several properties of the obtained regression outcome are counterintuitive. For example the constant value is too high and does not correspond to any reasonable markup following from the direct comparison of time series means for  $r^{sh}$  and PRIBOR rates. However, an attempt to estimate a restricted equation (without the intercept) leads to even more nonsensical results. Furthermore, while the  $i^{1Y}$  coefficient is too big, the sizes and signs of the remaining three coefficients are hard to justify. On the other hand, satisfactory values of  $R^2$ , DW, and a number of other diagnostic tests suggest that, although the variables for the regression have been chosen well, the simple linear functional form of the equation has been unfortunate.

The disappointing result of the above linear regression does not mean that a better model would not shed more light on the link between private credit and money market interest rates. The formulae of subsection 3.2 provide a result that can serve as an indicator of the right functional form to replace the unsatisfactory linear one. Namely, the lending rate  $r$  set by an optimizing financial institution is given by (see equation (13) of subsection 3.2)

$$r = g \frac{r_0^T}{(1 + r_0^T \sum_{m=1}^M X_0^{m\Delta})}$$

In this equation,  $T = M\Delta$  is the loan maturity date,  $r_0^T$  is the return rate of a discount bond with maturity  $T$ ,  $X_0^{m\Delta}$  is the shadow price of the discount bond maturing at  $t = m\Delta$ ,  $m = 1, \dots, M$ , while the latter are the debt service dates at which the coupon  $r$  is to be paid. Term  $g$ , which expresses the transaction costs and other microstructural features of the market for private debt, is model-specific. Analogous coefficients  $g^{m\Delta}$  are present in the markets for the corresponding discount bonds and are connected to their shadow prices by the rule  $X_0^{m\Delta} = B_0^{m\Delta} g^{m\Delta} = \frac{g^{m\Delta}}{1 + r_0^{m\Delta}}$ , where  $B_0^{m\Delta}$  is the actual date zero price of the bond. Shadow prices coincide with actual prices ones when the markets clear without trades with outside buyers or sellers (i.e. those that are not explicitly modeled as the representative financial firm).

I will call the rate  $r$  defined above the *shadow interest rate* on the loan of unit principal with maturity date  $T$ . Its meaning is the value of the interest rate which the borrowers must pay if they wish to get a loan of the size which they fix themselves. In reality, the bargaining between banks and non-banking borrowers should result in a joint determination of both the size and the interest on the granted loans, roughly corresponding to the intersection of the supply and the demand schedule, like in any other market. Nevertheless, the shadow rate is a useful benchmark if one wants to measure

the “price” of keeping a constant volume of granted credit in a changing environment.

Under the assumption that all microstructural coefficients  $g^{m\Delta}$  are close together and nearly constant (the latter is denoted by  $g^T$ ), the shadow interest rate is equal to

$$r = \frac{g}{g^T} \frac{r_0^T}{\sum_{m=1}^M \frac{(1+r_0^T)}{(1+r_0^{m\Delta})}}$$

This is a value that can be calculated using the available data on the money market rates. The microstructural coefficients can be eliminated by assuming that  $g$  is close to  $g^T$  and that their ratio is almost a constant. The shadow and the actual rates on a one-year loan with quarterly coupon payments are given in chart 8 a. The chart shows a much better correspondence between the two rates than in the case of the 1Y PRIBOR and the new loan rate. In other words, the shadow rate hints at the true nonlinear relation that exists between the PRIBORs and the private lending rate. The model prescribes

Chart 8a

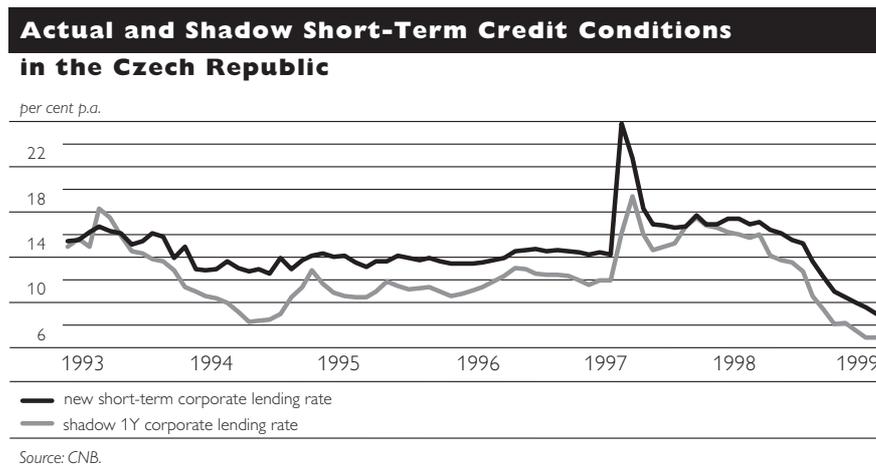
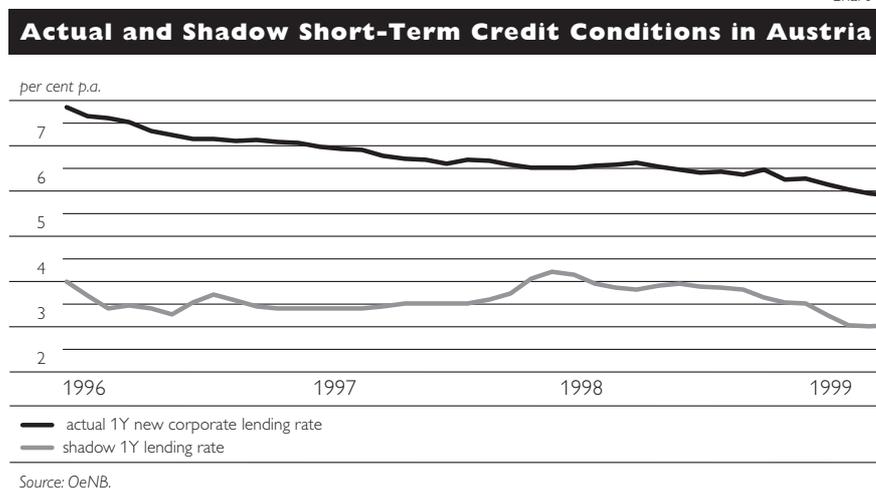


Chart 8b

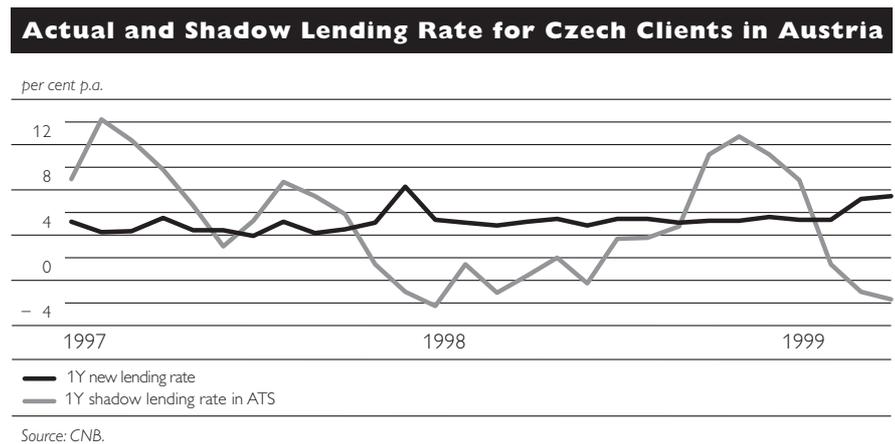


an almost constant distance between the shadow and the true rate at all times, given that the volume of credit remains at a constant level. When this distance falls short of the usual level, it indicates an overall tightening of credit conditions and predicts a reduction in the volume of granted loans. This can be identified with the *credit channel* of monetary transmission. The notion of the shadow rate helps to separate it from the money, or interest rate channel, which presupposes a direct transmission of money market rates.

Chart 8 b features the actual and the shadow short-term lending rate for the Austrian economy. Here, the correspondence is very weak. The reason may be a difference in microstructure compared to the Czech market. Indeed, the data on Austrian lending rates indicate a very broad range of values, plus a considerable margin over the money market rate. The market power of the banks over clients in Austria is a factor that makes the inter-bank-corporate rate spreads a variable with a nontrivial law of motion of its own.

The calculations carried out in subsection 3.2 also cover the case of a loan taken out abroad, and render the corresponding shadow rate. There, exchange rate expectations play a predominant role. Therefore the calculated shadow rate values based on *ex post* exchange rate movements (chart 9) are very much influenced by forex market volatility. That is why the *ex post* shadow rate may sometimes seem prohibitively high and at other times permissively low. However, the presence of hedging instruments in the forex market suggests that the shadow rate of interest for foreign loans is to be calculated on the basis of forward rather than spot exchange rate values. In that case, it can become a much better indicator of the credit conditions for domestic firms in foreign markets.

Chart 9

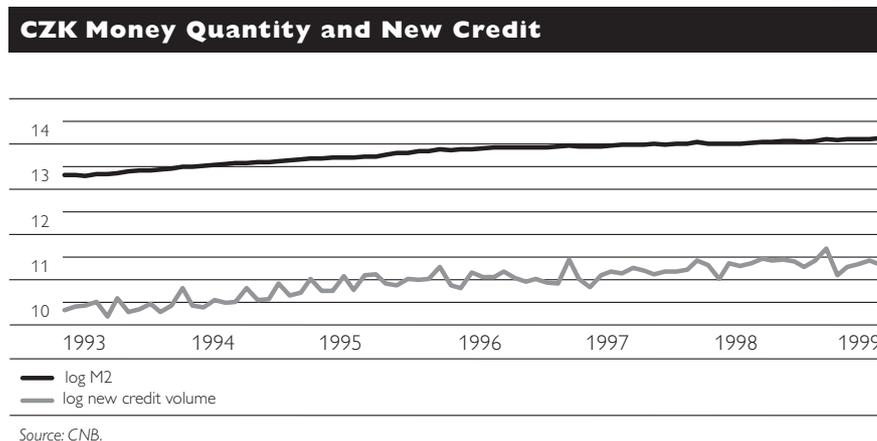


## 6 Portfolio Choice and Monetary Policy Effects

The discussion in the previous sections was aimed at showing that monetary policy transmission, viewed through the lens of an optimizing agent in the financial sector, is a process that materializes in the behavior of the money market instrument prices. Within the chosen modeling approach, the latter are the discount bond rates that define the term structure of the economy's interest rates. The central bank's key rate decisions are transmitted as far as the horizon of its expected constancy can be extended in the beliefs of the market participants. Open market operations, on the other hand, in addition to guiding the current amount of liquidity, also change the predicted cash flow schedules of financial institutions (a formal treatment of open market operations was given at the end of subsection 3.1). Consequently, asset prices, which depend on these cash flow assessments, often react in such a way that the immediate consequence of a decision by the central bank to ease or tighten monetary policy has a side effect. One example is the yield curve slope predicted by the model, as discussed in section 4. The other is the credit channel effect discussed in section 5, namely the input of the totality of the yield curve values up to the loan horizon into the shadow lending rate characterizing the credit conditions for the nonbank sector. Naturally, in their impact on the yield curve, policy measures and exogenous factors mix. In longer maturities, the exogenous factors clearly dominate, so that the corresponding parts of the term structure and of asset prices in general display a highly autonomous behavior almost unaffected by the policy measures. Below, I give two more examples of the limits that monetary policy has in the pursuit of its traditional goals, namely control of the quantity of money and control of the exchange rate through central bank operations in the money market.

**Control of M2:** Between February 1996 and December 1997, the Czech National Bank conducted a policy of monetary base targeting. After the policy was changed to direct inflation targeting in January 1998, the monetary aggregates remained the key indicators. Particular attention was paid to the M2 aggregate (cash plus most types of domestic and foreign currency deposits with maturities of up to two years) and its extension, called L (M2 plus the official bills in the hands of nonbank public). These two broad indicators

Chart 10



were assigned the decisive role for the central bank's inflation target. A low sensitivity of the aggregates to the policy measures was a disturbing circumstance. Instead, M2 (and L, which is not significantly different) was following its own pace of autonomous growth. It is interesting to note, recalling our discussion of credit to nonbanks in section 5, that the broad money growth rate almost exactly coincides with the average growth rate of the new credit volume in the Czech economy (chart 10). The credit volume, however, shows an additional volatility, which is independent of the money quantity variable.

The mentioned policy insensitivity of M2, however disappointing it may be for a central banker, is well explained by the model with an explicit choice-theoretic foundation for the portfolio decisions of the banking sector. To show this in the setup of the present model, it is necessary to associate the broadest possible money aggregate in the economy with a wealth measure of a representative financial firm. I base the argument on the fact that, while the analyzed broad measure of money is the liability side of this agent's balance sheet, it can be captured equally well by the asset side in the form of aggregate financial wealth. As in most other applications of the model, it is convenient to use the notion of shadow prices.

In the notations of section 2, let  $x$  be the vector of private security amounts in the financial sector portfolio, and  $\Phi$  be the vector of the discount bonds (indexed by maturity dates) in the same portfolio. The respective shadow price vectors are denoted by  $Q$  and  $X$ . Respecting the nature of the model, I must also take into consideration the shadow price  $V$  of an auxiliary variable  $x^f$  expressing the level of financial technology in the economy (section 2 contains a detailed description). Preferences of the representative financial firm, expressed by the period utility function  $u$ , give rise to a stochastic process denoted  $\Lambda_t^{t+1} = \frac{u_\rho(t+1)}{(1+\Theta)u_\rho(t)}$  (it is the analogue of the stochastic discount factor of the standard portfolio optimization models under uncertainty; see Duffie, 1992). Here,  $\rho$  stands for the dividends disbursed by the financial sector to the public per period. Parameter  $\Theta$  is the time preference rate. Symbol  $u_\rho$  is used to denote the corresponding partial derivative. The time argument in the utility is a shorthand indicating at what date its true arguments were measured and substituted into the formula. It is assumed that the utility dependence on  $\rho$  is of the HARA (hyperbolic absolute risk aversion) type.

Define the shadow ex-dividend wealth as

$$W = x^0 + Q \cdot x + X \cdot \Phi + Vx^f$$

Under certain conditions on homogeneity and the multiplicative structure of the utility and transaction functions, it can be shown that

$$E_t[\Lambda_t^{t+1}(W_{t+1} + \rho_{t+1})] = W_t + \rho_t - \beta \frac{u(t)}{u_\rho(t)}$$

for some constant  $\beta$  dependent on risk aversion.

As follows from the above formula, the cum-dividend wealth grows in line with the long-term average rate of dividends which the financial firms

disburse to their owners according to an internal optimality rule. All the other shocks are dampened because of the portfolio reshuffling decisions that to a large extent offset the changes in asset supplies (the exact reason is the induced change in relative prices). In aggregate, all that remains is a very indirect reaction of a decision variable inside the utility function. Although the chosen wealth measure is based upon the shadow rather than the actual prices, the difference caused by the microstructure effects should be very small in aggregate. Also, although the defined wealth stands for the broadest possible money aggregate, the difference from the conventionally used measure M2 or L is relatively small in the Czech case. The reason is the relatively small weight of long-horizon instruments in the financial wealth. Accordingly, any high monetary aggregate that one would choose to follow would exhibit a very low sensitivity to monetary policy measures.

Key rate transmission into the spot exchange rate: No matter how much discredited, the dogma persists in the minds of development economists and policy advisers that freely floating currency depreciation can be achieved by cutting short-term interest rates. Historically, this atavistic belief originates in the textbook uncovered interest rate parity (UIP) statement. Even though both the empirical and the theoretical deconstruction of UIP is by now almost complete (see, e.g., McCallum, 1994; Meredith and Chinn, 1998; a survey and a model for the Czech currency can be found in Derviz, 1999), policy recommendations of the mentioned sort do not cease to crop up. The reality behind UIP is such that it is not – and cannot ever be – valid for the short end of the money market. Instead, there exists strong evidence in favor of the uncovered parity between *yields on long maturity instruments*. However, the latter are endogenous variables whose direct control by monetary policy tools is impossible. A credible permanent reduction in the short rates is, indeed, a precondition for the corresponding fall at the long end of the yield curve. Nevertheless, this is seldom a result of monetary policy alone. Rather, the financial markets must be convinced that the fundamental condition of the economy has irrevocably moved it deep into the low rate area. Therefore, the relevant question for the policymaker should not be the magnitude of the rate cut needed to achieve a specific exchange rate increase but, instead, how much of the key rate reduction is consistent with the internal balance and price stability progress. As a reward, the overall descent of the yield curve can be a good protection against uncontrolled capital inflows and a sharp appreciation of the currency.

The evidence on what was happening with the yield curve and the Czech koruna exchange rate with respect to the CNB's key rate policy is no different from other examples known from empirical literature. The poor performance of the classical UIP is shown in chart 11. In contrast, chart 12 features a strikingly close correspondence of short-term moves of the yield differential between Czech and German five-year government bonds and the logarithm of the nominal CZK/DEM exchange rate. Just a few short episodes of the country premium revision disturb the uncovered total return parity (a theoretical explanation of the country premium moves is outlined in subsection 3.3). For comparison, the uncovered parity of the Austrian schilling against the U.S. dollar, measured with the ten-year government

Chart 11

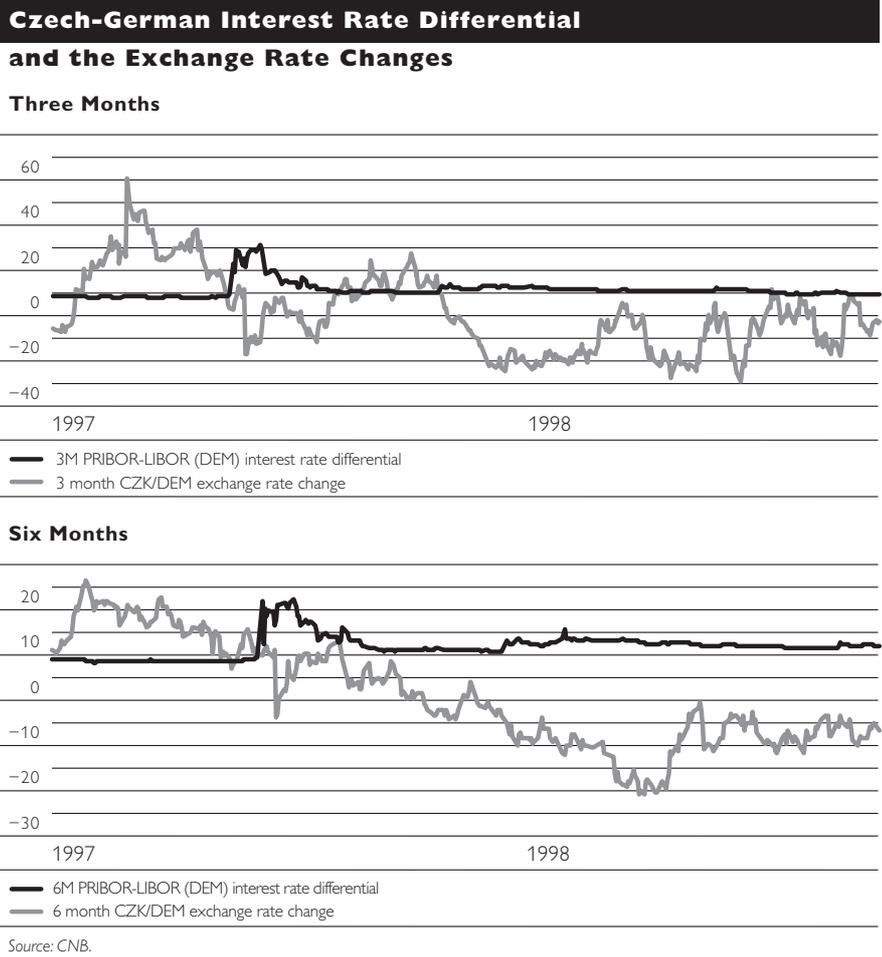


Chart 12

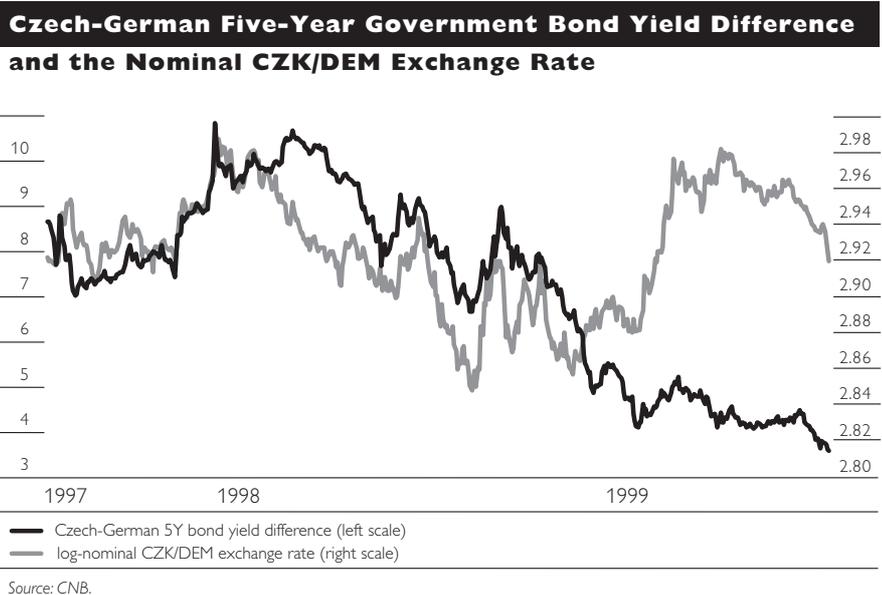
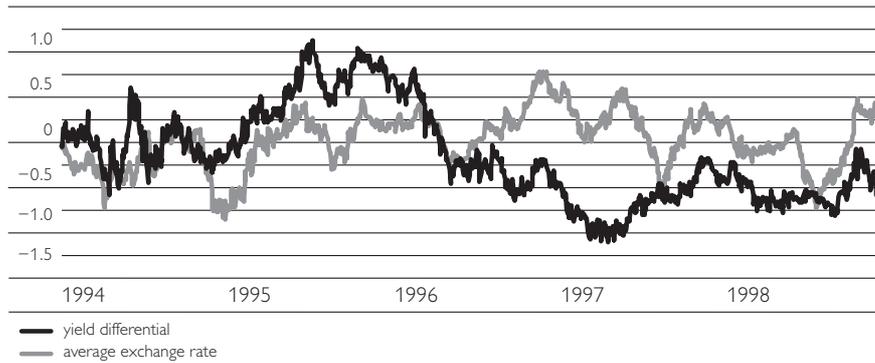


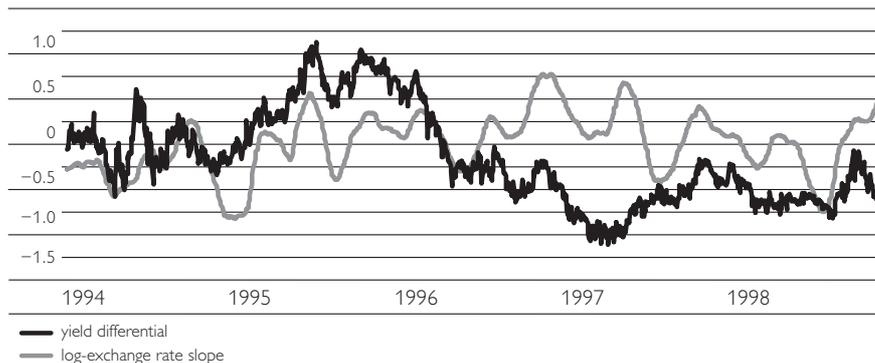
Chart 13

**Austrian vs. U.S. Ten-Year Government Bond Yields  
and the ATS/USD Exchange Rate**

**Average 3M Exchange Rate Movements**



**Log-Nominal 3M Exchange Rate Slope**



Source: OeNB.

bond yield differential, is illustrated in chart 13. One observes that the time horizon for which the relative exchange rate movements confirm the uncovered parity rule is different for the two currencies. It lies between two weeks and two months for CZK, compared to three to four months for the ATS and other EMU currencies. An explanation may be hidden in the different typical holding times of Czech and EMU country government bonds, since they probably attract different types of international investors. A detailed treatment of the uncovered return parity of the exchange rate is given in Derviz, 1999 b.

**7 Conclusion**

The paper has identified a number of specific features of monetary policy transmission inside the Czech financial sector during transition. It has visualized the (uneven) performance of financial intermediaries as the key factor behind the credit conditions in the Czech economy. The model proposed to explain the functioning of the credit channel of monetary transmission is based on an optimizing decision-making of a financial institution restricted by liquidity and cash flow constraints. The environment of portfolio decisions is stochastic in discrete time. The key property of the solution is the exis-

tence of the so-called shadow prices of assets in the financial institution portfolio, which alone obey the standard no-arbitrage rules, while the actual prices deviate from their arbitrage-free “shadows” for transaction cost and other microstructural reasons.

The following features can be regarded as the main contributions of the proposed model to the analysis of the transmission mechanism in a transitional economy.

- The model explains the observed long periods of a negatively sloped yield curve, in that it points at additional factors pushing up the discount bond prices;
- It reveals a nonlinear implicit dependence of new loan rates on money market rates;
- It draws a distinction between the “naive” and the microstructurally adjusted arbitrage-free relationships between asset prices;
- It gives an explanation of the empirically plausible autoregressive property of the forward exchange rate premium and offers a structural decomposition of the latter.

The following lessons for Czech monetary policy can be drawn by confronting the formal analysis with the empirical evidence on the properties of transmission mechanism:

1. The credit channel is present in the Czech economy and cannot be ignored. Its current state can be assessed by comparing the actual and the shadow interest rates on new debt. The consequences of the credit channel blockage can be particularly severe for corporate debt with short maturities.
2. The short-long interest rate transmission can be explained by the cash flow effect in the term structure. Since the cash flow variable is likely to be volatile in transitional economies, the asset-liability management considerations of firms in the financial sector can either suppress the original monetary policy signal of the key rates or multiply its effect to an undesirable magnitude. Therefore, key rate change decisions must be avoided at times of upward movements of either a part or the entirety of the yield curve.

## Bibliography

- Bernanke, Ben S. and Alan S. Blinder.** 1988. Credit, Money, and Aggregate Demand. *American Economic Review* 78 (2), May, 435–439.
- 1992. The Federal Funds Rate and the Channels of Monetary Transmission. *American Economic Review* 82 (4), September, 901–921.
- Branson, William H. and Dale W. Henderson.** 1985. The specification and Influence of Asset Markets. In: R. Jones and P. Kenen (eds.), *Handbook of International Economics*, Vol. 2. Amsterdam: North Holland.
- Breedon, Douglas T.** 1979. An Intertemporal Asset Pricing Model with Stochastic Consumption and Investment Opportunities. *Journal of Financial Economics*, 7 (3), September, 265–296.
- Brock, William A.** 1974. Money and Growth: The Case of Long-Run Perfect Foresight. *International Economic Review* 15(3), October, 750–777.

- Campbell, John Y., Andrew W. Lo and A. Craig MacKinlay.** 1997. *The Econometrics of Financial Markets*. Princeton, N.J., Princeton University Press.
- Cook, Timothy and Thomas Hahn.** 1989. The Effect of Changes in the Federal Funds Rate Target on Market Interest Rates in the 1970s. *Journal of Monetary Economics* 24 (3), November, 331–351.
- Derviz, Alexis.** 1996. Consequences of Privatization and Capital Market Development for the Position of the Czech Currency. In: M. Mejstrik, A. Derviz, A. Zemplerova eds. *Privatization in East-Central Europe. The Evolutionary Process of Czech Privatization*. Kluwer Science Publishers.
- 1999 a. Adjoint Processes of the Portfolio Optimization Problem and Equilibrium Asset Prices. Institute of Information Theory and Automation. Research Report No. 1954, June.
  - 1999 b. Generalized Asset Return Parity and the Exchange Rate in a Financially Open Economy. The Czech National Bank, Monetary Dept. WP No. 12.
- Duffie, Darrell.** 1992. *Dynamic Asset Pricing Theory*. Princeton, N.J., Princeton University Press.
- Izák, Vratislav.** 1998. Transmission Mechanism of the Monetary Policy The Credit Channel. The Czech National Bank, Inst. of Economics, WP No. 90.
- Karatzas, Ioannis, John P. Lehoczky, and Steven E. Shreve.** 1987. Optimal portfolio and consumption decisions for a “small investor” on a finite horizon. *SIAM Journal of Control and Optimization* 25, 1557–1586.
- Kashyap, Anil K., Raghuram Rajan, and Jeremy C. Stein.** 1999. Banks as Liquidity Providers: An Explanation for the Co-Existence of Lending and Deposit-Taking. NBER WP No. 6962.
- Kodera, Jan, and Martin Mandel.** 1997. Transmission Mechanisms of the Monetary Policy in the Czech Economy. The Czech National Bank, Inst. of Economics, WP No. 76 (in Czech).
- Kouri, Pentti J.K.** 1977. International investment and interest rate linkages under flexible exchange rates. In: R. Aliber ed., *The Political Economy of Monetary Reform*. London: Macmillan.
- Matousek, Roman.** 1999. The Czech Banking System in the Light of Regulation and Supervision, The Czech National Bank, Monetary Dept., WP No. 5.
- McCallum, Bennett.** 1994. A reconsideration of the uncovered interest parity relationship. *Journal of Monetary Economics* 33, 105–132.
- Meredith, Guy, and Menzie Chinn.** 1998. Long-Horizon Uncovered Interest Parity. NBER WP No. 6797, November.
- Obstfeld, Maurice, and Kenneth Rogoff.** 1996. *Foundations of International Macroeconomics*. MIT Press.
- Ross, Stephen.** 1976. Arbitrage Theory of Capital Asset Pricing. *Journal of Economic Theory* 13, December, 341–360.
- Sidrauski, Miguel.** 1967. Rational Choice and Patterns of Growth in a Monetary Economy. *American Economic Review* 57, May, 534–544.

# *The Development of the Banking Sectors in Russia, Ukraine, Belarus and Kazakhstan since Independence*

Stephan Barisitz<sup>1)</sup>

## **I Introduction: Banking in the CIS**

Economic and banking reforms have proven to be particularly difficult in member countries of the Commonwealth of Independent States (CIS). Feebly developed pre-1917 capitalist and banking traditions, the long period (about seven decades) of communist rule and of the centrally planned economy, as well as – in contrast to Central European and Baltic countries – an apparent widespread lack of political will or power to conduct radical and in-depth reforms may help explain the present unsatisfactory state of affairs in most CIS countries. The old communist monobank system was already abolished in the final years of the Soviet era. Price liberalization, some remnants of administrative controls, soft macroeconomic policies, high inflation (partly hyperinflation) and heightened exchange rate instability in the first years of independence (1992 to 1994) opened vast possibilities for currency speculation and other arbitrage activities. Central banks and governments continued to intervene in commercial banking activities by ordering directed credits to favored enterprises and sectors. In an environment of relatively lax banking supervision, the number of banks multiplied. The subsequent reduction of inflation as a result of tighter monetary policies, the curtailing of directed credits, improvement of legal foundations for banking and stricter prudential requirements in most CIS countries (in 1995/96) changed the banking environment.

Since many people had lost the bulk of their deposits during the periods of high inflation, many depositors withdrew their trust and confidence from the banking systems. The consequent shrinkage of financial resources at the disposal of banks was matched by a drying-up of profitable investment opportunities, since the lack of information on the creditworthiness of enterprises and insufficient creditor rights made lending to firms a highly risky business. Numerous, if mostly smaller, credit institutions had to close. Against the background of weak fiscal systems, some CIS countries experienced (short-lived) booms in the issuing of Treasury bills to finance large budget deficits (in 1996 to 1998). Given the high interest rates offered, banks buying Treasury bills once again found a – seemingly – secure source of substantial profits. Banks also offered their services as intermediaries to eager foreign purchasers of government bonds. The collapse of this market in Russia in August 1998 and the devaluation of the ruble threw banks in Russia into deep disarray and destabilized the situation to varying degrees in neighboring countries as well.

Although banking laws have been amended and supervision has improved over the years, legislation and regulations are not always fully enforced, accounting practices are not yet above reproach and substantial restructuring activities still need to be carried out. By and large, banks in CIS countries do not yet appear to adequately fulfill their basic financial intermediation function between savers and the real sector. While a host of serious structural problems and legacies undoubtedly hamper progress, the long-lasting con-

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traction and stagnation of most CIS economies have rendered effective banking activity particularly difficult. Recent signs of economic recovery in Russia and other countries will help create a more favorable environment.

This study attempts to trace, analyze and compare the development of banking sectors in four big CIS countries, namely the Russian Federation, Ukraine, Belarus and Kazakhstan. Russia, the largest of the countries, is dealt with in somewhat greater detail than the other three countries. Chapters 2 to 5 are thus devoted to the banking systems of the respective economies, one by one: Overall national developments are outlined, presenting an overview of historic evolutions and interrelationships. Legal foundations, banking supervision, banks' major sources of assets, liabilities, earnings and related changes, bank restructuring and the role of foreign banks and FDI are analyzed. Chapter 6, drawing from a comparative summary, focuses on conclusions.

## **2 The Russian Banking System**

### **2.1 Soviet Origins**

The banking sector has been one of the most dynamic sectors in the development of the Russian economy in recent years. It can be taken as a particularly incisive example of quick and impressive structural change in a transition economy while at the same time sharply highlighting continuing structural deficiencies and failures. The first steps that led to the establishment of a market-oriented banking system in the former Soviet Union were taken as elements of Gorbachev's perestroika. Before that, the single-tier banking system dominated by Gosbank (*Gosudarstvennyi bank*/State Bank) in the Soviet centrally planned economy essentially played a passive role, carrying out payment transactions that were to accompany and thus verify the execution of orders and instructions pertaining to the real economy. In the context of arbitrarily determined "prices," enterprise "profits" were redistributed by the state or used otherwise according to the central plan, and "credits" granted to firms by the central bank in effect constituted automatic transfers and were not really expected to be paid back. "Money," except that paid out as wages to workers and employees, was largely constrained to fulfilling bookkeeping functions. Gosbank was supported by two special-purpose banks: Vneshtorgbank (Foreign Trade Bank) and Sberkassy (State Workers' Savings Banks).

The Law on the USSR Central Bank (1987) formally created a two-tier banking system. Gosbank was renamed "Central Bank of the USSR," and those tasks which resembled commercial banking activities were separated from the central bank and transferred to various newly-created specialized state-owned institutions: Promstroibank (which granted investment credits to the sectors industry, construction, transport and communications), Agroprombank (which served kolkhozes, sovkhoses and agroindustrial complexes), Zhilsotsbank (which served residential construction, light industry and trade). Major functions of Vneshtorgbank were taken over by Vneshekonombank (financing foreign trade, carrying out of the central foreign exchange plan), and the Sberkassy (with their approximately 70,000 branches throughout the USSR) were consolidated into Sberbank

(*Sbergatelnii bank/Savings Bank*). Sberbank collected household deposits and granted credits to the government largely to finance the budget. The Soviet Central Bank was thus left with the function of carrying out monetary policy and banking supervision, while at the same time it was still in charge of the central credit plan.<sup>1)</sup>

The (all-Union) Law on Banks and Banking Activity (1989) permitted the setting up of private commercial and cooperative banks, most of which were established by state-owned enterprises and organizations. The following years witnessed the rapid weakening of Soviet central and state authority. Elements of central planning started to disintegrate. In 1990 the Russian Soviet Republic enacted its own Central Bank Law, declaring the Russian office of the former Gosbank as the Central Bank of Russia and subjecting it to Russian republican jurisdiction. This effectively turned the Soviet monetary authority into an umbrella organization of central banks of Soviet republics. The same year the Russian Law on Banks and Banking Activity was passed.<sup>2)</sup>

Despite the fact that the country was as yet far from featuring basic market-oriented institutions, the total number of operating credit institutions on the territory of the Russian republic grew from 6 at end-1988 to 1,360 at end-1991. This was promoted by the initial virtual absence of effective commercial banking regulations.<sup>3)</sup> After the collapse of the USSR and the demise of central planning, the Central Bank of Russia (CBR) formally took over the remaining functions of former Gosbank in the Russian Federation. Licensing and prudential regulations remained under the sole jurisdiction of the CBR. The boom in new banks continued, promoted by a very liberal licensing policy (in particular low charter capital requirements, which e.g. in 1992 amounted to USD 200,000) and a generally lax regulatory environment with poor enforcement. As shown in table 1, the total number of operating banks expanded to 2,517 by end-1994.

Table 1

<b>Russia: Some Macroeconomic and Banking Data</b>					
	1992	1994	1996	1998	1999
Inflation rate (CPI, Dec. to Dec., %)	2,506	204.4	21.8	84.4	36.6
Total number of banks (year-end) <sup>1)</sup>	1,713	2,517	2,018	1,476	1,350
of which: foreign-owned <sup>2)</sup>	10	..	23	29	32
	(1993)				
Aggregate bank assets/GDP (%)	88	56	36	23.5	..
Credit to the private sector (% of GDP)	11.8	12.1	7.2	12.7	..
	(1993)				

Source: Central Bank of Russia, EBRD Transition Report 1999.

<sup>1)</sup> Operating credit institutions.

<sup>2)</sup> With more than 50% foreign capital participation.

1 Juhani Laurila (1996), p. 86–87.

2 Although this law has been amended several times since, it is still in force today.

3 IMF, World Bank, OECD, EBRD (1991), p. 31.

## 2.2 The Early Years of Transition

In the first years of transition, commercial banking was very profitable, in contrast to other branches of the economy, whose activity contracted strongly. Some credit institutions with an obvious potential for expansion were created by important resource-oriented enterprises, heavy industrial firms, central as well as regional authorities and former Soviet organizations. Yet, apart from the five abovementioned specialized state-owned banks, most credit institutions remained extremely small. At end-1994 the total capitalization of the sector was estimated at about 4% of GDP, and the total volume of commercial bank credit amounted to approximately 20% of GDP.<sup>1)</sup>

Sberbank (the Savings Bank), was – and still is – equipped with a state deposit guarantee and has retained the majority of household accounts. Other specialized banks continued to administer “directed credits,” which, in effect, constituted a remnant of Soviet times. Directed loans were extended by the monetary authorities or government to “strategic” enterprises in industry or agriculture or to other beneficiaries. Newly founded banks largely received money from their owners or tried to attract funds from households by offering higher deposit interest rates than Sberbank. The credit institutions that are mostly owned by one or a few firms are called “pocket banks,” since they essentially function as extended treasury or financial departments of the respective firm.

The privatization of the specialized banks as well as of the (state-owned firms’) “pocket banks” proceeded largely through management and employee buyouts (MEBOs), as well as through the privatization of the respective firms themselves, which mainly took place through voucher schemes. These types of privatization brought little new know-how and capital to banks and often left managements unchanged. Sberbank and Vneshekonombank were excluded from privatization, with majority stakes of these banks remaining in the ownership of the CBR. In the first years of transition high inflation, sometimes bordering on hyperinflation, the depreciation of the ruble and exchange rate instability, generous refinancing by the central bank and the opening up of the country to market-oriented foreign trade were among the major sources of banks’ profits. Annual inflation (CPI, Dec. to Dec.) increased from about 160% in 1991 to over 2,500% in 1992 and amounted to 840% in 1993 (see table 1).

Thus banks first of all frequently converted the funds they received into foreign currency and paid negative or low real interest rates on ruble-denominated accounts. Foreign exchange services were in high demand. Second, at the expense of state-owned companies in particular, they benefited by deliberately extending the period between the receipt and the payment of funds, e.g. directed credits, and by speculating with these funds in the meantime. Third, banks extended sizeable commercial credit on their own to firms and benefited from relatively high spreads. The possibility that these loans would turn nonperforming did not pose a problem as long as cheap refinancing was available from the central bank. Finally, banks drew advantages from acting as financial intermediaries in strongly expanding Russian

1 Gilles Walter (1999), p. 7.

trade with countries of the “far abroad” (i.e. the non-Baltic, non-CIS countries), notably with respect to exports of energy and raw materials and imports of consumer goods. Given the lack of effective foreign exchange regulations, many of these transactions had the additional advantage of allowing banks to “leave” a substantial amount of hard currency earnings abroad.

### **2.3 Tighter Policy Stances, Interbank Loan Crisis (1995)**

Subsequent years witnessed a substantial decline of most of these early sources of easy profits. Monetary policy was tightened sharply; refinancing and directed credits were curtailed from 1994. Progress in stabilization, which brought about much lower inflation and exchange rate volatility, reduced profits from inflation rents, the servicing of foreign currency exchange and speculation.<sup>1)</sup> Annual inflation fell to about 130% in 1995, 22% in 1996 and 11% in 1997. Real interest rates became positive in the second half of 1994. In July 1995 the authorities introduced a crawling exchange rate corridor for the ruble vis-à-vis the U.S. dollar, which was chosen as the nominal anchor for the Russian currency. An important amendment to the central bank law was passed in May 1995. It reinforced the legal independence of the CBR from the government and strengthened its authority as bank supervisor and lender of last resort. Licensing requirements, minimal capital adequacy ratios and other prudential regulations were tightened substantially, resulting in mergers of small banks and the withdrawal of licenses. The number of operating credit institutions began to decline in 1994 and fell to 2,018 at end-1996 and about 1,600 in mid-1998.

The first sustained progress in stabilization caught many banks off guard, triggering mounting liquidity problems. The initial effect of lower inflation and higher real interest rates also squeezed the liquidity of enterprises. Many banks responded to these conditions by raising more and more funds on the interbank loan market, which led to a spiral of borrowing, eventually resulting in an explosion of overnight interest rates and the subsequent collapse of the interbank market in August 1995. Given that the central bank provided only partial accommodation, the crisis caused several hundred banks to fail, including two relatively large ones, Tveruniversalbank and Natsionalnyi Kredit. However, a systemic banking crisis could be averted. The fallout from the interbank loan crisis of August 1995 contributed to the increasing difficulty of banks other than Sberbank to attract household savings. After declining to 60% in 1994, the share of household deposits in Sberbank climbed back to 75% of total household deposits in the banking sector at the beginning of 1997 and came to 70% in mid-1998.

### **2.4 New Profit Sources and Increased Differentiation of the Sector**

Russian banks soon found two new sources of profits. First, the rapid expansion of the market for state securities in connection with still high budget imbalances that were no longer monetized offered the banks a liquid, high yield and, it seemed, low risk investment. The federal budget deficit (according to IMF methodology) amounted to 5.4% of GDP in 1995, 7.9% in 1996

1 OECD (1997), p. 81–82.

und 7.0% in 1997. The securities banks invested in were GKO's (*Gosudarstvennye kratkosrochnye obyazatelsva*/state short-term obligations or Treasury bills) and OFZs (*Obligatsii federalnogo zaima*/federal bonds). GKO's were introduced in 1993, OFZs in 1995. Until 1997 significant limits were put on foreign investors in this market, which, together with uncertainties surrounding the presidential elections of 1996, contributed to pushing up interest rates, so that real returns on GKO's reached 75% on average in the whole of 1996. This may explain some of the banking "success stories" of that year. At the end of 1997, holdings of state securities reached 20% of banks' assets and in the first half of 1998 even surpassed the volume of credits to nonfinancial institutions. Second, a number of banks continued to operate on the basis of close relations with authorities at various levels, which includes being "authorized" to hold budget accounts with little or no interest, granting loans equipped with state guarantees and participating in various government financial programs.

There has been one other major factor that brought considerable wealth to a few larger and well connected banks: cash privatization measures, in particular the shares-for-loans auctions in 1995. In these schemes, the federal government accepted credits extended by banks to help finance the budget deficit on the basis of auctions of packages of state shares in certain valuable firms (among them firms in oil, electricity and metallurgy) that would serve as collateral for granted credits. In the event of nonrepayment of the credits, the banks in question had the possibility to sell collateralized shares or to keep them. Although the auctions should have been competitive and transparent, in many instances they were not, and numerous violations of established rules reportedly occurred. In some of the most important cases, winning bids were only slightly above very modest starting prices. Virtually all of the auctions were surrounded by controversy. In the end, some important Moscow-based banks, most notably Oneximbank and Bank Menatep, cheaply acquired major stakes in such important resource-oriented firms as Norilsk Nickel (associated with the largest nickel deposit in the world), Yukos (oil), Sidanko (oil), Sibneft (oil), Surgutneftegaz (oil and natural gas), Novolipetsk Metallurgical Kombinat. The "winners" thus made handsome windfall profits.

The expansion of the GKO market and the shares-for-loans auctions accentuated a process of differentiation in the Russian banking sector that had already gotten under way earlier. One can distinguish at least three different groups of banks operating since the mid-1990s. Sberbank is a class of its own, maintaining around 200,000 employees and 33,000 branches on the territory of the Federation. Sberbank accounted for almost a quarter of all assets of the banking sector at the beginning of 1997. Apart from retaining the lion's share of household deposits, it also massively invested in state securities, and its portfolio has been dominated by the latter. Second, an increasing share of banking capital and assets came to be concentrated in a small group of Moscow-based banks. Among these were former state-owned specialized credit institutions, major players in the GKO market, prominent "winners" of the abovementioned auctions, participants in numerous state programs, as well as constituent parts of emerging financial-industrial groups

(FIGs), involving strong shareholding interests in many enterprises. At the beginning of 1997, the 22 largest Moscow-based banks accounted for 31% of net assets and 45% of credits of the banking system. A third group consists of all other banks, mainly comprising institutions based outside Moscow. Most of these banks are implicitly subsidized by regional authorities and grant loans to local industry. This group also includes a large number of tiny banks specializing in various short-term activities. Only one or two banks based in St. Petersburg are comparable in assets and clout to the large Moscow banks. In 1996 many regional banks also acquired access to the GKO market.<sup>1)</sup>

### 2.5 Structural Imbalances

For all these impressive activities, credit institutions in Russia have not yet approached what is generally seen as the essence of commercial banking: efficient financial intermediation between savers and the real sector. After the central bank discontinued its accommodating monetary policy, commercial bank credit to the nonfinancial sector declined to about 10% of GDP in 1997. But this low share largely reflected loans to owner companies, very short-term credits and trade credits. Long-term (over one year) investment loans amounted to less than 1% of GDP. Large Moscow banks participating in FIGs have not shown any greater inclination to devote their funds to long-term investment than the banking sector as a whole. Some of the reasons for this major shortcoming of the Russian banking system are identified below. First, banks inherited problems from the past: They had difficulties in identifying profitable investment opportunities, encountered enterprises lacking a business reputation and a reliable credit history, and were equipped with insufficient skills for project evaluation. Second, banks suffered from problems connected with the way transition has materialized in Russia: There is a predominance of insider control in enterprises, the legal system is complicated, contract enforcement is weak or arbitrary and, more generally, the rule of law is not effectively established. A long-standing and pivotal obstacle in this respect appears to be that there are no effective creditor rights, even if credits are collateralized. Third, the long-lasting economic contraction, which generally weakened incentives to invest in future production, weighed on banks.

The opening of the state securities market to nonresident investors in the course of 1997 drove down interest rates considerably, yet Russian credit institutions managed to access a new profit route for themselves by offering their services as intermediaries for foreign investors in GKO's, and since the beginning of 1998 by offering foreigners forward contracts to cover their currency risks. Russian banks did not deem these contracts to be very risky, given the continuing commitment of the CBR to defend its exchange rate corridor. Moreover, this exchange rate policy was part of the official economic strategy of the authorities and was supported by the IMF. But, starting in late 1997, a number of warning signs showed up. The continuous appreciation of the ruble in real terms ever since the introduction of the corridor

1 OECD (1997), p. 92.

and the sharp fall of energy and raw material prices in the second half of 1997 and in 1998 led to a strong deterioration of Russia's external accounts. The Asian crisis of the fall of 1997 hit Russia and caused nonresident investors to partially withdraw from the GKO market, despite substantial interest rate hikes and massive interventions of the central bank to defend the ruble. The situation temporarily stabilized in the first quarter of 1998, but fundamentals, including the weak fiscal situation and tax administration, continued to deteriorate. Political instability connected to the change of government in spring 1998 aggravated the situation.

### **2.6 The Financial Collapse of August 1998 and Its Immediate Repercussions**

Banks appear to have started to sense that the ruble might be devalued in the second quarter of 1998 and essentially ceased to issue forward contracts in May. Despite skyrocketing interest rates, by June/July 1998 the authorities were no longer able to roll over mature state securities by issuing new ones. Despite hasty attempts of some banks to reshuffle their portfolios, by July securities (still) made up 36% of all assets of the sector. Even the assistance package of USD 22.6 billion the international financial community granted to Russia, including the immediate disbursement of an IMF credit tranche of USD 4.8 billion at end-July, could not sufficiently calm investors and remedy the situation. In announcing their default on the internal debt and the devaluation of the ruble on August 17, the authorities dealt the banking sector a terrible blow. The declaration of a 90-day moratorium on private payments on obligations to foreigners was meant to give the banks some respite to rearrange their activities.

The vast majority of the large Moscow banks that had participated in the GKO market and had issued forward contracts immediately became illiquid, insolvent and decapitalized. Sberbank, a major holder of GKO's, was also severely affected. Payment arrears between banks exploded, and the payment system collapsed. Most large banks holding deposits no longer served depositors trying to withdraw their money and some banks, faced with runs, simply closed their doors. According to CBR calculations, aggregate banking capital, expressed in dollars, shrank from USD 19.1 billion at end-July 1998 to USD 3.7 billion at end-December 1998 (less than 3% of GDP).<sup>1)</sup> At the beginning of 1999, the total assets of the Russian banking sector were estimated to amount to about a fifth of GDP (see table 1), whereas in Hungary or Poland banking assets surpassed two thirds of GDP. A due diligence study of 18 of the largest Russian banks carried out by World Bank experts at the request of the CBR and referring to the financial situation of the banks in October 1998 is reported to have found that all reviewed banks, except three, had negative net worth.<sup>2)</sup>

The central bank was in a very difficult situation, since it neither had the necessary means at its disposal to refinance or recapitalize all large illiquid credit institutions, nor was it vested with sufficient legal and coercive power

1 *Bank of Russia (1999)*, p. 88.

2 *Euromoney (June 1999)*, p. 262–263.

to take effective control of the problem banks and force their restructuring. Nor was the Russian government able (or willing) to provide sufficient resources for a genuine overhaul of the banking system. Therefore, policies to overcome the systemic crisis were – and still are – hesitant, of limited effectiveness and controversial. The CBR's first important step in reaction to the crisis was to relaunch the payment system. This was done by reducing mandatory reserves of commercial banks and, in specific cases, accepting GKO's at nominal value as reimbursement of credits despite the fact that GKO's had been frozen. Further, private depositors at six distressed large Moscow banks were allowed to transfer their deposits to Sberbank. By October 1998, interbank payments had more or less been reestablished and further "runs" by the population could be averted.

### **2.7 Sluggish Restructuring in a Challenging Environment**

In November 1998 the CBR and the government presented a reconstruction plan for the banking sector, the only comprehensive document of this kind presented so far (May 2000). It divides the credit institutions into four groups: Banks that are in a financially hopeless state and should be closed as soon as possible; banks that are enough healthy to overcome any problems without external assistance; banks that face financial problems but are deemed to be of systemic importance and should therefore benefit from financial support in their rehabilitation; and finally banks that are considered essential for economic activities in regions and therefore also merit support. This plan quickly proved to be inapplicable, because initial lists of large Moscow banks worthy of rehabilitation implied too high a financial burden for the authorities.<sup>1)</sup>

Although the CBR continued to withdraw the licenses of insolvent banks after August 1998, the speed of this activity did not accelerate. At the end of 1999, there were about 1,350 operating credit institutions in Russia. Practically all banks that had had their licenses removed were small or very small. Unfortunately, the monetary authorities have not been able to bring decisive reform efforts to bear on larger banks; they could not even prevent a further deterioration of the situation in a number of such banks. When the CBR in the fall of 1998 tried to revoke the licenses of and appoint external administrators to two large insolvent Moscow banks, Inkombank and SBS Agro, these decisions were contested and overturned in the courts.<sup>2)</sup> This proves that Russian bankruptcy regulations are largely ineffective. The situation provided strong incentives for asset stripping. Managers had the possibility to organize the transfer of assets of insolvent banks to new structures (often called "bridge banks," "shadow banks" or "mirror banks"), leaving liabilities in the "shell" of the old bank. For example, Oneximbank created Rosbank; Bank Menatep established Menatep St. Petersburg; SBS Agro set up the Soyuz Group and the First Mutual credit society.<sup>3)</sup>

1 Gilles Walter (1999), p. 15; OECD (2000), p. 76.

2 Inkombank was finally declared bankrupt by court in January 2000.

3 Euromoney (June 1999), p. 258.

1999 witnessed some limited progress in urgently needed bank restructuring, though no breakthrough was achieved. Two new laws spelled out more precisely the formal rules for bank bankruptcy and rehabilitation: the Law on the Insolvency (Bankruptcy) of Credit Organizations and the Law on the Restructuring of Credit Organizations. The first law came into force in February 1999, the second in June 1999. The bank bankruptcy law strengthens the authority of the CBR to confront problem banks by requiring them to file for bankruptcy when their license has been withdrawn. The bank restructuring law provided the legal foundation for the creation of the Agency for the Restructuring of Credit Organizations (ARKO). This agency, actually already set up in December 1998, was made the sole body responsible for rehabilitating problem banks.

According to the law, the CBR is obliged to transfer banks satisfying certain criteria of financial distress to ARKO (unless the monetary authority decides to revoke the banks' licenses outright). In the event of a transfer, ARKO is vested with significant authority over the bank in question, including the ability to write down shareholders' capital or to repudiate improper transactions undertaken by the bank's management.<sup>1)</sup> ARKO was only granted RUR 10 billion (about USD 400 million at the exchange rate of mid-1999) of charter capital by the Ministry of Finance and has hitherto not received substantial financial support from any other source. This amount has been grossly insufficient to reestablish even a "core" of a functioning banking system, a goal often voiced by Russian authorities.<sup>2)</sup> Largely due to this handicap, to some problems of coordination of its activities with those of the CBR, as well as to the persisting legal and political obstacles mentioned below, ARKO has not yet had much impact on the banking sector (May 2000).

The situation of Sberbank remains difficult. The Savings Bank was a major purchaser of GKO's and, after having received substantial transfers of accounts mentioned above, in mid-1999 held about 90% of all household deposits in Russia. This once again made it a quasi-monopolist for private savings. Although support by its major shareholder, the CBR, has so far averted any crisis, sooner or later the structural imbalances at Sberbank will have to be tackled. While the value of the entire banking sector's holdings of state securities strongly declined, and the share of credits to the nonfinancial sector in total assets did not increase, by mid-1999 banks appear to have reshuffled some of their activity (back) to "investing" in cash balances and deposits in foreign currency. Clearly, given the initial burst of inflation after the August 1998 devaluation and the fact that the exchange rate has become at least somewhat more volatile after this event, renewed possibilities of benefiting from speculation have emerged. But, owing to the quick reduction of inflation in subsequent months, this does not seem to constitute a major source of earnings. Whereas the banking sector's liquidity has somewhat

1 *IMF (Russian Federation, 1999), p. 91.*

2 *According to CBR estimates, in order to recreate such a core banking system, funds about eight times as large as the authorized charter capital of ARKO would be needed. These estimates were put forward at an OECD financial markets conference on Russia in October 1999.*

recovered in recent months, possibilities for profitable investment in Russia have remained limited. This points to a potential for continued capital outflows or capital flight from the country unless structural conditions for banking improve.<sup>1)</sup> Among the most healthy banks appear to be those connected to rich owners or clients (like profitable exporters or natural monopolies).

In June and July 1999 the CBR once again attempted to withdraw the licenses of some relatively large insolvent banks. But unfortunately, despite the abovementioned consolidation of its legal position, the CBR's initiative largely suffered the same fate as its previous effort. Attempts to effectively bankrupt (formerly) large banks and seize assets before they disappear or are moved to "safe havens" have run up against problems of legal complexity and political resistance. Apparently, notwithstanding some clarifications brought about by the bank bankruptcy and the bank restructuring laws, these new laws are inconsistent with a host of other legislation, blunting the former's effectiveness in courts.<sup>2)</sup> Further, liquidation procedures remain very complicated. The surviving political power of some "oligarchs" at the head of a number of Moscow banks and corruption reflect other obstacles that continue to hamper banking reform in Russia. On a number of occasions the behavior of the CBR and ARCO themselves seem to have been nontransparent and their treatment of insolvent banks arbitrary.<sup>3)</sup> Added up, this may also reflect a lack of political will to carry out serious bank restructuring efforts.

Banks owned by nonresidents have so far not had a major effect on the activities of the banking sector in Russia. This is not so much due to existing administrative restrictions on such institutions. A number of limitations on the activity of foreign banks were introduced by the CBR in 1993, the most important of which is a 12% limit on the share of foreign capital in the aggregate capital of the Russian banking sector. Some of these limitations – though not the 12% limit mentioned above – were relaxed in subsequent years. The reluctance of foreign banks to enter into substantial commitments in Russia rather results from the above-described highly problematic environment awaiting them. In March 2000, there were 32 banks in Russia that were more than 50% owned by nonresidents. Their share of total banking capital amounted to 10.7% (see table 5). In the group of top 50 banks in Russia by assets, 12 were controlled by foreigners (though only 1 in the group of top 10 banks). Among the biggest of the latter were Citibank, BNP-Dresdner Bank, Credit Suisse First Boston, Chase Manhattan Bank International. Most Western banks set up branches in Moscow to serve multinational corporate clients active in Russia. Like Russian Moscow banks, foreign-owned credit institutions also strongly invested in state securities and found themselves among the prime victims of the August crisis. However, they recovered more quickly than their Russian counterparts by drawing on financial support from their parent companies. In April 2000 the foreign capital limit was finally

1 Mikhail Dmitriev, Sergei Surkov (1999), p. 50.

2 The IMF has also demanded some changes to the bank bankruptcy law. In fact, this has been one of the structural benchmarks related to the stand-by arrangement of July 1999.

3 Vassily Astrov, Helen Boss, Peter Havlik (2000), p. 19–20.

abolished, but for the time being a rush of foreign banks to Russia does not appear likely.<sup>1)</sup>

### 3 The Ukrainian Banking System

#### 3.1 Lagging Reforms

The evolution of the banking system in independent Ukraine features many similarities with the above-described Russian developments. Although economic reforms and liberalization have not proceeded as fast and as far as in Russia, Ukrainian economic agents have, at various turns, acted and reacted to certain situations in similar ways as have Russian agents. These similarities seem to be at least partly rooted in the common Soviet legacy and mentalities that emanate from it; in any case they do not appear to be anchored in IMF assistance programs or other Western recommendations and can be observed despite eight years of independence of the two countries from each other. Some of these parallel developments will be dealt with below. Another characteristic of the Ukrainian banking system, linked to its slower development, is the greater degree to which it remains dominated by the state and former state banking institutions.

Table 2

Ukraine: Some Macroeconomic and Banking Data					
	1992	1994	1996	1998	1999
Inflation rate (CPI, Dec. to Dec., %)	2,730	401.0	39.7	20.0	19.2
Total number of banks (year-end)	133	228	229	214	203
of which: foreign-owned <sup>1)</sup>	—	1	2	9	8
Credit to the private sector (% of GDP)	3.2	4.6	1.4	7.6	..

Source: National Bank of Ukraine, EBRD Transition Report 1999.

<sup>1)</sup> With 100% foreign capital participation.

#### 3.2 Developments until the Mid-1990s

After the elimination of the former Soviet monobank system in 1987 to 1989,<sup>2)</sup> the Ukrainian branches of the specialized Soviet state-owned banks in 1990 were turned into: Prominvestbank (industrial bank, former all-union Promstroibank), Bank Ukraina (agricultural bank, former Agroprombank), Ukrsotsbank (residential construction etc., former Zhilsotsbank) and Oshchadnyi Bank (savings accounts, former Sberbank). In March 1991 the National Bank of Ukraine (NBU) was formed from the Ukrainian branch of the USSR Central Bank. After the Soviet collapse, the former all-union Vneshekonombank ceased to process Ukrainian foreign trade payments; therefore, in early 1992 Ukreximbank was established to assume these responsibilities. Toward the end of the 1980s, a number of small cooperative and private commercial credit institutions was formed.

The NBU was established in conjunction with the passing of the (Soviet) Ukrainian Law on Banks and Banking Activity (in March 1991). This law stipulates that the NBU is responsible to the Supreme Rada (parliament), which appoints the NBU governor for a term of four years. Therefore,

1 Wall Street Journal (April 5, 2000).

2 For more detailed information on this initial period, see subchapter 2.1.

the NBU is not fully independent. In 1992 Prominvestbank, Bank Ukraina and Ukrasotsbank were converted to joint stock companies (corporatized), with large state enterprises taking substantial ownership shares in the banks that serviced their sectors. In 1993 and 1994 the mentioned banks were privatized in that ownership was transferred through the distribution of shares to the employees of client enterprises and of the banks themselves. This brought about a strong dispersion of ownership among thousands of new shareholders without attracting new funds, thus resulting in weak control of bank managers by owners. Important managerial decisions are influenced by a continuing close relationship between bank managers and client firms as well as government agencies. Oshchadnyi Bank (the Savings Bank) and Ukreximbank have remained in state ownership.

Given initially extremely low minimum capital requirements and lax banking supervision, small commercial banks rapidly proliferated in Ukraine. The total number of credit institutions in Ukraine increased from 15 at end-1990 to 133 two years later and 228 at end-1994. The rate of increase slowed throughout this period because capital requirements were raised in stages, beginning in 1993. Up to the mid-1990s, two types of banks could be distinguished: First, the five specialized former state-owned banks and second, the (newly founded) smaller banks. Most of the latter have few owners, very often individual companies or people. The majority of small banks are only active regionally and many are single-branch institutions. A large part of small banks' lending has been in short-term credits to enterprises, frequently to their most important shareholders and depositors (insider lending). They have also engaged in interbank borrowing and lending. Most resources come from companies' deposits or from funds placed by specialized banks. Thus, like in Russia, many small credit institutions fulfill functions resembling those of firms' treasuries or financial departments. This is why they are often called "pocket banks."

Some (originally smaller) banks ventured into attracting household deposits and in 1993/94 at least temporarily offered quite high deposit interest rates. This created some competition for Oshchadnyi Bank, which, like Sberbank in Russia, has remained the only bank equipped with state deposit insurance. The share of deposits placed with Oshchadnyi Bank fell from the overwhelming majority at the beginning of the 1990s to 61% 1994. Gains from hyperinflation and currency speculation were among the sources of profits for both types of banks in the first years of transition. Annual price increases (CPI, Dec. to Dec.) expanded from 2,730% in 1992 to 10,155% in 1993 and then fell to about 400% in 1994. Specialized former state-owned banks have generally used on-lent credits from the NBU as well as funds from the respective sectors. In 1994 and 1995 governmental directed credit programs remained prominent: Specialized banks were instructed by the authorities to grant loans to certain "strategic" sectors or enterprises, e.g. in agriculture or coal mining. The respective funds were often supplied by the budget or the central bank and then on-lent by the banks. In other cases, the specialized banks themselves were asked to provide the funds, and credits extended received a state guarantee. However, after many of these loans became nonperforming, the government did not always

live up to its obligations. This weakened the balance sheets and profitability of respective credit institutions.

The activities of the National Bank of Ukraine have repeatedly been subject to legal and political constraints. Until the beginning of 1996 the NBU was not entitled to grant bank licenses. Credit institutions were founded as enterprises under commercial law permitted to carry out banking activities. They were then registered as banks by the monetary authorities. This legal framework weakened the possibilities of the NBU to exercise supervisory power, although it has been the only institution vested with such authority. Nevertheless, the NBU became more active in this respect in 1995 and revoked bank registrations due to violations of minimum capital requirements and excessive exposure to single debtors. The abovementioned ownership structure of big as well as of small banks no doubt favored insider relationships, the accumulation of dubious credits and, at least with respect to larger banks, political pressure, which has partly prevented the NBU from moving more determinedly against certain institutions. By and large, this situation can still be found today.

### **3.3 Monetary Tightening, Stricter Regulation, New Profit Sources**

As shown in table 2, the total number of banks in Ukraine, which had reached 228 at end-1994, remained more or less at this level in the following years (222 in mid-1998), before it slightly fell to 203 in January 2000. This development can partly be explained by the additional rights acquired by the NBU in amendments to the banking law of 1991. After the NBU was granted the authority to license banks in February 1996, all credit institutions were reviewed and had to apply for new licenses. Minimum capital requirements were further increased,<sup>1)</sup> and banks not satisfying prudential regulations were refused (new) licenses. The general economic environment also changed. In the fall of 1994 the government embarked on a macroeconomic stabilization and structural reform program, which was successful in bringing inflation down to two-digit levels. Many prices were deregulated, monetary policy tightened, interest rates raised and directed credits reined in. Inflation (Dec. to Dec.) fell from 181% in 1995 to 10% in 1997. This was topped by a successful currency reform in September 1996, featuring the replacement of the provisional currency, the karbovanets, by the hryvnia (UAH). The exchange rate was stabilized. Fiscal and structural reforms proved to be less effective. At the beginning of 1998, international accounting standards were introduced in Ukrainian banking.

After the monetary stabilization in 1995/96 had made quick speculative profits more difficult to achieve, Ukrainian banks, just like their Russian counterparts, needed to look for some new sources of earnings, although large Ukrainian banks have always maintained strong links with the authorities, who appear to have preserved greater sway over former state-owned institutions than has been the case in Russia. Ukrainian banks thus came to

*1 For example, at the beginning of 1996 minimum capital requirements were denominated in ECU and set at ECU 500,000. In July 1997 these were raised to ECU 750,000 and at the beginning of 1998, they were further adjusted to ECU 1 million.*

rely to a greater degree than before on the interbank market and finance and then turned to investing in government Treasury bills, which were issued in rising quantities in 1996 and 1997. Small and medium-sized banks have relied more on interbank borrowing than large banks that have often acted as suppliers of funds. Treasury bills, or OVDPs (*Oblihatsii vnytrishnoi derzhavnoi pozyky*), were introduced in 1995 and, like in Russia, quickly became the main instrument to cover budgetary gaps.

Apparently virtually risk-free, OVDPs were a lucrative and popular investment asset acquired mostly by large credit institutions. Oshchadnyi Bank and Bank Ukraina purchased the biggest portfolios among Ukrainian banks. Foreigners actively participated in the market, and Ukrainian credit institutions, in particular foreign-owned ones, held licenses to represent the foreign investors in the Treasury bill market. But while reliance on foreign participation pushed down interest rates somewhat, it rendered the market highly sensitive to short-term capital movements. In the wake of the Asian turmoil at the end of 1997, the share of foreign participation declined sharply. In 1998 the NBU became the holder of the largest OVDP portfolio.<sup>1)</sup>

### 3.4 The Evolving Structure of the Banking Sector

Compared to the economy as a whole, the Ukrainian banking system is even smaller than the Russian one. Aggregate banking capital in mid-1998 amounted to about 2% of GDP; total assets in end-1998 came to around USD 4 billion or approximately 10% of GDP. This corresponds to less than the assets of a medium-sized commercial bank in a developed market economy. This modest size reflects the relatively slow pace of reforms and the lack of public trust in banks, stemming from losses suffered by depositors during the years of hyperinflation and the general fragility of the sector. It is estimated that the population stores most of its savings in cash or foreign banknotes at home. To this one has to add money held in foreign bank accounts (largely corresponding to capital flight). However, deposit-taking did increase after inflation had stabilized.<sup>2)</sup>

As of 1998, the assets of Ukrainian banks consisted of mainly short-term claims on enterprises, claims on government, foreign assets and reserves. Most credits were short-term, since banks continued to face substantial problems and risks if they wanted to use funds in a “normal” market-oriented way, i.e. to finance long-term investment in the real sector. Although explicit directed credit campaigns were stopped, there are ample signs that informal practices continue. According to banking professionals, many loans have been “unofficial but ... unavoidable” preconditions for “favors” from the authorities.<sup>3)</sup> Protection of creditor rights, including access to collateral, is very weak in Ukraine. Bankruptcy cases in courts can take years to come to a resolution. About one half of banks’ credit portfolio is thought to be noncollectible. In 1998, the share of nonperforming loans grew as a result

1 James W. Dean, *Iryna Ivashchenko (1997–1998)*, p. 140.

2 IMF (*Ukraine, 1999*), p. 153.

3 V. Luhovyk, S. Korchak (1998), p. 16.

of the renewed economic downturn, the sharp depreciation of the hryvnia and the high level of interest rates. While in 1996 and 1997 banks' purchases of Treasury bills boomed, the market weakened in the first half of 1998, and the government's financial difficulties in August-September of that year as well as ensuing Treasury bill rescheduling measures dampened credit institutions' appetite for that type of investment.

Liabilities of Ukrainian banks in 1998 were made up of deposits of households, enterprises and the state, of credits received (mostly from other banks) and of foreign currency loans. One of the government "favors" granted to banks that continue to extend credits to targeted enterprises and sectors is the right to service government budget accounts and to handle subsidies to state-owned firms. Benefits are largely derived from low interest rates for handling such funds. Practically all of these "authorized" banks are system banks.

In recent years, the NBU has distinguished three groups of banks in Ukraine:<sup>1)</sup> The first group comprises large banks ("system banks"), which possess assets (per institution) surpassing UAH 500 million (about USD 100 million).<sup>2)</sup> This group includes the five specialized banks as well as two newly-founded private banks: Avalbank, used by the government to administer the payment of pensions to the country's pensioners, and Privatbank, whose headquarters are located in the industrial center of Dnepropetrovsk and which specializes on large enterprises in the region. Oshchadnyi Bank (the Savings Bank) used to hold the majority of household deposits, but lost market share to banks that offered higher deposit rates and provided better services. Whereas the share of household deposits in Oshchadnyi Bank in 1994 still amounted to 61%, it fell to 46% in 1997 and may have dropped to about 40% in 1999. The seven largest banks together accounted for 58% of the assets, 61% of the credits and 77% of the deposits of the banking system in mid-1998. The second group is that of medium-sized banks, which are equipped with assets of between UAH 100 million and UAH 500 million (about USD 20 million to 100 million). The third group is that of small banks, whose assets are below UAH 100 million. While according to NBU financial statistics, there is a substantial jump in asset size between the largest of the medium banks and the smallest of the "system banks," there seems to be no major threshold separating medium from small banks. The largest foreign credit institutions that have settled in Ukraine<sup>3)</sup> belong to the group of medium banks. Subject to captive financial relationships, many small banks continue to perform functions of financial departments of large enterprises.

### **3.5 Effects of the Russian Financial Crisis of 1998**

The outbreak of the Russian financial crisis in August 1998 had immediate repercussions in Ukraine. Financial markets lost confidence in the fragile economy, and the OVDP market experienced large-scale withdrawals of

<sup>1</sup> Oleksandr Kyreyev, Yuri Herasymenko (1998), p. 17–23.

<sup>2</sup> Based on a UAH/USD exchange rate of 5.0 (end-1999).

<sup>3</sup> See below: subchapter 2.6.

funds. This contributed to strong downward pressure on the hryvnia and precipitated a fiscal crisis.<sup>1)</sup> The consequences of the Russian crisis on the Ukrainian banking system were severe, but did not lead to a collapse like the one Russia experienced. There are two important reasons for this: First, the authorities reacted cautiously, avoiding abrupt changes that could have further heightened the markets' nervousness. The government averted immediate insolvency by entering into restructuring negotiations with Treasury bill creditors. The majority of Treasury bills outstanding were converted to long-term government bonds (eurobonds).<sup>2)</sup> The depreciation of the hryvnia was not quick and massive; therefore, it was easier for banks to continue servicing their foreign exchange liabilities or to initiate negotiations with creditors. Second, credit institutions were relatively less exposed to investments in Treasury bills and to foreign exchange liabilities than their Russian counterparts. Whereas in mid-1998 state securities accounted for 36% of all assets of Russian banks, they came to less than 15% of the assets of Ukrainian banks. The latter had also incurred only modest direct exposure to Russia.

After increased withdrawals of money from a number of banks in September 1998, the situation calmed down a bit in the following weeks. By presidential decree, a bank deposit insurance scheme was formally introduced, but, due to difficult decisions related to its scope and financing, the scheme is still not operational. In November and December 1998 the financial state of most banks stabilized and the government redeemed some of its OVDPs. But a considerable number of larger and smaller credit institutions have remained illiquid and loss-making. At least one larger bank was subject to a financial rescue operation, involving a restructuring of its activities and sizeable NBU refinancing loans at preferential interest rates. In June 1999 a new Law on the National Bank of Ukraine was passed, which provided for the establishment of a supervisory council consisting of an equal number of representatives of the president and of the Supreme Rada. The supervisory council has been assigned considerable executive authority. In this connection concerns have arisen that the new law might not be a framework for enhancing but for compromising the independence of the monetary authorities.

### 3.6 Continued Weakness and Fragility

Although the fallout of the Russian crisis appears to have been weathered, the Ukrainian banking sector remains in a difficult and precarious state. The legal environment of banking (but also of other economic activities) is complicated and uncertain and is subject to frequent adjustments. This goes in particular for the tax system. While a new central bank law has been enacted recently (as mentioned above), the Soviet Ukrainian Law on Banks and Banking Activity of March 1991, incorporating numerous amendments, is still in force. New drafts of a more modern banking law presented to the Rada have not

1 For a more detailed description of the effects of the Russian crisis on Ukraine, see Stephan Barisitz (1999), p. 77–79.

2 While this conversion scheme in fact was, to some degree, compulsory, investors were not initially confronted with a *fait accompli*, as was the case in Russia.

yet been successful. The current law does not give bank supervision sufficient room to operate and does not cover rehabilitation or liquidation.

Enforcement of laws and regulations is often weak or selective. Despite the abovementioned introduction of international accounting standards, experts estimate that banks' credit classifications do not live up to reality and that loan-loss provisions in fact cover only about one third of the real stock of nonperforming loans. If banks made full provisions, some of them would probably record a negative net worth. According to the (preliminary) findings of a diagnostic analysis of the seven largest banks in the country, carried out in the second half of 1998 by a team of Ukrainian and foreign supervisors under IMF coordination, several of the banks in question were seriously undercapitalized and may have been insolvent.<sup>1)</sup> This would call for comprehensive restructuring and recapitalization measures. But, despite international technical assistance, such measures do not appear to be imminent, given the lack of funds.

The fragmented and partly intransparent ownership structure and the continuing dependence of various banks on government agencies and connections hardly promote restructuring initiatives, market orientation and corporate governance of credit institutions. On the contrary, this environment can rather be taken to foster corruption and criminality. On a more positive note, the presence and activities of foreign-owned banks, which have become increasingly visible in recent years, may set some more healthy examples. A limit of 15% of aggregate capital of the banking sector that could be owned by foreign banks was established in the early 1990s. This limit has recently been abolished. In early 1998 the share of foreign capital reached 12% (see table 5). In January 2000 there were 30 banks with foreign capital operating in the country, 8 of which fully foreign-owned. Among the largest in terms of assets are Société Générale Ukraine, Crédit Lyonnais Ukraine and Crédit Suisse First Boston Ukraine. Although these banks are more focused on corporate financing and less on retail banking, they can at least selectively enhance competition and transfer technology and know-how into the system.

## **4 The Belarussian Banking System**

### **4.1 From Reluctant Reformer to Retractor of Reforms**

Under the Soviet system, Belarus had been the "industrial assembly plant" of the USSR, affording the population of the resource-poor republic a relatively high standard of living. After the collapse of the Soviet Union, other CIS countries generally embarked on the road of reform, sometimes suffering severe setbacks, but at least appearing to broadly aim at a market economy as the final goal. Belarus initially also followed this course – until the mid-1990s, when a change of political regime brought a turnaround to the state, once again reinforcing its power and authority over the economy. This has made itself felt in an explosion of regulations applying to various types of economic activity, the introduction of pervasive price controls, licensing and relicensing campaigns of economic entities, the stalling and rollback of

1 IMF (Ukraine, 1999), p. 61.

the privatization of enterprises and commercial banks, and the multiplication of compulsory state orders and directed credits channeled through banks. Thereby elements of central planning have been reintroduced into the Belarussian economy.

While this policy “model” has achieved some impressive growth figures in recent years, the nature and quality of this growth are highly questionable, given that it appears to have been forced to a large degree by the authorities.<sup>1)</sup> While the capacity utilization of (former) state-owned enterprises has been increased, investment in new productive capacity has been low, FDI very modest and restructuring practically nonexistent. Consumption and standards of living have stagnated. It is almost certain that without continuing large energy price subsidies coming from Russia and favorable barter deals with Russia, the Belarussian authorities and in particular President Lukashenko would not have been able to sustain their “model” until today. In the aftermath of the Russian crisis of 1998, they encountered increasing difficulties and reacted with “more of the same” economic policies. Runaway inflation and the erosion of controls have partly exasperated the authorities, who are confronted with an increasingly impatient and restive population.

Table 3

<b>Belarus: Some Macroeconomic and Banking Data</b>					
	1992	1994	1996	1998	1999
Inflation rate (CPI, Dec. to Dec., %)	1,599	1,960	39.0	181.7	251.0
Total number of banks (year-end)	25	52	38	37	30
of which: foreign-owned	..	1	1	3	..
Credit to the private sector (% of GDP)	..	17.6	6.7	17.1	..

Source: National Bank of Belarus, EBRD Transition Report 1999.

#### 4.2 The Early Post-Soviet Years

The National Bank of Belarus (NBB) was established from the Belarussian branch of the former Soviet Gosbank in December 1990. The same month, the (Soviet) Belarussian Law on Banks and Banking activities was enacted. The banking system of the country came to consist of two types of banks: The first type included Belagroprombank (supply of credits to agriculture), Belpromstroibank (industry), Sberbank of Belarus (specialization on household deposits, financing budgetary programs and extending housing loans), Belbusinessbank (light industry and trade) and Belvneshekonombank (foreign trade), which took the places of the former Soviet specialized banks on the territory of the republic.<sup>2)</sup> The second type included about 20 newly founded commercial banks at the beginning of the 1990s. One of the largest was Priorbank, founded by Belpromstroibank and a number of enterprises.

Up until now, the Belarussian banking system has been dominated by the abovementioned former specialized banks (see table 5), in which the state itself has kept large or majority shares, but it has successively reduced these shares since 1991. Other major shareholders are big, mostly state-owned

1 Jean-Charles Lallemand (1999), p. 28.

2 The Belbusinessbank took most of the agenda of the former Zhilsotsbank.

firms. Although commercial banks in Belarus generally operate as universal banks, the former specialized banks have largely retained the focus of their loan portfolios and have continued to serve government programs assisting certain economic sectors. Sberbank has remained 100% state-owned and, like in other CIS countries, the only bank equipped with a public deposit guarantee. Due to rising competition, Sberbank's share of household deposits fell from almost 100% in 1992 to about 70% in mid-1994. Its share in total deposits fell from 80% to only 10%. The former specialized banks in mid-1994 together accounted for two thirds of total deposits,<sup>1)</sup> around three quarters of total lending to enterprises, and 90% to 95% of refinancing by the NBB.

Most of the new commercial banks were created by enterprises and their employees; often the state also participated directly. Much as in other CIS countries, one or a few enterprises are frequently the major shareholders and debtors of smaller credit institutions. Many of the latter have essentially operated as the financial front-end of corporate owners in an attempt to reduce the cost of acquiring funds. The high levels of inflation (attaining annual peaks (Dec. to Dec.) of approx. 1,560% in 1992 and 1,960% in 1994) and exchange rate instability experienced until 1994/95 rendered speculative transactions and foreign exchange deals highly profitable for all banks. Short-term external trade financing was also an important revenue source.

Given this initial situation coupled with a weak regulatory environment, the number of credit institutions increased rapidly, reaching a peak of 52 in 1994 (table 3). Banks proliferated despite some strict supervisory rules issued by the monetary authorities already in 1992/93. For example, commercial banks were banned from lending to their shareholders at more favorable terms than to other clients, parliamentarians were prohibited from participating in the boards of banks, loans to a single borrower were limited to 15% of a bank's capital, the arsenal of sanctions at the disposal of bank supervisors was expanded, limits were imposed on foreign exchange exposures, and minimum capital requirements were increased. However, given the soft budget constraints prevalent in the economy at the time, many of these regulations could not be properly enforced.

### **4.3 The Turnaround in 1994/95**

Like in Russia, the monetary authorities in Belarus in 1994 embarked on an anti-inflationary drive and tried with success to enforce banking regulations more rigorously. Inflation fell to 244% in 1995 and 39% in 1996, and the exchange rate stabilized somewhat. The tightening of licensing procedures, further raising of minimum capital requirements and the waning of possibilities for quick profits in a less inflationary and more stable atmosphere made life more difficult for many banks, exposing underlying weaknesses. The total number of credit institutions stopped expanding and in fact declined to 47 at end-1995. In 1994 the new Law on the National Bank of Belarus

*1 This figure was the result of a contraction from about 90% in 1992 brought about by Sberbank's substantial losses of market share.*

was passed, making the NBB (formally) more independent from government authorities. The NBB is administratively subordinate to the Supreme Soviet (parliament), though.<sup>1)</sup>

In July 1994 Alexander Lukashenko, a former director of a kolkhoz, was elected President of the Republic on an electoral platform promising a return to principles of a planned economy and close cooperation or union with Russia. While during the first months after his election he seemed to back off from this platform, pronounced himself in favor of market-oriented reforms and even liberalized prices and cut subsidies to some state-owned enterprises, the president must have changed his mind again soon. Starting in 1995, through numerous presidential edicts (*ukazy*) and decrees (*dekrety*), he interfered more and more in the functioning of the economy and the banking system. Government programs administered by the former specialized banks gained importance. Directed credits and compulsory state orders proliferated and increasingly emerged as a dominant component of the economic system. The NBB became one of the major players in this system.

Recurring expansions of commercial bank credits to enterprises, particularly in agriculture, thwarted attempts to bring down inflation further. Given that necessary funds related to directed credits were not always supplied by the NBB or the government, that authorities often decided to prolong repayment periods and credits frequently turned nonperforming, banks' financial situation weakened. In 1995 Sberbank merged with Belarusbank (a relatively new, but troubled, mostly privately-owned institution), creating the largest bank in the country, with the state holding 99% of the bank's shares. After the merger, the authorities ordered the transfer of all government deposits from other institutions to the new Belarusbank, triggering liquidity shortages in other banks that aggravated financial problems in the sector.<sup>2)</sup> In 1995 the NBB established a deposit insurance fund to which all commercial banks have been required to contribute 0.3% of their total household deposits.<sup>3)</sup> Household deposits are guaranteed up to the equivalent of USD 2,000 per accountholder.

#### 4.4 Increasing State Encroachment on the Banking Sector

In November 1995 the government halted the process of reducing state shares in banks' ownership and declared its intention to reinforce state control over the specialized banks. A presidential decree of May 1996 ordered commercial banks to increase the share of the state and other state-legal entities in statutory capital. For example, the state share in Belpromstroibank was adjusted from 17% to 39%, in Priorbank from 18% to 48%, and the 100% state share in Belarusbank was "restored." Centralization of banking business in specialized banks continued: Until the first half of 1999, specialized banks' share of deposits grew to 70%, with Belarusbank accounting for

1 Holger Kern (1997), p. 48.

2 IMF (Belarus, 1996), p. 32–33.

3 This share was later lowered to 0.1%.

65% of household deposits. Specialized banks' share in loans surpassed 80%, and their share in refinancing from the NBB exceeded 99%.

Direct government interference in the commercial activity of banks has continued unabated until the present (May 2000). Following a currency crisis in mid-March 1998, which consisted of an exchange rate slide of the Belarussian ruble against the Russian ruble, a presidential edict was issued to formalize and enhance the powers of the head of state over the National Bank of Belarus. Accordingly, the President of the Republic effectively has the authority to remove the chairperson of the NBB and to suspend and revoke any decisions of the NBB. This leaves the monetary authorities with little if any room for maneuver in formulating and implementing their policies, thereby seriously impairing central bank independence.

Directed credits have traditionally focused on Belagroprombank, which extends preferential loans to agriculture, and Belarusbank, which finances housing construction, but many other credit institutions have also received instructions from the authorities. In 1997 and early 1998 directed credits made up about half of total commercial bank lending to the economy. The state-controlled commercial banking sector thus executed quasi-fiscal duties, while government budget deficits were kept at relatively low levels (1996: -1.6%, 1998: -0.3% of GDP). Despite the high risk involved in many loans, the high delinquency rate of recipients of directed credits and the absence of explicit guarantees on such credits, banks have not actively resisted pressures from above because of the just mentioned ownership and political changes and, in particular, the implicit understanding that financial assistance would be forthcoming, if needed, from the government and the NBB. These practices have over the years impaired banks' loan portfolios. Although the monetary authorities have at times intervened and injected new capital into some of the most troubled banks, the banking system has remained undercapitalized.

Deposit as well as lending rates have remained negative during most recent years. Banks' profits, according to official data, have stagnated or fallen over time. But official data underestimate the problem. They are based on Belarussian accounting practices derived from former Gosbank guidelines and hide major shortcomings in banks' practices. Loan-loss provisioning required by regulation is less than adequate, and banks have maintained even fewer provisions than required. In 1997 and 1998 renewed slippage occurred in the implementation of minimum capital limits. The existing bankruptcy law is weak, and the NBB remains handicapped by the lack of own authority to decide on corrective actions against insolvent banks. Thus, in 1996 the central bank managed to "persuade" three bankrupt small banks to close. Some banks were encouraged to merge. The total number of credit institutions declined to 38 in 1998.

#### **4.5 Heightened Fragility and Signs of Crisis**

The Russian crisis of August 1998 and the devaluation of the Russian ruble caused Belarussian exports to its eastern neighbor and most important trading partner to collapse and put Russian economic support in jeopardy. The authorities in Minsk reacted to this crisis by further relaxing monetary policy

and stepping up administrative guidance of the economy. While this helped counter contractionary tendencies, controls could not prevent a plunge of the country's currency on foreign exchange markets and a renewed spiraling of inflation. The annual inflation rate (Dec. to Dec.) accelerated from 63% in 1997 to 182% the following year and to 251% in 1999, keeping real deposit interest rates firmly negative. This return of instability triggered an increase in the dollarization of the economy. Despite restrictive foreign exchange regulations, a considerable amount of money flowed out of the banking system and was exchanged for hard currencies as a store of value.<sup>1)</sup> On the other hand, the regime was successful in attracting or keeping at least some foreign currency deposits with commercial banks. This was reportedly brought about by a rapid increase in interest rates on such deposits and a new guarantee of foreign currency deposits of households provided by a presidential decree.<sup>2)</sup>

The deterioration of the macroeconomic situation, the further expansion of directed credits and the proliferation of nonperforming loans denominated in foreign currencies in banks' portfolios caused the financial situation of banks to further worsen in 1998 and 1999. The fall of exports to Russia and the collapse of the exchange rate dramatically increased defaults on foreign currency-denominated loans and made it difficult for credit institutions to provision such loans in local currency. The overall official capital adequacy ratio of commercial banks declined from about 12% at end-1997 to 7% at in March 1999 – below the required 10%. Minimum reserve requirements were missed by growing margins. In early 1999 three major banks, accounting for almost 60% of the sector's assets, became technically insolvent or found themselves at the brink of insolvency. According to a World Bank mission in April 1999, the Belarussian banking system was judged to be extremely fragile and at the risk of systemic disruption. In the following months, the NBB started implementing recapitalization plans (including debt-equity swaps) for some of the biggest officially insolvent banks. Until January 2000, the total number of commercial banks fell to 30. Given that the basic direction of policies has not been adjusted, the recapitalization measures will in all likelihood only provide a temporary respite preceding the next crisis.

Foreign capital plays a marginal role in the Belarussian banking system. While some Western banks hold representative offices in Minsk, none have established operative branches. In 1998 one Russian bank had a branch in the republic, and there were eight joint venture banks with foreign equity participation. All of these were small institutions.

1 *Private holdings of foreign exchange in Belarus have been estimated to come to around USD 3 billion. – Domenico Mario Nuti (1999), p. 8.*

2 *IMF (Belarus, 1999), p. 16.*

## 5 The Kazakhstani Banking System

### 5.1 Serious Reform Efforts

Although Kazakhstan may have been regarded as one of the more backward republics of the Union in Soviet times, a few years after independence its monetary authorities embarked on a substantial drive to reform its banking system that seems to have borne fruit recently. This effort was carried out despite the fact that the country, occupying a vast territory and straddling a wealth of mineral resources, could have chosen to adopt a slower pace of reform, as Russia obviously did. It may be due to the degree of its restructuring that the Kazakhstani banking sector has (hitherto) weathered the effects of the Russian financial crisis without suffering a serious fallout. On the other hand, the speed of banking reforms was not matched by changes in other areas, in particular enterprise privatization and restructuring, thereby creating strains and difficulties for the activities of financial institutions.

Table 4

<b>Kazakhstan: Some Macroeconomic and Banking Data</b>					
	1992	1994	1996	1998	1999
Inflation rate (CPI, Dec. to Dec., %)	2,984	1,160	28.6	1.9	17.8
Total number of banks (year-end)	155	184	101	71	55
of which: foreign-owned	1	8	9	22	..
Credit to the private sector (% of GDP)	..	26.6	6.3	6.5	..

Source: National Bank of Kazakhstan, EBRD Transition Report 1999.

### 5.2 The Early Years of Transition

The basis of the independent Kazakhstani banking system was laid in Soviet times. Legislation enacted in December 1990 turned the Alma-Ata (Almaty) branch of former Gosbank into the National Bank of Kazakhstan (NBK), which was formally independent, yet at the same time accountable to the president and parliament of the republic. The former specialized banks became Narodnyi Bank or Halyk Bank (former Sberbank, responsible for housing deposits), Turanbank (former Promstroibank, industry), Agroprombank (agriculture), Kredsotsbank (former Zhilsotsbank, residential construction and services), Kazvneshekonombank, later renamed Alembank (former Vneshekonombank, foreign trade). Although their sectoral specializations were abolished in 1991, they continued for some years to concentrate on their traditional areas; Narodnyi/Halyk Bank maintained its quasi-monopoly on household deposits. The possibility of establishing private and cooperative banks, already provided for in the (all Union) Soviet law of 1989, was confirmed. The Soviet (Russian) ruble remained legal tender in Kazakhstan during the first years of independence.

Like in other former Soviet republics, lax or nonexistent banking supervision coupled with possibilities for quick or easy profits connected to skyrocketing inflation and devaluation (price increases almost reached 3,000% in 1992 and came to 1,160% in 1994) caused the number of banks to multiply from 32 at end-1990 to 210 at end-1993 in Kazakhstan. Most of the financing came from the NBK, which in its turn was supplied with currency by the Central Bank of Russia (CBR). While NBK financing was extended in

the form of directed credits or refinancing, in 1992/93 about 80% of the assets and three quarters of the loans to the economy were accounted for by the five former specialized banks. Most new credit institutions were relatively small and created by enterprises primarily as a source of preferential loans. A large portion of their credits reflected insider lending to owners. Others seemed to be no more than “kiosks,” purchasing and selling foreign exchange and securities. After Russia terminated the ruble zone in mid-1993, Kazakhstan, which had long been a supporter of monetary union with its northern neighbor, was compelled to introduce its own national currency, the tenge, in the fall of 1993.

### 5.3 Since 1994: Substantial Restructuring

After the introduction of the tenge, the NBK tightened monetary policy step by step. Directed credits were curtailed and officially discontinued in 1995, refinancing was scaled back, interest rates were raised. Many debtors became illiquid or insolvent and a large number of loans nonperforming. Annual inflation was reduced to 60% in 1995 and further to 1.9% in 1998. The exchange rate stabilized. A new environment started to emerge for banks, featuring monetary restraint and stabilization, deteriorating loan portfolios, public distrust in banks due to hyperinflationary losses by depositors and growing liquidity bottlenecks. This was complemented by a tightening of licensing requirements and prudential regulations. Banks had to look for new sources of funds and revenue. At least three new sources emerged: First, an interbank market sprung up in 1995 and featured mainly Narodnyi/Halyk Bank granting short-term loans. Second, in 1994 the finance ministry introduced Treasury bills, which, however, gained quantitative significance only in 1995 and 1996. Third, after the liberalization of foreign trade transactions in the mid-1990s, trade finance became quite attractive. But these factors did not fully compensate for the increased pressure on banks.

In 1995, new Laws on the National Bank of Kazakhstan and on Banks and Banking Activities were passed. The independence of the NBK was upheld, but it was made accountable solely to the president. Although directed credits were abolished, the extension of “centralized” refinancing credits of the NBK may for some time have softened the impact of this measure. Minimum capital limits were gradually increased and banking supervision was strengthened. The pertinent powers of the NBK were reinforced by presidential decrees in 1995 and 1996. A bankruptcy law, establishing creditor rights and defining reorganization and liquidation procedures, was adopted in early 1997.<sup>1)</sup> The IMF and the World Bank strongly supported these reform steps.<sup>2)</sup> As a result of the changed environment and toughened stance of the monetary authorities, numerous banks lost their licenses, closed or merged. The consolidation process was reflected in the decline of the total number of banks to 184 at end-1994, 101 at end-1996 and 71 in December

1 David Hoelscher (1998), p. 15.

2 On the other hand, the Kazakhstani practice of frequently updating and revising laws, decrees and regulations has created costs of keeping up to changing requirements and has given rise to uncertainty.

1998, as indicated in table 4. The privatization of most banks took place indirectly via privatization of the state enterprises that had founded and owned them. Nevertheless, the authorities did intervene in the privatization of some large credit institutions, in particular the former specialized state-owned banks.

Unlike central banks in the other three discussed CIS countries, the NBK and the authorities have been much more actively involved in commercial bank restructuring. Subsequent adjustments have over the years contributed to strongly modifying the banking landscape in Kazakhstan. Narodnyi/Halyk Bank (State Savings Bank), which has been able to keep the lion's share of housing deposits, has benefited from a strong management team put in place in mid-1994 after an earlier period of operational difficulties. The management cut costs and rationalized the bank's activities. A portion of bad loans, including some former directed credits with state guarantees, were shifted from a number of banks to two newly created debt resolution institutions: the (state-owned) Rehabilitation Bank and the Agricultural Support Fund, supplied with financial means from the budget.

Thus, in 1995 shares of nonperforming loans of Turanbank and Agroprombank were transferred to the respective funds. Alembank, having acquired a large portfolio of foreign exchange-denominated loans in the early years of transition, experienced financial problems. The government split off a part of this bank in 1994 to form the Kazakhstan Export-Import Bank (KazEximbank), responsible for financing and guaranteeing export credits as well as for servicing the country's international liabilities. Despite further interventions of the authorities, emergency injections of funds by the NBK, a temporary suspension of activity and a turnover of management, Alembank continued to face difficulties in the following years. Problems also reemerged in Turanbank in 1996. The bank was put into conservatorship and its branch network rationalized.

In January 1997, the NBK came to the conclusion that the problems of Alembank and Turanbank could be best addressed by merging the two institutions, recapitalizing the new bank and privatizing it. Accordingly, the same month Turan-Alem Bank was put up. The NBK rescheduled its own loans to the newly emerged institution and injected a total of USD 90 million. The new bank inherited the combined problems of the two old banks. An extensive restructuring plan was carried out, including the closure of unprofitable branches. In 1998 Turan-Alem Bank was sold to local Kazakhstani investors. The abovementioned debt resolution institutions have attempted to force debtors of banks to restructure, instead of forgiving liabilities. The Rehabilitation Bank took equity stakes in debtor enterprises<sup>1</sup>) and financed downsizing activities. However, its capacities were overburdened by the number of firms waiting for treatment, and restructuring activities have not advanced very far. Although the Agricultural Support Fund asked debtor farms to submit restructuring plans, respective credits ended up being indiscriminately rescheduled. Overall, until the beginning of 1997 debt resolution institutions took over the responsibility for loans totaling 11% of GDP.<sup>2</sup>)

1 Many of these debtors were large mining and metallurgical enterprises located in company towns.

2 IMF (Kazakhstan, 1997), Appendix I, p. 65.

#### 5.4 The Changing Kazakhstani Banking Sector:

##### Progress and Continuing Problems

As a result of the abovementioned consolidation process, a small number of private credit institutions not belonging to the former specialized banks expanded quickly and gained prominence. Among the most dynamic have been Kazkommertsbank, which in terms of assets has become the largest bank of the country and the largest private bank in Central Asia, further: Kramdsbank, Temirbank and TsentrKredit Bank. Many clients of these institutions are in the lucrative mineral resources or trade business. These banks have partly overcome credit risks, while they have, at the same time, segmented credit markets by nurturing networks of trustworthy enterprises. Clients and owners have been connected in a legal and informal relational web, which is typical for this setting.<sup>1)</sup> Among the owners of Kazkommertsbank are the largest private trade organizations of Kazakhstan; Kazkommertsbank has become the second savings bank of the country after Halyk Bank.

Kramdsbank became the fourth-largest bank of the country in the mid-1990s. It appeared quite trustworthy; even Western embassies had placed their accounts with this bank. In 1996, however, it faced a series of liquidity crises, in the course of which the NBK twice offered lender-of-last-resort assistance (on the whole USD 20 million) and required that the bank undertake restructuring measures. Yet the bank management seems to have persevered in the dubious practice of extending credits to its own employees and investing in bank buildings. When liquidity problems resurfaced, Kramdsbank tried to get a credit from Halyk Bank. In October 1996, the monetary authorities refused further support, the bank's license was repealed and the bank was closed. As the assets of the bank were liquidated, all household depositors were fully reimbursed. Other creditors faced some losses. This collapse temporarily shook public confidence in the banking system and almost caused a run on some banks. On the other hand, the tough stance of the NBK probably sent a clear signal that even big banks could no longer automatically expect bailouts. This improved market-oriented incentives for banks' managements.

In 1997 the monetary authorities introduced enhanced prudential requirements (capital adequacy, liquidity, single borrower and related parties exposure, open foreign exchange limits), including a phased program aimed at bringing all commercial banks into compliance with the tougher standards by end-year 2000. These tougher standards are in some respects (e.g. capital adequacy) consistent with best international practice. A number of banks did not reach goals set for end-1998, and about half of all credit institutions were not in compliance with requirements. On the other hand, most large banks were reported to be generally in compliance with prudential standards. Weaknesses included unsatisfactory implementation of new accounting standards, continued underprovisioning for loans, and inefficient operations resulting from high operating expenses.

1 Jan Amrit Poser (1997), p. 137.

After considerable changes over the years, the group of biggest banks (in terms of assets and capital) in Kazakhstan at the end of 1998 reflected a much more varied picture than what could be observed in the first years of the decade. The former specialized banks were still well represented among the largest credit institutions. But after privatization, the share of state-owned banks (essentially Halyk Bank and KazEximbank) fell to about a quarter of total banking assets. And newly founded private banks and foreign banks grew more prominent. Kazkommertsbank became the leading bank in the country with respect to assets as well as share capital. Banks with foreign participation feature among the first five (ABN-Amro) and the first ten banks (Almaty Merchant Bank) of the country. On the whole, the concentration of the banking system has declined, but has still remained relatively high: The five largest banks (Kazkommerts, Halyk, Turan-Alem, ABN-Amro, KazExim) still accounted for about two thirds of total banking assets (see table 5). As of the beginning of 1999, four domestic banks, two of which were new private ones, received credit ratings from international rating agencies.<sup>1)</sup>

At the beginning of transition a regulation was issued limiting the share of foreign capital in the total aggregate capital of the Kazakhstani banking sector to 25%. Whereas in 1993 there were only two foreign credit institutions in Kazakhstan, the number of partly or fully foreign-owned banks grew to 22 (out of a total of 71) at end-1998. Foreign banks have acquired the reputation of being the “best” and “most aggressive” banks in the country. They no doubt invigorate competition in the sector. Apart from the abovementioned two leading Dutch joint venture banks, Turkish, Chinese, U.S., French and Russian banks have also been active. In 1998 the 25% foreign capital limit was raised to 50%.

### 5.5 The Most Recent Developments

The Russian financial crisis of 1998 has not had a strong effect on the Kazakhstani banking system. Kazakhstani enterprises' competitiveness was adversely affected by the devaluation of the Russian ruble in the fall of 1998, but banks' credit portfolios did not suffer a substantial impact. The crisis reduced foreigners' appetite for Kazakhstani Treasury bills, but the market has a relatively modest size, and the Kazakhstani banking sector has been less dependent on such investments than e.g. Russian or Ukrainian banks. In 1998 foreign currency loans were in great demand in Kazakhstan, because the tenge did not depreciate much against the U.S. dollar throughout the year, but interest rates on foreign currency-denominated credits were much lower than on tenge credits. By the end of the first quarter of 1999, about half of all loans extended by Kazakhstani banks were denominated in foreign currency.

When the tenge substantially depreciated in April 1999, the banking sector immediately enjoyed sizeable currency revaluation gains. On the other hand, many borrowers that had not hedged or managed their foreign currency exposure were caught off guard. This triggered rising default risks,

1 National Bank of Kazakhstan (1999), p. 26.

which have further weakened already poor quality loan portfolios. The asset quality problems have been most serious for smaller banks. This may have contributed to the continued decline of the total number of banks to 54 at the beginning of 2000. In order to attract more savings into the financial sector, the NBK in November 1999 initiated the creation of a deposit insurance fund for time deposits of individuals in a number of large banks. In December 1999 a consortium of Kazakhstani financial companies bought about one fifth of Halyk Bank. At the beginning of 2000, foreigners' share in total aggregate banking capital amounted to 25.5%.

Despite all progress, banking business in Kazakhstan continues to be hampered by sluggish enterprise restructuring and privatization and insufficient creditor rights. Banking reforms have clearly outstripped enterprise reforms.<sup>1)</sup> In this sense it is evident that a weak investment climate stifles efficient financial intermediation and thus impedes the further development of banking, which, on the other hand, depresses investment in the real sector.

Table 5

**The Banking Sectors of Russia, Ukraine, Belarus and Kazakhstan:**
**Some Structural Comparative Data and Facts**

	Russia	Ukraine	Belarus	Kazakhstan
Aggregate banking assets/GDP (%)	23.5 (Dec./31/98)	17.8 (Jul./1/98)	27.4 (Dec./31/98)	9.0 (Dec./31/98)
Biggest five banks in terms of assets	Sber, Vneshtorg, Gazprom, SBS-Agro, Mezhprom (July/1/99)	Prominvest, Ukraina, Privat, Ukrsots, Oshchadnyi (July/1/98)	Belarus, Belpromstroj, Belvneshekonom, Belagroprom, Prior (May/1/99)	Kazkommerts, Halyk, Turan-Alem, ABN-Amro, KazExim (April/1/99)
Share of biggest five banks in total assets (%)	41.8	46.8	77.6	65.0
Number of new private <sup>1)</sup> (of which foreign) banks among the biggest five	2 (-)	1 (-)	1 <sup>2)</sup> (-)	3 (1)
Bad credits/total credits (%)	11.3 (Dec./31/98)	25 (1998)	16.5 (1998)	7.3 (1998)
Share of foreign capital in total aggregate capital of the banking sector (%)	10.7 (March/00)	12 (Q1/98)	..	25.5 (Q1/00)
Bank restructuring institutions (apart from central bank; time of establishment)	ARKO (Agency for the Restructuring of Credit Organizations; Dec./98–June/99)	–	–	Rehabilitation Bank (April/95), Agricultural Support Fund (1995)
Major bank privatization methods	MEBOs <sup>3)</sup> , voucher privatization of SOEs <sup>4)</sup> owning the banks	Distribution/transfer of shares to employees of the banks and of SOEs owning the latter	Some MEBOs; but in recent years partial renationalizations	Mostly MEBOs of SOEs owning the banks; direct sales of some large banks to outside investors

Sources: Central Bank of Russia, National Bank of Ukraine, National Bank of Belarus, National Bank of Kazakhstan, IMF, EBRD.

<sup>1)</sup> New private banks = non-former state-owned banks.

<sup>2)</sup> Priorbank: at least 48% state-owned.

<sup>3)</sup> MEBO = management and employee buyout.

<sup>4)</sup> SOE = state-owned enterprise.

1 For instance, in mid-1999, 330 fully state-owned large enterprises accounted for about a third of GDP, according to the World Bank. – EBRD (1999), p. 230.

At end-1998 the volumes of bank deposits as well as credits have not, respectively, surpassed levels of about 5% to 10% of GDP in Kazakhstan (which is far below comparable ratios in Central Europe or the Baltics).<sup>1)</sup>

## 6 Conclusions

Comparing the four countries discussed above, there are a number of common points and differences. The countries exhibit the following common points: They all suffered from particularly difficult initial conditions. Authorities followed more or less parallel policies in the first years of transition (price liberalization, loose monetary policies, weak banking regulations, lax enforcement). At least with respect to price and monetary policies, this parallelism was initially conditioned by the fact that all republics continued to be members of the ruble zone for some time (Ukraine and Belarus until 1992, Kazakhstan until 1993). In 1994/95 monetary policies and banking supervision were tightened in all four countries, and the enforcement of banking regulations was stepped up. Private sectors appeared to react similarly to evolving situations, and the sources of earnings that showed up were largely the same. Thus, the number of banks initially multiplied, but things later calmed down. Speculative gains stemming from monetary instability subsided and were followed by the expansion of the interbank market, the Treasury bill and securities market, but in some instances reappeared later. This has been accompanied by durable effects of trade and foreign exchange liberalization and sometimes re-regulation.

While parallel developments continued in many respects, in the second half of the 1990s various factors acquired a different importance from country to country. This seems to have been largely determined by deviating (reform) policies: Russia and Ukraine continued to, in effect, muddle through, which on the whole yielded disappointing results. Despite recurring dynamic changes in the Russian banking sector over the entire decade, the situation evolved in an unsustainable way and since the financial crisis of August 1998 has remained more or less in limbo. Although Ukraine could avoid succumbing to financial contagion from Russia, its banking system is less developed and subject to stronger state influence. Belarus after 1995 opted for a return to a kind of administrative command system, using the banking sector as the preferred tool to execute orders from above and thus depriving it of any meaningful role of its own. In contrast, Kazakhstan brought serious reform efforts to bear, including active restructuring and privatization measures with respect to larger banks. Thus, Kazakhstani credit institutions have probably best weathered the effects of the Russian crisis.

Admittedly, all four banking systems have remained in a (more or less) difficult state. Until today, none of them has sufficiently fulfilled their basic function in a market economy yet, namely efficient financial intermediation between savers and the real sector. Still, the Kazakhstani experience shows that substantial reform efforts can make a difference, although they have to be sustained and carried on. Among the major challenges currently faced by the four above-discussed countries is the need to:

1 Colin Jones (1999), p. 49–50.

- Establish and consolidate the rule of law, in particular in the area of bankruptcy law and creditors' rights; if necessary, simplify, but most importantly, enforce and apply laws. Thus the countries would create functioning institutions, e.g. courts. The rule of law would i.a. enable the stepping up of restructuring by accelerating withdrawals of licenses of unviable banks. This goes for all four countries, especially for Russia and Ukraine.
- Curtail direct state intervention in the banking sector and the economy, in particular discontinue explicit or informal directed credits. This goes first and foremost for Belarus, but also for Ukraine, and to a lesser degree for the other two countries.
- Remove regulatory or legal obstacles to the entry of foreign banks, also with respect to the takeover of domestic credit institutions. Among the four countries discussed, Kazakhstan is the one that has welcomed the entry of foreign capital into the banking sector most and that appears to have reaped clear benefits in terms of increased competition and know-how. Among all transition countries, Hungary may be the most impressive example of what the attraction of foreign capital can do to strengthen a banking sector.
- Observe the complementarity and interdependence of reforms, i.e. ensure that other structural reforms, especially enterprise restructuring, are carried out in tune with bank restructuring, since they are connected.
- Enhance central bank independence (*vis-à-vis* the government and special interest groups) in general, and with respect to central banks as banking supervisory institutions in particular. In the case of Belarus, reestablish central bank independence.

Hopefully, the popularity of the newly elected Russian president Vladimir Putin and his good relations with the State Duma and other institutions will inspire new resolve to tackle the long-standing problems of the Russian banking sector. The current economic recovery and growth in Russia certainly offer a window of opportunity for a serious drive to invigorate reforms. A relaunching of reforms in Russia, if sustained, would serve as a positive example for Ukraine, Belarus and some other CIS members. A country like Estonia, whose authorities' strong efforts have set the stage for a virtually complete market-oriented renewal of the country's banking sector in the last ten years, has already presented an impressive example of its own. Estonia had shared Soviet rule with Russia, Ukraine, Belarus and Kazakhstan for almost half a century, and its banking system in 1990 had not been substantially different from that of these four countries.

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## Bibliography

- Arnold, James.** 1999. The kings are dead – A new breed of private bank is emerging in Russia. It's just as venal as the old. In: *Business Central Europe* (March): 29–30.
- Astrov, Vassily, Helen Boss and Peter Havlik.** 2000. Russia, Ukraine, CIS at the beginning of the year 2000: Hybrid economies benefit from devaluation. In: *WIIW Current Analyses and Country Profiles*, no. 14 (March).
- The Banker.** 2000. Bank Leads Economic Evolution – Kazakhstan's National Bank Is Increasing Outside Interest in the Region's Economy (sponsored statement). (March).
- Barisitz, Stephan.** 1999. Ukraine: Macroeconomic Development and Economic Policy in the First Eight Years of Independence. In: *Focus on Transition*, no. 2 (Oesterreichische Nationalbank): 77–79.
- Beyreuther, Ursula and Juergen Conrad.** 1997. Kasachstan – Sonderbericht. In: *Deutsche Bank Research – Emerging Markets* (November 27).
- Central Bank of Russia.** 1994. Annual Report 1993. Moscow.  
– 1999. Annual Report 1998. Moscow. Central Bank of Russia website. (<http://www.cbr.ru/>).
- Chazan, Guy.** 2000. Russia's Central Bank Removes Banks' Foreign Capital Limit – Repeal Aims to Lure Western Institutions. In: *Wall Street Journal* (April 5).
- Dabrowski, M. (ed.), M. Dekhtiarchuk, U. Gorski, P. Kovalev, Y. Kuzmin and K. Sultan.** 1999. Ukraine: From Fragile Stabilization to Financial Crisis. In: *Studia i Analizy – Centrum Analiz Społeczno-Ekonomicznych (Studies & Analyses – Center for Social and Economic Research)*, no. 158. Warsaw: 27–36.
- Dean, James W. and Irina Ivashchenko.** 1998. Ukrainian Banking: An Agenda for Reform, with Comparisons to Other Transition Economies. In: *Ukrainian Economic Review*, vol. 3, 1997–1998: 123–154.
- Deutsches Institut für Wirtschaftsforschung Berlin, Institut für Weltwirtschaft an der Universität Kiel.** 2000. Russlands Wirtschaftspolitik setzt auf Investitionen. In: *DIW-Wochenbericht*, no. 15 (April 13).
- Deutsches Institut für Wirtschaftsforschung Berlin, Institut für Weltwirtschaft an der Universität Kiel, Institut für Wirtschaftsforschung Halle.** 1999. Die wirtschaftliche Lage Russlands: Wachstumsperspektive fehlt weiterhin – Schuldenerlass keine Lösung. In: *DIW-Wochenbericht*, no. 49 (December 9).  
– 1999. Die wirtschaftliche Lage der Republik Belarus – Sonderweg wird immer mehr zum Leidensweg. In: *Kieler Diskussionsbeiträge*, no. 354 (December).
- Dmitriev, Mikhail and Sergei Surkov.** 1999. Dokhodnyi paternalizm – Glavnym partnerom otechestvennykh bankov ostaetsya gosudarstvo. In: *Ekspert*, no. 34 (September 13): 47–50.
- EBRD.** 1999. Transition Report 1999. London.
- Eggenberger, Knut.** 2000. Russian banks: No light at the end of the tunnel. In: *Bank of Finland Institute for Economies in Transition: Russian Economy – The Month in Review* (February 3): 4.
- Euromoney.** 1999. The newly wed and the nearly dead. (June): 254–263.
- Government of the Russian Federation and Central Bank of Russia.** 1999. Statement on Economic Policies. (July 13). IMF website: [www.imf.org/external/ng/lai/1999/07/1399.htm](http://www.imf.org/external/ng/lai/1999/07/1399.htm).
- Heinrich, Andreas.** 1999. Die wirtschaftliche Entwicklung Kasachstans 1992–98. In: *Ost-europa – Wirtschaft*, no. 3 (September): 257–275.
- Hoelscher, David.** 1998. Banking System Restructuring in Kazakhstan. IMF Working Paper, no. 96 (June).
- IMF.** 1993. Kazakhstan. In: *IMF Economic Reviews*, no. 5 (June).  
– 1996. Republic of Belarus – Recent Economic Developments (SM/96/168, July 9).

- 1999. Republic of Belarus – Recent Economic Developments (SM/99/171, July 13).
  - 1997. Republic of Kazakhstan – Recent Economic Developments (SM/97/142, June 6).
  - 1999. Russian Federation – Recent Economic Developments (SM/99/178, July 14).
  - 1999. Ukraine – Recent Economic Developments (SM/99/77, March 16).
- IMF, World Bank, OECD and EBRD.** 1991. *A Study of the Soviet Economy*, vol. 1. Paris (1991).
- Jones, Colin.** 1999. Kazakhstan – Austerity Rules. In: *The Banker* (February): 48–50.
- Kern, Holger.** 1997. Bankensysteme Osteuropas (8): Das weissrussische Bankwesen. In: *Die Bank*, no. 1: 46–49.
- Kyreyev, Oleksandr and Yuri Herasymenko.** 1998. Ukraine's Commercial Banking System: Six-Month Results. In: *Herald of the National Bank of Ukraine* (August): 17–23.
- Lallemand, Jean-Charles.** 1999. Biélorussie 1998-99: La désarticulation d'un modèle. In: *Le courrier des pays de l'Est*, no. 439 (April-May): 26–33.
- Laurila, Juhani.** 1996. Russian Banking Legislation and Supervision. In: Rautava, Jouko (ed.). 1996. *Russia's Financial Markets and the Banking Sector in Transition*. Bank of Finland Studies, Helsinki: 83–118.
- Luhovyk, V. and S. Korchak.** 1998. Banks Shrugging off Weight of Bad Loans. In: *Kyiv Post* (January 20): 16.
- National Bank of Kazakhstan.** 1999. Annual Report 1998. Almaty. National Bank of Kazakhstan website. (<http://www.nationalbank.kz/>).
- National Bank of Ukraine.** 1996. Annual Report 1995. Kyiv.
- 1997. Annual Report 1996. Kyiv. National Bank of Ukraine website. (<http://www.bank.gov.ua/>).
- Nuti, Domenico Mario.** 1999. Belarus: A Command Economy without Central Planning. Paper presented at the Fifth Dubrovnik Conference on Transition Economies: Ten Years of Transition: What Have We Learned and What Lies Ahead? (June).
- OECD.** 1997. *Economic Survey: Russian Federation*. Paris (December).
- 2000. *Economic Survey: Russian Federation*. Paris (March).
- Pleines, Heiko.** 1998. Korruption und Kriminalität im russischen Bankensektor. In: *Berichte des Bundesinstituts für ostwissenschaftliche und internationale Studien*, no. 28.
- Poser, Jan Amrit.** 1997. Die Transformation des Finanzsektors in Kasachstan – Reformkonzepte und Entwicklungen. In: *Osteuropa – Wirtschaft*, no. 2: 114–147.
- Sapir, Jacques.** 1999. Chevauchant le tempête ... L'économie russe de la crise financière d'août 1998 à la fin de l'été 1999 (mimeo, September).
- Statement of the Government of the Russian Federation and Central Bank of Russia on Economic Policies (July 13, 1999) (on IMF website: [www.imf.org/external/np/loi/1999/071399.htm](http://www.imf.org/external/np/loi/1999/071399.htm)).
- TACIS.** 2000. Belarus Economic Trends. Quarterly Issue January-March (<http://www.bettacis-minsk.by/q499/entry.htm>).
- 2000. Kazakhstan Economic Trends. (<http://www.diw.de/InternationalProjects/kaet/>).
  - 2000. Russian Economic Trends (<http://www.hhs.se/site/ret/ret.htm>).
  - 2000. Ukrainian Economic Trends. (<http://www.ueplac.lu>).
- Vostrikov, Pyotr.** 1999. Die Finanzmärkte und das Bankensystem Russlands im Jahre 1999. In: *Bundesinstitut für ostwissenschaftliche und internationale Studien – Aktuelle Analysen*, no. 3 (January 15).
- Walter, Gilles.** 1999. Le secteur bancaire russe: avant et après la crise. In: *Le courrier des pays de l'Est*, no. 437 (February): 3–18.

# The Effects of the EU's Eastern European Enlargement on Austria – Austria's Specific Position

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## 1 Introduction

Austria, a relatively small and open economy, feels the effects of regional integration more than the majority of other countries. Furthermore, Austria is currently facing the overlapping effects of several integration steps: the consequences of the opening up of Eastern Europe, of Austria's own accession to the European Union, of GATT liberalization and finally of other forms of globalization. The coming Eastern enlargement of the European Union is thus but one further step in this process. Nonetheless, it ranks prominently in the economic and political discussion in Austria. And indeed, after accession to the EU and the adoption of the common currency, this issue is likely to be among the most important (institutional) determinants of Austria's economic development in the next decades.

This contribution provides a survey of the current stage of discussion in applied economics of the effects of the EU's Eastern enlargement on Austria. Notwithstanding many differences in methods and results, there is general agreement that the effects of this Eastern enlargement upon Austria would be largely positive in the long run, both according to economic theory and to applied analyses. The integration of the CEECs into the EU will allow resources to be allocated more efficiently both in Austria and in the CEECs. However, the reallocation of resources may cause short-term adjustment costs.

Trade liberalization between incumbent and new members is generally expected to be the most important channel of integration effects. The possible volume and the possible effects of migration (both on the CEECs and Austria) are hard to predict precisely. What is certain, though, is that foreign direct investment will contribute significantly to the catching up of the CEECs. Austria has a specific position in the process of Eastern enlargement of the EU. On the one hand, Austria can gain more than the other EU countries in the long run. On the other hand, adjustment costs, which are directly associated with integration gains, may also be higher in Austria than in other countries in the short run.

The following section of this article deals with the implication of economic theories of regional integration. Section 3 lists the available estimates of the overall effects the EU's Eastern enlargement will have on the CEECs and the Union as a whole. Section 4 describes the overall effects upon Austria. Section 5 reviews the issues of migration and of the effects of EU enlargement upon the various Austrian regions. Some conclusions are drawn in the final section.

## 2 Survey of Integration Effects

### 2.1 Theory of Regional Integration

Beside the issue of adjustment costs, we can relate the gains from the reduction of trade costs to lost tariff revenues or long-run growth gains to consumption reduction at the early stage of the integration process. Similarly, the welfare implications of increased competition could be outweighed by

<sup>1</sup> The authors gratefully acknowledge valuable comments by Wilfried Altzinger, Doris Ritzberger-Grünwald, Peter Backé, Franz Schardax and Cezary Wójcik.

a possible waste of resources if newly entering firms have to make significant fixed cost investments. Despite this trade-off, there is nearly a uniform view that trade liberalization and the creation of free trade areas have largely positive welfare effects.

The current development of integration theory distinguishes between the *static effects* (also called *allocation effects*) and the *dynamic effects* of integration (see Baldwin, 1993; and Baldwin and Venables, 1995). The former are defined as effects which lead to more output from the same amount of broadly defined inputs. Dynamic effects are defined as those that influence the accumulation of broadly defined production factors.

### 2.1.1 Static Effects of Integration

The analysis of the static effects of integration concentrates on the trade creation and trade diversion effects of a customs union, which were originally introduced by Viner (1950). *Trade creation* refers to the replacement of domestic products by imports at lower import prices after the reduction (the abolishment) of tariffs in a customs union. Where trade creation forces countries to allocate resources more efficiently, according to their comparative advantage, it is welfare increasing. *Trade diversion* occurs when discriminatory tariff liberalization leads to the replacement of imports from a third country not participating in a customs union by purchases from less efficient producers within the customs union, whose products are less expensive after the reduction by tariffs than those of the most efficient producers outside the customs union. Therefore, the loss of tariff revenues leads to welfare losses if the trade diversion effect exceeds the trade creation effect.

The trade-off between trade creation and trade diversion has attracted a lot of attention in economic research and applied analysis on regional integration. This discussion (see for example Gandolfo, 1987) has concluded that the trade creation effect is likely to be high if the countries are important trading partners already before a customs union is formed. Such groups of countries are often called “natural” trading partners. In turn, trade diversion might be significant if some countries of a regional group are not included in a newly formed or enlarged customs union.

However, current research stresses that this approach is no longer fully appropriate for the current analysis of European integration. Breuss (1999) points out that European integration (including the Eastern enlargement of the EU) concentrates on the reduction of nontariff barriers. Nontariff barriers only waste available resources. Therefore, the reduction of those trade barriers is welfare increasing in any case. Kohler (1999) adds the point that tariff revenues are part of the EU's budget. Thus, the reduction of tariff revenues will not necessarily cause negative welfare effects in national states.

Nevertheless, the traditional issues of trade creation and trade diversion may be used to explain the pattern of the EU's Eastern enlargement. Despite the recent decision of the European Commission to start membership negotiations with all associated countries, Eastern enlargement is likely to occur in “waves” of enlargement. The Central and Eastern European countries located along the frontier of the EU-15 are generally expected to participate

in the first wave of the enlargement, while more distant countries will most likely follow in later waves. From the point of view of trade creation and trade diversion effects, it would be preferable if the waves of enlargement corresponded to the geographical regions in Central and Eastern Europe; otherwise, the accession of only a few CEECs could have adverse effects on the so-called left-outs.<sup>1)</sup>

Under the small open economy assumption, the formation of a free trade area does not change supply prices. Then, static effects of integration consist only of trade creation and trade diversion effects. In turn, the increased demand for products within the customs union following tariff reduction could increase producer prices (*terms-of-trade effect*). These adverse price changes could be strengthened by the reductions of export subsidies. Kohler (1999) argues that Austria is likely to face terms-of-trade deterioration because possible demand effects in the EU are larger than those in the CEECs.

### 2.1.2 Dynamic Effects of Integration

The new trade theory concentrates on the dynamic effects of regional integration. Increasing returns to scale enable a reduction of average costs through increased sales to integrated markets (*scale effect*). The consumers also gain from the larger number of product varieties in enlarged markets (*variety effect*). Smith and Venables (1988) show that the reduction of trade barriers is likely to result in more competitive pricing under imperfect competition (*full market integration*).

Last but not least, regional integration affects factor prices, including the rate of return on capital. This should lead to increased investment and inflows of foreign direct investment (*accumulation effect*). In the case of constant returns to scale and the capital elasticity of the production function of one third as estimated for a broader set of countries, the total effects (including the capital accumulation effect) could be higher by a factor of 1.4 as estimated by Baldwin (1993). This factor is even higher for increasing returns to scale.

Baldwin (1993) shows that Spain experienced increased investment after its accession to the European Community. By contrast, EFTA countries suffered under the outflow of capital in the late 1980s when the EC became more integrated than EFTA. Fidrmuc and Pichelmann (1999) find increased inflows of foreign direct investment to Austria after accession to the EU in 1995. Some Central European countries are currently also experiencing a huge inflow of foreign direct investment (see Fidrmuc and Schardax, 1999).

The disparity in the economic size between the EU and the acceding countries is expected to result in a similar disparity of effects on both regions. On the one hand, CEECs are likely to gain more from East-West integration than the EU because the single market of the EU is larger than that of the individual CEECs. This causes a higher trade creation effect for

<sup>1</sup> See Fidrmuc (1999) for an analysis of the exclusion of Slovakia from the first wave of Eastern enlargement of the EU.

CEECs than for their EU counterparts. More importantly, CEECs can also gain more through the dynamic effects (through access to new technologies, inflows of capital from other regions and the like). On the other hand, the CEECs will also face high adjustment costs, including those involved in the adoption of the body of EU laws, the *acquis communautaire*. By contrast to the CEECs, the EU could mainly gain from increased competition from the less expensive producers in CEECs.

However, the integration effects could be more important for Austria than for the other EU countries. First, Austria has the most intense trade relations with the first-wave CEECs within the EU. Therefore, trade creation effects may play a more important role for Austria's economy, which is also relatively more open than other EU countries. Second, the enlargement of the EU's market provides more opportunities to Austria, which is located directly at the EU's border with the CEECs. Austria is also likely to experience a surge of foreign direct investment oriented to the CEECs. After the Eastern enlargement of the EU, Austria stands to benefit more from its central location in Central Europe, while it currently suffers from its peripheral location within the EU.

The progress in theoretical research on economic integration has increased the expectations placed on the applied analyses. However, many effects cannot be estimated on the basis of the available data. Therefore, the application of a computable general equilibrium model (CGEM) dominates the recent discussion of integration effects. Alternatively, the aggregate effects of integration on basic macroeconomic variables are estimated by a macroeconomic model (MEM), which is obviously constructed for forecasting purposes. The major drawback of both approaches is that they apply the structure of an economy as estimated or calibrated for past periods to the future. This critique is especially important for assessments of policy actions that fundamentally change the structure of the economy.

Both methods have several advantages and disadvantages. The computable general equilibrium models provide a theoretically consistent analysis of integration effects in the long run. However, many parameters have to be inserted into the model without any sound (country-specific) econometric estimations. The results of a CGEM cannot be directly compared to macroeconomic data (welfare implications versus GDP deviations). Usually, only long-run comparisons of steady states corresponding to different scenarios are available with no or only little, and not very reliable, information about short-term developments.

By contrast, MEMs usually provide a sound forecast of integration effects in the medium run. As far as these models are obviously used for medium-term forecasts, an alternative scenario is available already prior to the simulations. These models also show short-term developments. Most importantly, we can test which effects are statistically significant by applying econometric methods. Finally, macroeconomic models may be constructed in such a way that they incorporate many aspects of microeconomic theory (forward-looking expectations, etc.). As a matter of fact, many authors try to find a compromise between both methods. For example, Allen, Gasiorek and Smith (1998) estimate the competition effects of the EC-12's industry. Then

they use these parameters in a CGEM to show the total impact of the single market in the long run.

## 2.2 Budgetary and Adjustment Costs

From the perspective of economic theory, the effects of regional integration are ambiguous. The positive trade creation, accumulation and competition effects have to be related to the negative costs of trade diversion, increased investment, and postponed consumption. Nevertheless, it is generally expected that trade liberalization is welfare increasing in the long run. This should be especially true for East-West integration, which will remove an artificial division of the European continent into two political and economic blocks.

Thus, the current discussion on the EU's Eastern enlargement takes into account the size rather than the character of economic effects. In particular, the total effects of the EU's Eastern enlargement are discussed in terms of the expected increase of budget expenditures, considering that the new members are likely to be net recipients from the EU budget. However, we should keep in mind that, first, this budgetary burden is not a part of the integration effects but of the distributional policy of the EU. Therefore, the transfers from the EU budget to the acceding countries will depend on the currently discussed institutional reform in the EU.

Second, the positive integration gains cannot be used directly to compensate the increased budgetary burden. The gains from the EU's Eastern enlargement will accrue to firms and consumers in the long run, while the European Commission will need to cope with the new burden on the EU budget mainly in the short run. This results in complex fiscal policy issues.

Kohler (1999) lists several forecasts of the additional budgetary burden of new Member States on the EU. Baldwin, Francois and Portes estimate budgetary transfers to the CEE-7 at between 0.111% and 0.211% of the EU's GDP. Breuss and Schebeck (1996) estimate a similar additional fiscal burden at 0.184% of GDP. The European Commission (1999) forecasts that the new Member States will receive an equivalent of 0.113% of the EU's GDP between 2000 and 2006.

Furthermore, Kohler (1999) compares how various changes of the EU budget will affect the individual countries. Given Breuss' and Schebeck's (1996) total estimate of 0.184% of the EU's GDP on average, Austria is likely to contribute slightly above the average (0.191% of Austrian GDP) if the EU's Eastern enlargement is financed by a simple increase of contributions. This reflects that Austria is a net payer to the EU budget. By contrast, Austria would contribute slightly below the EU's average to the budgetary costs of the EU's Eastern enlargement (0.133% of GDP) if the new budgetary transfers to the CEECs are financed by reducing agricultural subsidies. Finally, a reduction of structural funds would entail nearly no additional costs for Austria (0.071% of Austrian GDP).

Furthermore, Austria may be adversely affected by potentially high adjustment costs. In the short run, certain sectors stand to gain from trade liberalization, while other sectors will lose, as domestic producers are likely

to move their production towards sectors with higher efficiency according to factor endowments. Although this reallocation of production leads to higher income and also to lower prices in participating countries, the welfare-improving effects are valid only under the assumption of full sectoral mobility of factors.

Intraindustry trade, that is, trade in similar (differentiated or homogeneous) products, is generally seen to indicate relatively low adjustment costs during trade liberalization (see Hamilton and Kniest, 1991). Fidrmuc, Grozea-Helmenstein and Wörgötter (1999) demonstrate that the share of intraindustry trade in the trade of the CEECs with the European Union (computed for three-digit SITC commodity groups) has increased significantly since the opening up of Eastern Europe. However, the so-called vertical intraindustry trade (that is trade in products of different quality levels) could be responsible for a significant part of intraindustry trade between the EU and the CEECs. Aturupane, Djankov and Hoekman (1999) show that, first, the share of intraindustry trade remained relatively stable (as computed for six-digit CN products) between 1990 and 1995, and, second, that a substantial part of two-way trade between transition countries and the European Union was attributed to vertical intraindustry trade. Fidrmuc, Grozea-Helmenstein and Wörgötter (1999) also show that the intraindustry trade of selected EU countries with the CEECs differs significantly from the pattern of intraindustry trade within the European Union. The high share of vertical intraindustry trade in the EU's trade with the CEECs indicates that the adjustment costs are likely to play an important role during the accession of the CEECs to the European Union.

As far as the adjustment costs are directly related to the allocation effects of integration, it can be expected that Austria will be hit more by short-term adjustment problems than other countries. However, it is difficult to assess short-term developments, although there is a general belief that the EU's Eastern enlargement can be directly compared to the opening up of Eastern Europe at the beginning of the 1990s. Although this approach is not incorrect in general, it is completely misleading for the analysis of the adjustment costs. The shocks after the opening up of Eastern Europe consisted of two parts: On the one hand, the level of economic relations between East and West jumped from an artificially low level to its "normal" state. According to gravity models, Holzmann, Petz and Thimann (1994) estimate the growth of Austrian imports from CEECs at nearly 70%. Contrary to the development at the beginning of the 1990s, Breuss and Egger (1999) and Fidrmuc, Huber and Michalek (2000) argue that, given the Europe Agreements, the trade between Austria or the EU and the CEECs has already reached the "normal" level as predicted by gravity models. On the other hand, the reduction of trade barriers has also promoted trade between Austria and the CEECs since the opening up of Eastern Europe, but this effect was less important than the return of trade relations to a normal level. Only the second effect may be extrapolated on the EU's Eastern enlargement. In practice, however, it is nearly impossible to separate these two effects.

### **3 The Effects of the EU's Eastern Enlargement on Austria's Major Trading Partners**

Eastern enlargement is the next ambitious integration step of the Union, which will decisively change the division of labor in Europe. However, the previous section showed that the effects of enlargement will concentrate on the acceding countries. CEECs will gain through the access to the large market of the EU. Because the EU's single market is a large market, both the static and the dynamic effects of integration may be significant in the CEECs. In turn, the CEECs represent relatively small markets for the incumbent EU countries. Hence, the positive effects on the current Member States will be much lower, and, in the short run, the direct demand effects will be most important.

Therefore, this section reviews the available analyses of the effects of the EU's Eastern enlargement on Austria's major trading partners (the CEECs and the EU). This comparison is summarized in table 1. Growth gains in these regions may be directly translated to export opportunities for Austrian firms. Breuss (1999) argues that, in general, we can expect a demand elasticity of exports of about 2. That means that 1 percentage point of additional output growth in the CEECs or in the EU should increase Austrian exports by two percentage points. These effects will be analyzed further in the next section.

#### **3.1 The Effects of the EU's Eastern Enlargement on the CEECs**

Turning to the economic consequences of the integration of Eastern Europe into the European Union, there is substantial evidence that in the long run integration will have small positive effects on the 15 Member States and large positive effects on the Central and Eastern European countries.

The Austrian Institute of Economic Research in Vienna (WIFO) in cooperation with the International Institute for Applied System Analysis in Laxenburg (IIASA) initiated a cooperation of several country experts on the CEE-5 (see Gacs, 1999) on the so-called Preparity Project. The methodology of these country studies differs from case to case. Nevertheless, all authors used the same international framework assuming that the CEE-5 will join the EU in 2004.

Rosati (1999) and Gacs (2000) use a simple macroeconomic model based on the export-led growth hypothesis. Aggregate output is forecast as a function of exports, which follow the development of the exogenous imports of the European Union. Fidrmuc and Fidrmuc (2000 a and 2000 b) solve the problems caused by the shortness of the macroeconomic time series in the Czech Republic and Slovakia after the dissolution of the former Czechoslovak federation by estimating panel data investment and consumption functions for all CEE-7 countries. The estimated parameters were used to forecast these two major components of GDP in both countries, while public consumption was driven exogenously. The trade balance is assumed to converge to zero in both scenarios; this adjustment would be faster in the non-accession scenario. Strmsnik et al. (2000) modeled parts of the Slovene accession to the Union by macroeconomic tools as well as by computable equilibrium analyses.

Despite many methodical differences, the Preparity Project provides a consistent and broad view of gains from the EU's Eastern enlargement in the CEECs. The various forecasts using different simulation methods expect GDP growth gains of between 4% and 6% in the long run in the accession scenario.<sup>1)</sup> Thus, the CEECs could gain about half a percentage point of GDP growth annually in the first decade after transition. Furthermore, a high share of this growth gain is likely to be absorbed already in the first years (let us assume the first five years) after the accession; therefore, the expected effects could likely increase the aggregate output in the new Member States by about 1 percentage point immediately after accession. Similar results are derived by other simulations of the effects of the EU's Eastern enlargement on CEECs (see Sujan and Sujanova, 1999; and Welfe et al., 1997).

Only Slovene forecasts exceed these figures significantly. Strmsnik et al. (2000) expects long-term growth gains of above 18%. However, the study does not seem to be too optimistic in the accession scenario, given the authors' forecast growth of a relatively moderate 5.0% on an annual average between 2001 and 2010. Rather, the Slovene study foresees more problems in the nonenlargement scenario. The authors' expectations of average annual growth of only slightly above 3% are significantly lower than those for other CEECs.

Baldwin, Francois and Portes (1997) simulated the economic effects of Eastern enlargement on the European Union by seven associated countries (excluding the Baltic states). Their computable general model consists of nine regions (CEE-7, EU-15, EFTA-3, the former Soviet Union, NAFTA, Asia-Pacific, North Africa and Middle East, Sub-Saharan Africa, and the rest of the world) and 13 sectors. In 7 of the sectors (textiles, nonferrous metals, iron and steel, chemicals, metal products, transport equipment, and other machinery), scale economies and imperfect competition (Dixit-Stiglitz monopolistic competition model with differentiated products) are assumed, while the other sectors (agriculture, mining, foods, apparel, other manufactures and services) are characterized by perfect competition and constant returns to scale.

The enlargement of the EU is simulated by following policy changes:

- elimination of tariffs and quantitative restrictions on all trade between the CEECs and the EU (including agriculture), simulated as a 10% reduction in the real cost of trade between the CEECs and the EU; and
- adoption of the EU's common external tariffs, which are generally more liberal than the CEECs' current tariffs against non-Western imports.

This set of assumptions has been generally accepted as a reference point for the technical modeling of the EU's Eastern enlargement. Many other studies define their scenarios in the same way. In addition, Baldwin, Francois and Portes (1997) discuss the effects of increased investment in the CEECs, which is modeled by two other assumptions in what is referred to as the less conservative scenario:

*1 In macroeconomic models, the "long run" obviously refers to a horizon of about ten years, of which, however, only a subperiod (about five years) is forecast after the accession. In computable general equilibrium models, in turn, the long-run effects are computed for an infinite time horizon.*

- a risk premium effect, that is, a reduction of the interest rate by 0.45 percentage points, and
- an upward shift in the capital demand curve caused, for example, by the expansion of the market for capital-intensive products (according to Neven, 1995, CEECs are expected to concentrate on capital and simultaneously on labor-intensive products in the EU).

According to the conservative scenario (assuming only trade effects), the CEECs will gain “only” 1.5% of real output growth in the long run. Thus, trade liberalization alone can hardly help the CEECs to catch up with the welfare level of the current EU Member States. Conversely, Baldwin, Francois and Portes (1997) present a very optimistic development in the less conservative scenario. Both the reduction of the risk premium and the upward shift of the capital demand curve cause the capital stock to increase by 68%. Consequently, real output will increase by 18.8% in the CEECs in the long run.

Neck, Haber and McKibbin (2000) look at the robustness of the results of Baldwin, Francois and Portes. Like the authors of the latter study, they assume a reduction of the interest premium by a total of 0.5 percentage point as compared to the baseline scenario. In addition, Neck, Haber and McKibbin assume that total productivity will improve by 1.0 percentage point. However, this relatively moderate productivity improvement cannot be directly compared to the massive investment expansion in the less conservative scenario of the previous study. Neck et al. analyze the impact of both productivity and interest rate shocks separately and together. The authors expect the enlargement of the EU to occur by 2006, but the shocks are introduced already from 2003 onward in annual steps.

In their study, Neck, Haber and McKibbin use a computable general model of the world economy, which allows a comparably detailed look at spillover among the regions (U.S.A., Japan, Germany, UK, France, Italy, Austria, the rest of the EU, the CEECs, the former Soviet Union, and two blocks of developing countries). The CGEM is based on a mixture of micro-economic and macroeconomic considerations. Thus, the authors foresee both intertemporarily optimizing economic actors with rational expectations and rigidities on the labor market leading to periods of unemployment.

According to Neck, Haber and McKibbin, the reduction of the risk premium by 0.5% alone increases the long-term growth of CEECs by only 0.15%. To some extent, this contradicts the less conservative scenario as presented by Baldwin, Francois and Portes (1997). A possible explanation is that the difference has to be attributed mainly to a larger inflow of foreign direct investment (the upward shift of capital demand), which was emphasized more in the results of Baldwin et al.

The relatively slow process of catching up in the CEECs is driven by productivity growth. The improvement of total factor productivity together with the reduction of the risk premium allows the CEECs to increase long-run aggregate output by 1.6%. This result corresponds to the main scenario in the simulations by Baldwin, Francois and Portes (1997).

Piazolo (2000) adopts a relatively restrictive assumption for simulations of Poland's accession to the EU in a Ramsey-type dynamic CGEM. He

assumes a reduction of real trade costs by a comparatively low 1.3% and an additional reduction of technical barriers to trade by 0.8% on average for total trade. More obviously, the scenarios of the EU accession of Poland are accompanied by a reduction of tariffs by half and, according to Baldwin, Francois, and Portes (1997), by a net annual transfer from the EU budget of 1.5% of Polish GDP. The effects on Poland of the accession to the EU are driven mainly by the increased transfers. The consumption, which is used by the author to proxy the development of aggregate income, increases by above 12% in the scenario assuming only the change of net transfers. All in all, Polish consumption, standing for aggregate income, could increase by 17.5% in the long run.

However, Piazzolo (2000) shows that the welfare effects are much smaller due to high investment (increase by 37.6% in the long run) which has to be made at the beginning of the EU accession. Overall, the welfare gains are only 0.8% in the long run. Thus, the welfare implications are even smaller than the transfers from the European Union. This documents nicely that, due to necessary adjustment costs during the accession to the EU, the welfare effects of the EU's enlargement on the CEECs may be relatively moderate despite the relatively high simulated income effects.

Table 1

### The Effects of Eastern Enlargement on Selected Countries

#### (Long-Term Effects as Percentage Deviation of GDP Compared to the Nonenlargement Scenario)

Country/Region	Method	Output Gain	Source
Eastern Europe (CEE-7)	CGEM	1.5 <sup>1)</sup> , 18.8 <sup>2)</sup>	Baldwin, Francois and Portes (1997)
Eastern Europe (CEE-7)	CGEM	0.15–1.6	Neck, Haber and McKibbin (2000)
Poland	MEM	10.5	Welfe, Welfe and Florczak (1997)
Poland	MEM	2.4–7.9	Rosati (2000)
Poland	CGEM	17.5 <sup>3)</sup>	Piazzolo (2000)
Hungary	MEM	6.3	Gacs (2000)
Czech Republic	MEM	3.9	Sujan and Sujanova (1999)
Czech R./Slovakia	MEM	5.9	Fidrmuc and Fidrmuc (2000 a, 2000 b)
Slovenia	CGEM, MEM	18.3	Strmsnik et al. (2000)
EU-12 (industrial output)	CGEM	0.5–0.8	Gasiorek, Smith and Venables (1994)
EU-15	CGEM	0.2	Baldwin, Francois and Portes (1997)
EU-15	Indices, CGEM	0.1 <sup>4)</sup>	Kohler (1999)
EU-15	CGEM	0.0	Neck, Haber and McKibbin (2000)
Austria	MEM	1.6 <sup>5)</sup> –1.7 <sup>6)</sup>	Breuss and Schebeck (1995)
Austria	MEM	1.3	Breuss and Schebeck (1998)
Austria	static CGEM	1.1–3.6	Schneider (1998)
Austria	CGEM	1.4–1.5 <sup>7)</sup> ; 3.6–3.7 <sup>8)</sup>	Keuschnigg and Kohler (1997)
Austria	CGEM	1.1 <sup>5)</sup> –1.3 <sup>6)</sup>	Keuschnigg and Kohler (1999)
Austria	CGEM	0.0	Neck, Haber and McKibbin (2000)

Notes: CGEM – computable general equilibrium model, MEM – macroeconomic model.

<sup>1)</sup> Conservative scenario.

<sup>2)</sup> Less conservative scenario.

<sup>3)</sup> Total income as proxied by consumption. See text for detailed description of assumptions, methodology and results.

<sup>4)</sup> Average of effects on industrial branches.

<sup>5)</sup> Enlargement by five CEECs.

<sup>6)</sup> Enlargement by ten CEECs.

<sup>7)</sup> Baseline scenario assuming various adjustments of contributions to the EU budget.

<sup>8)</sup> Optimistic scenario assuming various adjustments of contributions to the EU budget.

### 3.2 The Effects of the EU's Eastern Enlargement on the European Union

As a part of the first available assessment of the EU's Eastern enlargement, Gasiorek, Smith and Venables (1994) estimated the impact of the integration of the CEECs (excluding Slovenia) on seven countries/regions in the European Union: France, Germany, Italy, UK, Benelux, Denmark together with Greece, and Ireland with the Iberian countries. The CEECs as well as former EFTA countries and other world regions together constitute the rest of the world. Although this disaggregation is not satisfactory for dealing with East-West integration, the authors applied it for lack of statistical data in other regions.

The integration of CEECs is simulated by a growth of trade according to Hamilton and Winters (1992) projections. Therefore, the authors did not make any explicit assumptions concerning the time schedule and shape of integration (transition periods, timing of waves of enlargement).

Within a general equilibrium framework, intermediate goods and five primary factors are used in production: capital; professional, scientific and related labor; managerial, clerical and other nonmanual labor; skilled manual labor; unskilled manual labor. Capital is assumed to be perfectly mobile internationally and available at a constant price. Although perfect capital mobility is assumed, all labor types are assumed to be internationally immobile (also within the European Union). Therefore, wages have to be adjusted to equilibrate supply and demand in each country.

The model contains 13 imperfectly competitive industries, the financial sector and a perfectly competitive composite that is taken as the numéraire. The behavior of the oligopolistic firms in the integration follows Dixit and Stiglitz (1977). National income is the factor income accruing to the five factors, plus the profits of imperfectly competitive firms, and the tariff revenue.

Gasiorek, Smith and Venables (1994) model the effects of the integration of CEECs into the EU in three scenarios. First, the CEECs' exports to the EU-12 were assumed uniformly across countries and sectors according to the Hamilton and Winters (1992) projections of trade between the EU and the CEECs. That implies a total increase of the EU-12's exports to the CEECs by 408% and a corresponding growth of imports from the CEECs by 492%. Second, both exports and imports by EU countries and sectors were increased in the same way as actual trade between 1985 and 1992, while the total growth of the EU's trade was the same as in the first scenario. Finally, the growth rates assumed for France, Germany, Italy and the UK are those predicted by Hamilton and Winters (1992). Where the small EU countries were not listed in that source, their growth rates were set at levels implied by the difference between Hamilton's and Winter's projections of EU trade.

Surprisingly, the effects of all described scenarios are very similar. All sectoral output effects are in the range of  $\pm 11\%$ , with most effects clustered in the middle of the range. The national effects are reduced if we aggregate them for the EU-12 to a range from  $-2\%$  to  $+5\%$ . The nonweighted average growth of industrial production was between 0.5 percentage point (scenario 3) and 0.8 percentage point (scenario 2), with scenario 1 being close to the lower bound of this interval (0.6 percentage point).

Germany faces the most significant sectoral changes; however, no simulations are available for Austria. The role of Germany further increased in the second and the third scenario. The second scenario implies a slightly higher variance of sectoral output change. On the other hand, the effects on the so-called sensitive industries are less important, due to lower-than-average growth of EU imports of textile and steel between 1985 and 1992. The surprisingly low output changes can be attributed to the significant increase of intraindustry trade. Therefore, even high export and import changes imply low output changes by main industries. Moreover, trade between the EU and the CEECs remains low relative to the size of the EU, despite significant growth. Besides, the negative impact on some sectors of the predicted range can be easily absorbed in the relatively long periods generally predicted for the full integration of the CEECs into the European Union.

Last but not least, Gasiorek, Smith and Venables (1994) used the sectoral output changes for the EU countries in the first two scenarios to calculate changes in regional output. The regional effects are based on the assumption that a particular sector expands or contracts at a particular country's rates in all regions of the country. The most striking feature of regional projections of both simulations is that there are no substantial differences between the nationwide development and that of the regions of a particular country. In particular, all German regions show significantly higher output changes than regions in other EU Member States.

According to Baldwin, Francois and Portes (1997), all European regions will gain by the enlargement. Except for the CEECs, the two scenarios do not differ significantly. The countries of the EU-15 will gain 0.2% in both scenarios, the remaining EFTA-3 countries even less (0.1% in both scenarios). Only the countries of the former Soviet Union will perform slightly better in the less conservative scenario (0.6%) than in the conservative scenario (0.3%). In turn, the absolute gain of the European Union is about four times higher than the gain of the CEECs within the conservative scenario. That means that the net costs of enlargement (transfers less benefits) for the incumbent Member States of the EU are negligible. They are estimated at between zero and ECU 8 billion (0.01% of the EU-15's GDP). As Baldwin, Francois, and Portes (1997) note, this cost is extraordinarily low, given the historic nature of the challenge in Central Europe. A small magnitude of the long-run spillovers is also supported by Neck, Haber and McKibbin (2000), who use a similar CGEM and similar assumptions of scenarios.

Kohler (1999) concentrates on the static effects of the EU's Eastern enlargement (including only the first-wave countries). He computes several indices representing the welfare implication of trade creation, trade diversion and the terms-of-trade effect. Then, these effects are compared to the budget burden for the Member States as estimated by Breuss and Schebeck (1996) at 0.184% of the EU-15's GDP on average. However, as the author notes, these indicators are not fully comparable.

Kohler's indices of the static effects of EU's Eastern enlargement confirm relatively small gains for the EU. Furthermore, his estimations underline significant problems related to the distribution of gains and costs of the Eastern enlargement within the EU. In particular, the countries at the southern and

western periphery are likely to lose in the process of East-West integration, while Austria and Germany will turn out to be net winners. This distribution is caused by the concentration of the EU's trade with the CEECs on a few neighboring countries, while the budget costs will be distributed more or less evenly within the EU.

According to Kohler (1999), trade creation effects remain moderate in the EU's Eastern enlargement. Growth gains based only on trade creation are significantly below the budgetary burden of nearly all states. Only in Austria are trade creation effects significantly higher than the costs of Eastern enlargement.

Furthermore, the static effects of the EU's Eastern enlargement are unevenly distributed in the European Union. Therefore, it may be difficult to find a "fair" key to finance the integration of CEECs. For example, Austria and Germany are the net winners of the Eastern enlargement of the EU if the Common Agricultural Policy (CAP) is reduced. If structural subsidies are cut, the net effects are positive also on Sweden. All other Member States have to face net welfare losses. In general, the reduction of the EU budget increases the asymmetry between the gains and the costs of Eastern enlargement.

However, the negative terms-of-trade effect is also heavily concentrated on countries with high trade creation effects. Therefore, the differences within the European Union are slightly reduced if we consider also changes of the terms of trade. Nevertheless, the hierarchy of Member States remains the same.

Kohler (1999) concludes that the trade creation effect is not large enough to provide an economic incentive for the European Union (except for Austria) to integrate the CEECs. However, he argues that the so-called "new" effects based on increased returns to scale, product variety, competition gains and accumulation effects (see section 2.1) are likely to be high enough to provide such enlargement incentives for the majority of EU countries. To test this hypothesis, he first assumes that the ratio between the static and the dynamic effects of integration is constant in all EU countries. Second, he estimates this ratio for Austria, using Kohler and Keuschnigg's (1999) CGEM, which involves both types of integration effects (see below). Finally, he extrapolates the total effects of the EU's Eastern enlargement for current Member States of the EU.

Actually, these results show a much more optimistic picture of East-West integration. Austria is again likely to gain more (about 0.6 percentage point of the long-run welfare gain) than other EU countries, followed by Germany (about 0.2 percentage point). Finland, Sweden, Belgium, Italy and the Netherlands are likely to face small but positive long-run welfare gains, while integration effects and the budgetary burden are nearly balanced in Denmark and the UK. Contrary to this, France, Portugal and Spain could lose slightly, and welfare losses may be dramatic in Greece (welfare reduction by about 0.6 percentage point in the long run) and even more in Ireland (between -0.8 and -1.0 percentage point). All in all, this could result in a slight positive effect for the EU. If we average these effects weighted by GDP in U.S. dollars in 1998, we obtain an overall welfare effect of 0.1 percentage point on the

EU. This result is similar to that of Baldwin, Francois and Portes (1997) if we keep in mind that Kohler (1999) computes welfare gains instead of real output gains.

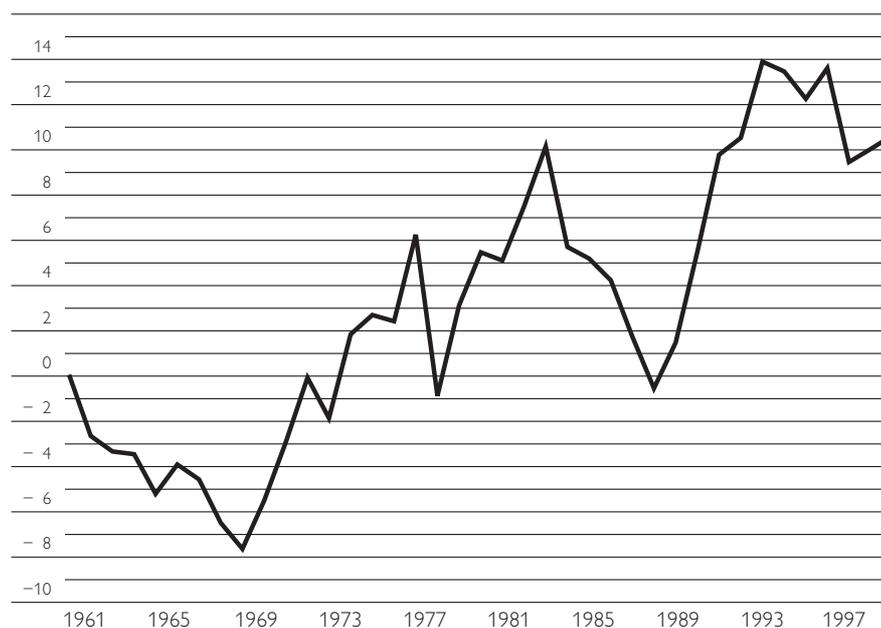
#### 4 The Specific Position of Austria in the Process of the EU's Eastern Enlargement

In 1959, Austria decided to participate in the EFTA, whose integration aims were less ambitious than those of the EU. But several of Austria's major trading partners, among them the two most important trading partners, Germany and Italy, were members of the EU. In addition, other potential trading partners in Central Europe had been forced to curtail trade with the West in favor of trade with the other members of the CMEA. This resulted in significant trade diversion losses until a free trade agreement with the EC was signed in 1972 (see Fidrmuc and Pichelmann, 1999). This enabled Austria to catch up during the 1970s (see chart 1). However, Austria still did not participate fully in European integration, which was one of the reasons for the slowdown in its economy in the early 1980s. This unfavorable position ended with Austria's EU membership on January 1, 1995. As an EU member Austria was also better placed to promote, and profit from, the opening up of Central and Eastern European countries. As a result of both developments, Austrian GDP grew by a total of 14 percentage points more than the average of the 12 former EC countries in the first half of the 1990s, although a reduction of this growth difference was observed again in the following years. Trade with the CEECs can be seen as a significant source of this additional growth. Austria's trade surplus with the four CEECs (the

Chart 1

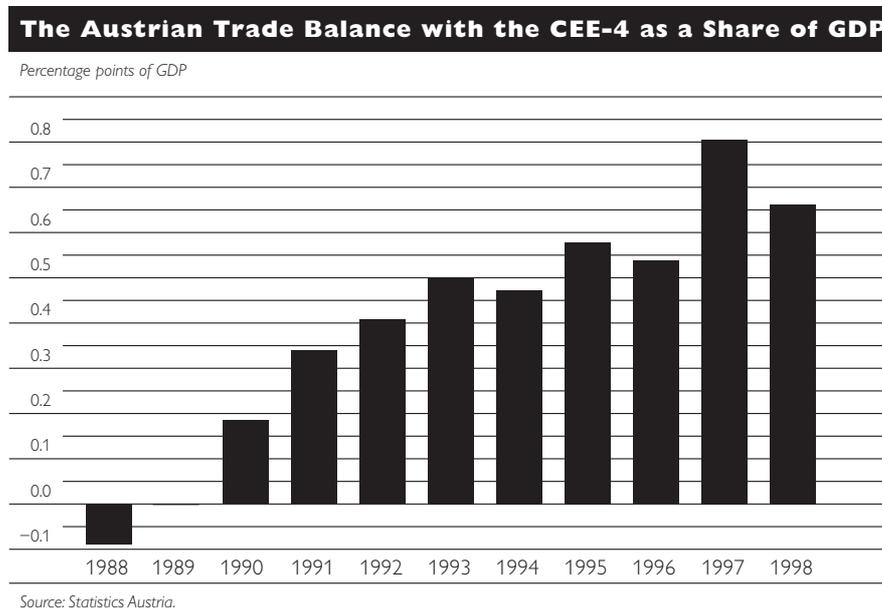
#### Cumulated Growth Difference between Austria and the EU-12

Growth difference in percentage points



Source: OECD.

Chart 2



Czech Republic, Hungary, Poland and Slovakia) reached about half a percentage point of Austrian GDP in the 1990s (see chart 2).

The macroeconomic development in the past decades shows the immense importance of integration effects on the Austrian economy. After the completion of Austria's accession to the EU and the adoption of the common currency, the EU's Eastern enlargement is likely to be the most important (institutional) determinant of economic development in the next decade(s).

Breuss and Schebeck (1995 and 1998) use the WIFO macroeconomic model of the Austrian economy to assess the impact of the opening of Eastern Europe on Austria as well as simulations of the Eastern enlargement of the EU. For this purpose, the WIFO macroeconomic model was linked with an input-output model used to analyze the sectoral changes of the simulated events. Breuss and Schebeck compare the positive effects with the induced budgetary burden of the EU's Eastern enlargement.

According to Breuss and Schebeck's (1995) backward analyses of the years 1989 to 1994, the economic impact of the opening of Eastern Europe on Austria was clearly positive. Between 1989 and 1994, the difference of GDP growth in comparison to the basic scenario accumulated to 1.3%, leading to an increase in employment by 20,000 persons. In addition, German reunification and migration<sup>1)</sup> led to further growth effects on the Austrian economy. In total, Austrian GDP exceeds the GDP according to the basic scenario by 2.4% between 1989 and 1994.

<sup>1</sup> Migration increases the resources of the target country. Therefore, it is expected to have positive aggregate welfare and output effects in the target country. However, the effects on output per capita in the target country and those on total output in the source and the target country may be ambiguous.

Keuschnigg and Kohler (1997) see slightly lower effects of the opening up of Eastern Europe accumulating to 0.6% of GDP (comparable to welfare gains by 0.3%) in the long run. The difference between the two studies may be partially explained by the geographical scope of the analysis. Breuss and Schebeck (1995) look at trade with the entire former CMEA area, while Keuschnigg and Kohler consider only ten associated countries. Furthermore, Keuschnigg and Kohler already see the trade liberalization introduced by the Europe Agreements as a part of the accession to the EU.

Breuss and Schebeck (1995) assume that the CEECs might join the EU as early as 2000. This optimism might also be due to technical reasons. The authors use budgetary flows according to Breuss (1995) and available forecasts of WIFO as a basic scenario. The later entrance of CEECs would either need the construction of a model (including the basic scenario) for more than 15 years or it would leave no room for assessing the first years of membership of the CEECs.

Breuss and Schebeck (1995) show that Austria largely stands to gain when its neighbors (the Czech Republic, Hungary, Slovakia, Slovenia) join the European Union. In the long run (from 2000 to 2008), Austrian GDP will increase by 1.5% as compared to the nonenlargement scenario. The accession of Poland further improves the long-run gains to 1.6% in Austria. By contrast, the integration of the five remaining CEECs will leave the results nearly unchanged (1.7%).

Breuss and Schebeck (1998) update their results with respect to the changed discussion of the EU's Eastern enlargement. Most importantly, the authors expect two waves of Eastern enlargement in 2002 and 2007, respectively. Accordingly, they adjust their assumptions on budget implications of the Eastern enlargement. In comparison to their earlier simulations, Breuss and Schebeck (1998) expect slightly lower long-run (from 2002 to 2010) growth gains for Austria (1.3%).

More recently, Keuschnigg and Kohler (1997 and 1999) have analyzed the effects of the Eastern enlargement of the European Union on Austria in a framework of a general equilibrium model with 18 sectors and overlapping generations. Their work continues the authors' previous analysis of Austria's accession to the EU (see Keuschnigg and Kohler, 1996).

The earlier study compares two different scenarios. The baseline scenario assumes that the opening up of Eastern Europe has reduced the real trade costs by 5%. Then, the EU's Eastern enlargement reduces the real trade costs by an additional 5%. For comparison, Keuschnigg and Kohler (1996) assumed that Austria's accession to the EU resulted in a relatively smaller reduction of the real trade costs by 2.5%. In addition, the CEECs have to abolish their tariffs on Austrian products. With those tariffs currently set at 6.5% on average, the CEECs stand to lose more than Austria, whose average tariffs on imports from CEECs are relatively smaller (3%). Furthermore, the abolishment of nontariff barriers in agricultural trade lowers the price of Austrian imports from the CEECs by 23% for farm products and 5% for food products. Finally, the authors consider two possibilities of how to finance the budgetary costs of Eastern enlargement: First, a reduction of the Common Agricultural Policy, implying a reduction

of net contributions to the EU budget by 0.18% of GDP for Austria; and second, a rise in contribution payments by 0.22% of GDP. The optimistic scenario assumes both a larger reduction of the real trade costs (by 10%) and a slightly lower budgetary burden for Austria.

Keuschnigg and Kohler's simulations confirm the positive effects of the Eastern enlargement of the European Union on Austria. The baseline scenario envisages additional long-run GDP growth of 1.4% to 1.5%, while growth gains in the optimistic scenario are almost more than double (3.6% to 3.7%). These effects are clearly larger than the additional budgetary burden for Austria resulting from the Eastern enlargement. Furthermore, the size of this effect does not significantly depend on the shape of the reform of the EU budget.

In addition to the trade-off between positive output effects and the negative budgetary burden, Keuschnigg and Kohler (1997) look at the welfare effects of the EU's Eastern enlargement. This approach takes into account possible welfare losses caused by postponing consumption in order to increase investment during the stages of integration. Nevertheless, the welfare effects still remain positive. The simulated long-run welfare gains are between 0.6% and 0.8% of GDP in the baseline scenario and between 1.9% and 2.2% of GDP in the optimistic scenario.

According to Keuschnigg and Kohler (1997), these effects are significantly higher than the effects of Austria's accession to the EU (simulated long-run gains of 1.6% of GDP or 1.1% welfare gains) or the opening up of Eastern Europe (long-run gains of 0.5% of GDP or 0.3% welfare gains).

Keuschnigg and Kohler (1999) use a set of assumptions similar to those in the less optimistic enlargement scenario of their earlier study. In addition, the authors differentiate between the first-wave countries (the Czech Republic, Estonia, Hungary, Poland, and Slovenia) and the second-wave countries (other associated countries). Therefore, the results are largely comparable to those of the previous paper. The first wave of Eastern enlargement is simulated to increase Austria's long-run GDP by 1.1% (welfare gain of 0.5%). The extension of the Eastern enlargement to all associated countries has similar effects for Austria (including the effects of the enlargement by the first-wave countries): there will be a long-run output gain of 1.3% and a welfare gain of 0.6%.

Like Kohler (1999), Schneider (1998) simulates the static effect of the EU's Eastern enlargement on Austria in a CGEM. Unlike the previous study, the static effects (as computed for long-run real income) could reach 1.1% (under the assumption of flexible real wages, which ensure a full adjustment of the labor market to the new steady state) and 3.6% (fixed real wages) if the CEECs catch up with the EU. This scenario is modeled as an increase of trade between Austria and the CEECs by a factor of five. According to the author, such an increase of the trade volume implies a time horizon up to 2010 or 2020. This trade growth is much higher than Kohler's (1999) assumptions. Under less optimistic assumptions, Schneider's (1998) results are also much lower (real income effects of between 0.1% and 1.7% in the long run).

By contrast, Neck, Haber and McKibbin (2000) find no positive effects of the EU's Eastern enlargement on Austria. However, this is likely to be caused by the authors' formulation of a policy scenario which stresses the role of productivity growth. Unlike in the previous studies, Neck et al. does not assume a reduction of real trade costs. Therefore, trade creation effects and spillovers to the trading partners of the CEECs are insignificant.

## **5 Migration and the Regional Effects of the EU's Eastern Enlargement**

The most prominent concern in Austria is raised by the prospect that the future new EU citizens are permitted to take up employment in any of the EU countries. This issue is therefore the one that has been most present in the political discussion. It has also been studied closely. The majority of studies agree that this concern is not ill-founded, that the migration of labor into Austria would indeed cause difficulties, that transitional periods plus various kinds of control mechanisms would be required to lessen the burden on the Austrian labor market, and that besides such "defensive" strategies, a positive forward strategy would also be called for so as to adapt labor demand to the expected consequences of an inflow of workers from the new member countries.

The studies differ in the coverage of the countries the future immigrants are supposed to originate from. All Austrian studies ignore the Baltic Republics (for the good and evident reason that not many Balts can be expected to come to work and settle in Austria). All such studies cover the countries that are among the first group of the most advanced applicants for EU membership (that is the Czech Republic, Hungary, Poland and Slovenia). All of them, too, have a scenario that would include Slovakia in this group of early EU members. Some studies also cover Romania and Bulgaria. None of these studies considers the fact that Croatia<sup>1</sup>) might eventually also start membership negotiations and might quickly move up to the rank of those closest to membership. The reason for this neglect is evident. The prospect of Croatian EU membership only opened up in 2000 after the changes in the Croatian political system brought about by the end of the Tudjman era.<sup>2</sup>) Should Croatia become an EU member, it would certainly also be a prominent source of labor emigration into Austria (as is confirmed by Wallace, 1998).

Before taking a closer look at these studies it needs to be mentioned that all of them – without exception – expressly caution against too great a confidence in their findings. These warnings should be heeded. The methods employed simply do not permit any precise predictions.

Broadly speaking, two methods can be used. One can either ask a representative sample of the population in the respective countries if and under which conditions it would emigrate into EU countries (Fassmann and

1 The exception is the study by Wallace (1998). But this study is much wider in its coverage, as it not only covers the countries that are negotiating for EU membership at present, but also others that have not applied for EU membership (like the Ukraine, Belarus or the Federal Republic of Yugoslavia).

2 Croatia is likely to start negotiations on a Stability and Association Agreement with the EU in the autumn of 2000. It is generally expected that it will submit a formal application for EU membership later on.

Hintermann, 1997; Wallace, 1998); or one can look at past instances of labor migration, try to evaluate and weigh the factors that prompted them, and then investigate whether and to what extent the same factors are also present in the future CEEC members of the European Union (Fassmann and Münz, 1996; Winter-Ebmer and Zweimüller, 1996; Walterskirchen and Dietz, 1998; Brückner et al., 1999).

Both of these methods have serious drawbacks. Frequently, a respondent's reply to an interviewer does not correspond to his later decision in real life. The gap between the two levels might be very substantial. Some early estimates on potential migration, which were based on such simple questioning of intentions, were thus clearly inflated: The mass migration of 20 million Central and Eastern Europeans predicted in the early 1990s (Fassmann and Hintermann, 1997), simply did not take place. It is for this reason that specific questions were inserted so as to test whether the declared intent to emigrate is a genuine one.

### 5.1 Survey Analysis

In a survey done in 1995, Fassmann and Hintermann (1997) install two such additional hurdles to arrive at a realistic assessment of what the persons questioned would actually do: In a sample of 4,392 persons, they first identified those who have thought about emigration (and arrive at an "overall potential of emigration"), they then isolate those who have already sought information on their contemplated move abroad ("likely potential of emigration"); and in the latter group they finally single out those that have already applied for either a work or residence permit in the country they wanted to move to ("actual potential of emigration"). They find that in the four countries investigated (the Czech Republic, Hungary, Poland, Slovakia),

the *overall potential* of emigration is 10 million, of which 2 million considered emigrating into Austria;

the *likely potential* is 4 million, of which 870,000 would tend to choose Austria as place of work and residence;

the *actual potential* is 700,000 persons, 150,000<sup>1</sup>) of whom have chosen Austria as their preferred destination.

A survey done by Claire Wallace for the International Organisation for Migration (Wallace, 1998) covers not only the countries negotiating for EU membership at present, but also other CEECs – like the Ukraine, Croatia or the Federal Republic of Yugoslavia – that are sources of potential emigration to the EU. Wallace, too, is not content with simply asking whether someone would like to migrate. Like Fassmann and Hintermann, she poses additional questions to gauge whether such a desire is serious and has already translated into concrete preparations for emigration. She also asks about the countries the persons questioned would like to migrate to. Austria is of course among them, and rather prominently so.

<sup>1</sup> These are the numbers of migrants. They include the numbers for dependent family members. The numbers of potential entrants into the Austrian labor force would be smaller at – roughly – 50% of the number of migrants.

The figures Wallace provides on potential migrants into Austria are much higher than the figures provided by Fassmann and Hintermann: 24% of Poles, 3% of Czechs, Hungarians and Slovaks, and 2% of Slovenes stated that they had already applied for a work and/or residence permit in an EU country. Austria is a target country for 3% of the Poles and for 6% of the Czech, the Hungarians and Croatians. That would imply, for instance, a potential, permanent immigration into Austria of about 250,000 Poles alone.

To these figures one would have to add the figures of migrants who wish to move to EU countries for a limited period only, very often just as commuters while retaining their permanent residence in the CEECs. Like Walterskirchen and Dietz (1998), Wallace finds their numbers to be higher than the number of permanent emigrants. 26% of the Czech respondents, for example, said that they would wish to seek such temporary sojourn in Austria, as compared to the abovementioned 6% who would wish to move to Austria on a permanent basis.

## 5.2 Estimates of Migration Flows

Juxtaposed with such estimates based on surveys are estimates that are based on models derived from earlier migratory movements. By necessity, they have to rely on just a limited number of quantifiable elements that influence migration. Thus they ignore many of the events and motives that have prompted migratory movements in the past. Also, they have to assume that factors they do consider (as for instance gaps in wealth and income) will have the same relevance for new EU members as they had for countries joining earlier. In addition, they have to rely on some strong assumptions on the events that will shape these factors,<sup>1)</sup> for instance, the development of income in the prospective new member countries. In two different scenarios, Walterskirchen (1998) assumes it to be either 3.5% or 2.5% above the growth of the present EU countries. By now, even this latter scenario seems fairly optimistic. With the possible exception of Slovenia, none of the CEECs has reached a point of economic transformation and reform after which a crisis-free, steady and rapid economic catching up seems guaranteed.

Which factors should be chosen for a model? Their relevance in past migrations can, of course, be checked by a multi-variate analysis. Fassmann and Münz (1996) perform such an analysis. They find geographic distance and the income differential to have the greatest value in explaining past migrations from the CEECs in the period 1990 to 1995. Surprisingly, unemployment in the country of origin counts for very little.

Walterskirchen and Dietz (1998) therefore mainly rely on the geographic distance and the income differential in their projection of future migratory movements from the new EU memberstates into Austria. Depending on the moment of the presumed opening of the Austrian labor market to migrants from the new EU memberstates, either in 2005 or in 2015, they calculate this annual immigration at either 18,000 persons or at 12,000 persons. The total over time would be about 150,000 persons.

<sup>1</sup> To quote Alecke et al. (2000), "previous studies omit a number of important variables ... estimates of potential migration are highly unreliable ... more research is needed ..."

Like Wallace (1998), Walterskirchen and Dietz (1998) also highlight the special relevance of a further group that would impact upon the Austrian labor market from the moment the neighboring CEECs become EU members. This is the group of persons that would retain their residences while commuting across the frontier to work in Austria. The authors assume that this movement would be affected by the income differentials the same way the (then existing) income differential between Germany and Austria affected the movement of Austrians commuting to jobs across the frontier into Germany.<sup>1)</sup> This group of workers commuting from the new EU members into Austria would be sizeable for the following reason:

About 5 million Central and Eastern Europeans live within commuting distance (that is a 90-minute car ride) from major Austrian urban agglomerations like Vienna, Linz or Graz. As they would retain their residence, their living expenses would be low (being calculated in the undervalued local currency), while their wages would be paid in euros. A person considering emigration, that is a change of permanent residence, will make his calculations in purchasing power parity. He will compare what he can purchase with his low local wages at low local prices with what he could purchase with high Austrian wages at high Austrian prices. Someone contemplating commuting to work in Austria will, however, compare what he can purchase at present wages at low local prices with what he could purchase – again at low local prices – with the high wages earned in Austria. The welfare gain of commuters is thus much higher than the welfare gain of migrants.

Walterskirchen and Dietz (1998) thus arrive at the conclusion that the number of commuters would be significant and higher than the number of migrants, with annual increases (depending on the date of the opening of the Austrian labor market) of either 23,780 or 19,570 persons. Here, too, the total over the years is assumed to be about 150,000.<sup>2)</sup>

The most recent, complex and methodologically refined of these model studies was commissioned from the German DIW by the Bundeskammer für Arbeiter und Angestellte in Vienna. This study was performed by Brücker et al. in 1999, but was not released until June of 2000. Unlike the other studies mentioned above, it is not based upon aggregates, but on time series on the migration into a few major northern European countries.<sup>3)</sup> The purpose is to evaluate those factors that prompted this earlier South-North migration, to establish a model with the salient variables, and then to substitute for these variables the ones found in an analysis of the Central and Eastern European countries that have applied for EU membership. The model is developed in two steps. First, only a few standard variables, like wage differentials and the supply of and demand for labor are taken into account. In a second step, the

1 *It should be noted, though, that they had to cross a legal, but not a linguistic frontier: language was not a barrier for Austrian commuters in Germany.*

2 *Sajdik (1999) raises some serious questions about the relevance of the assumption underlying the commuter numbers estimates. Were geographic distance that relevant, many commuters would come from Bratislava (which is an hour's drive from Vienna). But according to the opinion surveys quoted, only very few inhabitants of Bratislava actually contemplate such a move. Also, no account would be taken of the fact that Slovenes, for instance, might prefer to commute into Northern Italy instead of crossing the Alps into Carinthia.*

3 *Exact data are available only for a few of these countries, and also only for the time from the 1960s.*

model is refined through the addition of other variables that are generally expected to have an impact upon migration.

One finding – important for policy reasons – is that the opening of the labor market through EU accession does indeed promote immigration from the newly acceding countries. But the effects are weaker than those of earlier administrative measures that facilitated migration, like the international agreements negotiated by Germany (and Austria) on the hiring of the foreign labor known as guest workers. The wars on the territory of former Yugoslavia were a very powerful extra factor which promoted migration. Migration is also very much facilitated by the knowledge of the language of the new home country.

No meaningful times series on past immigration are available in Austria. To arrive at estimates of the future immigration from the CEECs to Austria, the authors therefore extrapolate. They assume that in the future, too, immigration from the CEECs into the European Union will divide among its present members at the same ratio as it has until now. The study deals with true migrants exclusively. No estimates are provided for the number of persons that would commute to work into Austria.<sup>1)</sup>

The result is a downward revision of earlier DIW estimates (DIW, 1997) on the likely number of immigrants from the CEECs. In the beginning, this number would be substantial nonetheless, with an annual inflow of 218,000 CEE migrants into Germany and 42,000 into Austria in 2002. The numbers would, however, shrink quite rapidly. The number of such potential immigrants into Austria would have declined to 18,600 by 2010 and to 11,000 by 2025. The net inflow would have come to an end by 2035.<sup>2)</sup> The numbers of CEEC citizens residing in the EU will then have risen from 0.9 million to 3.9 million.

How would such an inflow affect the Austrian labor market? Would the incoming labor replace the existing workforce and drive it into nonemployment (substitution effect), or would it fill new jobs without replacing labor already employed (complementarity)? Would the increased supply of labor depress wages, and, if so, in which sectors? The most frequently quoted study dealing with these questions is the one conducted by Winter-Ebmer and Zweimüller (1996). They base their forecasts upon the results of one vast “experiment” in the Austrian past, when in the period between 1988 and 1991 the Austrian labor market was opened to no less than 100,000 new foreign workers.<sup>3)</sup>

They find that an increase of labor immigration by 1% would drive up unemployment of male manual labor by 0.3%. Female employment is little affected, as is white collar employment. It is assumed, however, that in the same period between 1988 and 1991 as many undocumented

*1 As the authors concede, the numbers of such commuters could be substantial indeed.*

*2 It should be pointed out that the DIW authors too strongly and repeatedly warn against taking these findings as predictions. They reflect the mechanics of a model. Reality is murkier.*

*3 They trace the development and reaction of the Austrian labor market via a representative sample taken from data collected by the Association of Austrian Social Security Institutions (Hauptverband der Sozialversicherungsträger).*

aliens as documented immigrants entered the Austrian labor market. Thus, the formula has to be revised. An addition of one percentage point of foreign workers would raise the nonemployment of male manual labor by only 0.15%.<sup>1)</sup>

Higher wages would rise; lower wages would shrink. The wage differential would increase somewhat, but the median of wages would remain unchanged.

These findings are confirmed and refined in further studies.<sup>2)</sup> Most, though, add a caveat: All effects on the labor market are highly dependent on the professional qualifications of the migrants and commuters, and, more importantly, on the kind of employment they will find.

At present, workers from the CEECs form still a relatively minor<sup>3)</sup> part of the quite substantial population of foreign workers residing in Austria. Immigrants from former Yugoslavia and from Turkey still predominate. However, on the average, the educational and professional qualification of the CEEC newcomers is superior by far to the qualification of this earlier and more dominant group of immigrants. Notwithstanding their competitive advantage, when they first came in greater numbers in 1988 to 1991, the immigrants from the CEECs did not get jobs that would have befitted their superior qualification (a case of so-called brain waste). Most of them had to enter the job market at a level even below the one achieved by the earlier and less qualified immigrants. As mentioned, in doing so, they partly replaced labor already employed, above all foreign workers who had already established themselves in Austria.

Membership negotiations with the most advanced group of countries are just about to touch upon this thorny issue of the freedom of movement. The poker game of negotiation has started.<sup>4)</sup> Its outcome is uncertain. One should surmise, nonetheless, that in the end, the parties are likely to agree on simply phasing in the freedom of movement. There would be transitional periods and some sort of control mechanism to smooth the impact of the adhesion of the new EU members on the EU labor market, specifically on the Austrian labor market. Such controls and regulations will be the factor that, more than any other, will actually determine the volume of migration.

What is completely uncertain is the duration of any such transitional regime. We do not know whether such measures will effectively bridge the time until 2010, when the Austrian labor force will start to shrink quite

1 On the other hand, the figures have to be interpreted in light of the fact that this was a phase of a cyclical economic upturn. For France, Gross (1999) finds that the large number of documented and undocumented immigrants would have raised unemployment only marginally, and in the short run only, whereas the medium- and long-term effects on employment would have been positive. These effects would have led to an increase of employment also among the native population.

2 The most recent DIW study (1999) does not provide independent estimates on the impact of immigration upon the labor market. But it concurs with other studies that the medium- to long-term impact would be minor. It does concede, however, that this does not apply to the first phase, when immigration might surge quite rapidly.

3 In the EU at large, their share is smaller still. Immigrants from the CEECs represent less than half a percent of the 19 million foreigners living in EU countries.

4 The European Commission is keeping its hand fully covered. In the paper it submitted on this chapter, it did not mention any transitional regimes or safety-valve mechanisms, evidently wishing others to move first.

substantially for demographic reasons,<sup>1)</sup> thus giving ample room for higher immigration. In view of this outlook and much other uncertainty surrounding the issue, it is nonetheless fair to assume that in the period up to 2010 the Austrian labor market would become overburdened, were total freedom of movement granted to the citizens of the new EU countries immediately after accession. Over the period of the next few years, the annual additions of 50,000 new workers that most studies predict simply could not be absorbed without major dislocations and tensions.<sup>2)</sup>

In fairness, it should be mentioned that one Austrian author arrives at quite different conclusions in several studies. Gächter (1995) claims that the mainstream methods to predict migration are rather useless. Answers given to interviewers in panel surveys provide no clue at all on what would actually happen. Models are equally useless. They emphasize economic factors like income differentials and unemployment, which in practice are of no great relevance in prompting and sustaining migration. For actual migration, the main motives are less such narrowly economic ones. What counts are general expectations about the overall life situation and noneconomic factors like a history of emigration and the existence of “bridgeheads” of former emigrants that can help newcomers to find their way in the new surroundings.<sup>3)</sup>

Indeed, most Austrian “model studies” seem to ignore some factors that might also help to explain the volume of migration.<sup>4)</sup> Important opportunity costs of “nonimmigration” are neglected, too, like the cost to Austria of a sinking birthrate that will have effects even before 2010 (when the native workforce will start to shrink dramatically).<sup>5)</sup> Also, there are long-term benefits to immigration that are difficult to calculate but that are generally recognized by economic historians. The continuing economic vitality of the mature U.S. economy is certainly due – at least to some extent – to the fact that the U.S.A. remains a country of massive immigration.

### 5.3 Regional Impact of Migration in Austria

The labor market, but also the structure of the economy in various and especially in the Eastern regions of Austria, will also be affected by a further privilege implied in EU membership: the freedom to provide and to

1 Between 2010 and 2030, the Austrian labor force will shrink by no less than 650,000 persons (Walterskirchen, 1998), according to Biffi and Hanija (1998) by 400,000.

2 This is not a unanimous conclusion, not even among experts. Huber and Pichelmann (1997) interpret the findings as implying just a minor impact on the Austrian labor market. But the experience gained with the influx of foreign workers from 1988 to 1991 cannot be transferred directly to the situation that would arise after the accession of the CEECs. 1988 to 1991 was marked by a cyclical economic upswing. Also, the effects of a more massive and longer-lasting influx would differ from those caused by a short-term surge.

3 The survey by Wallace (1998) tends to support such a view. It points to a stark difference, for instance, in the number of Slovenes on one hand, and Croats on the other, who indicate a desire to emigrate. The number of Croats giving a positive response is very large; the number of Slovenes is minimal. Croats have a history of emigration, but Slovenes do not.

4 A certain defensive or pessimistic bias is also evident from the fact that no consideration is given to the possible Austrian emigration into the CEECs. According to the Ministry of Foreign Affairs, about 10,000 Austrians are working in Hungary already now, even before Hungary has become an EU member.

5 Such costs include e.g. the closing of primary and secondary schools in the absence of demand.

consume services in all of the EU. Studies of that problem measure the developments at the level of political districts. They do so by breaking down the economic activity of these districts by various branches of economic activity<sup>1)</sup> and by projections about how these activities in the political districts will be affected by the competition of Eastern service providers once the borders are open. Of course, the reverse effect has to be taken into account, too, with Austrian service providers then being able to operate freely in the CEECs.

The liberalization of trade with industrial products brought about by the Association Agreements with the CEECs has already had some impact on the economic structure of these political districts. Such changes provide clues about what can be expected from the liberalization of the commerce in services.

In the Eastern part of Austria, the districts beyond the confines of the metropolitan agglomerations had a disproportionately large share of their productions in areas that used either much labor or much energy. It thus seemed reasonable to assume (Gassler and Rammer, 1995) that these productions would quickly succumb to the competition of industries in the CEECs, which could use even cheaper labor and cheap energy. In the meantime, such fears have proved misplaced, as the effects of the new competition from the CEECs were more limited. The Austrian industries concerned held up quite well (Mayerhofer et al., 1998). On the other hand, there was hope that the trade liberalization brought about by the EU Association Agreements would suffice to lift from the Eastern parts of Austria the onus of being “peripheral.”<sup>2)</sup> This hope was not misplaced. With the opening up of the CEECs, the periphery seems to have moved further to the East (Delapina and Krajasits, 1997). While the economic potential of Lower Austria, for example, stood at a mere 87% of the EU average in 1989, Lower Austria has since moved up the ranks by 7 percentage points to 94% of the European average. The easternmost Austrian province of Burgenland profited from a similar development (Winter-Ebmer and Zweimüller, 1996).

The Eastern regions, especially those in the immediate vicinity of the frontiers, have also experienced a relatively strong inflow of both documented and undocumented CEEC labor – to a large extent mere commuters. The overall economic impact of this inflow and of this substantial expansion of the labor force in border regions was quite neutral, but at least higher unemployment (or higher nonemployment) was not one of the consequences (Palme, 1999). These effects of the EU Association Agreements already point towards the effects that full EU membership will have on the economic structure of various Austrian regions. The impact of EU enlargement will vary among the three types of regions: urban agglomerations, bands of denser

1 *A better and more exact gauge would be provided by a breakdown of Austria's trade statistics along the lines of such districts so that one would know precisely the share of that district in the goods and services that are imported to, and exported from, Austria. Such statistics have just become available and have not yet been used for such studies.*

2 *These parts of Austria became peripheral already when the Austro-Hungarian empire was dissolved, that is, even before the iron curtain was raised (Fidrmuc et al., 1999).*

settlement and economic activity along some major transport axes, and peripheral, mainly rural regions.

In the long run, the second type of region is set to profit most from the further opening of the East and from the EU membership of the CEECs. At first, the urban agglomerations will profit as well. But they will come under stronger competitive pressure once the productivity in the CEECs has grown, and with it the competitiveness of these countries' goods and services. The peripheral rural regions will be the ones to suffer most, as they have to compete over prices mainly, and as their price advantage will have been eroded by the competition from the East across the then open frontiers.

We cannot deal at this instance and at length with the future of European agriculture and the future of the EU's Common Agricultural Policy. But they will certainly have an impact on the development of regions, on differences between regions, and especially on the prospects of these peripheral and mostly rural regions. Two trends will converge to depress future agricultural incomes. One of them is independent of the accession of new EU members, for even without them, the CAP will have to change. It seems inevitable that price floors for various standard products will be lowered again. The other trend is that the new members will become serious competitors for Austrian farmers. The CEECs are "dormant agricultural giants" with comparatively low prices, abundant cheap labor and ample unused or underutilized fertile land. In fact, the accession of the CEECs would increase the EU's arable surface by 42%.

Many questions in this field are still open. Also, it is difficult to discern even the outlines of the final agreement in the negotiations on the agricultural chapter of accession. It is not clear, for example, whether the EU will really be able to implement its plan to exclude the new members from benefiting from direct subsidies to the farmers. Nonetheless, one has to assume that in the purely agricultural area Austrian incomes are very likely to fall, with consequences that are heavy mainly in rural regions, which have few alternative sources of revenue.

Austria will certainly aim to negotiate some exceptions from the immediate and full introduction of the freedom to provide services in and from the new member countries. Such exceptions would be, e.g., measures to curtail the shopping of Austrians in the adjoining CEECs. But such measures would have to be limited both in time and scope. All studies suggest that the emphasis should not be on defensive measures, but on forward looking measures. Everything points to enhanced transfrontier cooperation<sup>1)</sup> as a vehicle to improve the economic prospects especially of border regions.

*1* Special emphasis is put on the EU INTERREG program to facilitate transfrontier cooperation and on the LEADER program for the development of rural regions. Much will also depend upon how the latest, profound revision of the EU structural programs will translate into concrete Austrian policies. Clearly, Austria will have to accord greater prominence to its border regions in the East.

## 6 Conclusions

A variety of methods are used to arrive at estimates about the effects of the EU's Eastern enlargement on Austria. The overall effects are computed either by macroeconomic forecasting models or within the framework of computable general equilibrium models. Different assumptions underlie the choice of variables that impact especially on the dynamic effects of the further expansion of the European Union. Notwithstanding such differences, the different authors converge in some essential conclusions on these overall effects.

The acceding countries in Central and Eastern Europe will gain relatively more than the incumbent countries of the European Union. This is explained by the simple fact that the existing EU market is of course much larger than the combined market of the new members. Also, as new members, the CEECs will come to benefit more fully from access to the EU budget, and to the technology and the capital markets of the EU. According to various simulations, this will add one percentage point to their annual GDP growth during the first years of their membership. Some authors are even more optimistic. Baldwin, Francois and Portes (1997) argue that the increased investment could lead to a cumulative gain of about 18% of GDP in the long run. By contrast, in their projections for Slovenia, Strmsnik et al. (2000) forecast more sluggish growth of an annual rate of a mere 3% should EU membership not materialize.

As mentioned, the effects of the enlargement to the East on the existing EU members will be much smaller, but positive overall. Some of the existing members will be negatively affected, though, as the reduction of structural and agricultural subsidies could lead to some moderate welfare losses in southern EU countries in the long run.

While still rather moderate, the overall effects on Austria will be more strongly positive, as Austria is likely to gain more from East-West integration than any other EU country. This reflects the intensive trade between Austria and the CEECs and the resulting potential for both the trade creation effect and the benefits from the dynamic effects of integration. Keuschnigg and Kohler (1999) have estimated these benefits to amount to a cumulative, additional GDP growth between 1.1% and 1.3%. Breuss and Schebeck (1998) also put this figure at the upper bound of this interval (1.3%).

Several studies deal with the impact on various Austrian regions, and with the variation of this impact across these regions. Evidently, it will be most strongly felt in the Eastern part of the country. The areas which will profit most in the long run are the belts of greater economic density beyond the immediate urban agglomerations. The urban agglomerations themselves – Vienna, Linz, Graz – will benefit in the short and medium run, while the long-run effects of the EU's Eastern enlargement will be neutral. The rural border regions will be affected negatively.

Political controversy surrounds the issue of future migration into Austria that might be triggered by the citizens of the new EU members being granted the freedom of movement. Yet the volume of such movements is difficult to predict. This is emphasized in all the relevant studies. These studies are based either on opinion surveys which investigate the willingness and readiness to

migrate to the “West” or on models of various complexity that build upon experience with past flows of migration. Notwithstanding these different methods of inquiry, all of the studies converge in assuming a relatively high number of potential migrants to Austria. Most of these studies also point to the fact that a sizeable number of CEE citizens would remain resident in their respective countries, but would commute to work into Austria on a weekly or even daily basis. All studies point to the demographic developments in Austria, which will necessitate substantial immigration from 2010 onwards.

Austria will thus incur some costs in adjusting its labor market and its regional policies to these prospects. But this cost will be smaller than the overall benefits that will accrue to Austria as a consequence of enlargement.

Over and above these costs, the opportunity costs of nonenlargement have to be borne in mind. The EU accession of the CEECs offers the historical chance to put a final end to the divisions of Europe and to extend an area of prosperity and stability to a further 100 million inhabitants of the continent. Were these chances ignored, the consequences could be dire indeed, and very, very costly.

## References

- Alecke, B., P. Huber and G. Untiedt.** 2000. What a Difference a Constant Makes – How Predictable Are International Migration Flows. Paper prepared for a seminar on Recent Developments in Migration and the Labour Market in Central and Eastern Europe in the Context of EU Enlargement. Bratislava, March.
- Allen, Chris, Michael Gasiorek and Alasdair Smith.** 1998. European Single Market, How the Programme Has Fostered Competition. *Economic Policy*. October, 439–486.
- Aturupane, Chonira, Simeon Djankov and Bernard Hoekman.** 1999. Horizontal and Vertical Intra-industry Trade between Eastern Europe and the European Union. *Weltwirtschaftliches Archiv* 135 (1), 62–81.
- Baldwin, Richard E.** 1993. On the Measurement of Dynamic Effects of Integration. *Empirica* 20: 129–145.
- 1994. *Towards an Integrated Europe*. CEPR, London.
- Baldwin, Richard and Anthony J. Venables.** 1995. Regional Economic Integration. In: Grossman, Gene M. and Kenneth Rogoff (eds.), *Handbook of International Economics*, Vol. 3, Amsterdam, North Holland. 1597–1644.
- Baldwin, Richard E. , Joseph F. Francois and Richard Portes.** 1997. The Costs and Benefits of Eastern Enlargement: The Impact on the EU and Central Europe. *Economic Policy*, April. 127–176.
- Barwinek, H. and M. Kirisits.** 1998, EU Osterweiterung – Regionalwirtschaftliche Auswirkungen der EU – Osterweiterung in grenznahen Regionen der Steiermark, AK Steiermark, Graz.
- Biff, Gudrun and Alexander Hanika.** 1998. Langfristige Prognose des Arbeitskräfteangebots. Vorausschätzung 1996/2030 und Modellrechnung bis 2050 nach Bundesländern. *WIFO Monatsberichte* 7, 399–414.
- Borjas, George.** 1995, The Economic Benefits from Immigration. *Journal of Economic Perspectives* 9 (2), 3–22.
- Brandel, Franz, Helmut Hofer and Karl Pichelmann.** 1994. Verdrängungsprozesse am Arbeitsmarkt. IHS Forschungsbericht 345, Vienna.

- Breuss, Fritz and J. Tesche.** 1997. A General Equilibrium Analysis of East-West Migration: The Case of Austria and Hungary. In: Migration, Free Trade and Regional Integration in Central and Eastern Europe. Publication series of the Austrian Federal Chancellery.
- Breuss, Fritz and Peter Egger.** 1999. How Reliable Are Estimations of East-West Trade Potentials Based on Cross-Section Gravity Analyses? *Empirica* 26, 81-94.
- Breuss, Fritz and Fritz Schebeck.** 1995. Ostöffnung und Osterweiterung der EU. Monatsberichte 2. Austrian Institute of Economic Research, Vienna.
- 1998. Kosten und Nutzen der EU-Osterweiterung für Österreich. Monatsberichte 11. Austrian Institute of Economic Research, Vienna.
  - 1999. Ostöffnung und Osterweiterung der EU. Eine Neu-Bewertung der ökonomischen Auswirkungen auf Österreich nach der Agenda 2000. In: Gerhard Palme, 1999 a, op. cit.
- Breuss, Fritz.** 1995. Costs and Benefits of EU's Eastern Enlargement. Working Paper No. 78. Austrian Institute of Economic Research. Vienna.
- 1998. Kosten und Nutzen der Osterweiterung. Europäische Rundschau, special edition Österreich und die Europäische Union.
  - 1999. Costs and Benefits of EU Enlargement in Model Simulations. Working Paper 33. Research Institute for European Affairs, University of Economics and Business Administration, Vienna.
- Brücker Herbert, Parvati Trübswetter and Christian Weise.** 1999. Migrationseffekte der Europäischen Integration. Lehren aus der Süderweiterung für eine Osterweiterung der Europäischen Union. DIW, study commissioned by the Austrian Federal Chamber of Labor. Bundeskanzleramt. 1995. "Europa 1996 – Auswirkungen einer EU Osterweiterung." Joint study of WIFO, IHS, WIIW, Vienna.
- Delapina, Franz and C. Krajasits.** 1997. Grenzregionen an der Wohlstandskante – Entwicklungstendenzen an der österreichischen EU Außengrenze. ÖIR study, Vienna.
- DIW – Deutsches Institut für Wirtschaftsforschung.** 1997. Europäische Union: Osterweiterung und Arbeitskräftemigration. DIW Wochenberichte 5.
- Dixit, Avinash K. and Joseph E. Stiglitz.** 1977. Monopolistic Competition and Optimum Product Diversity. *American Economic Review* 67, June, 296–308.
- European Commission.** 2000. Doc MD 253/00, of 17 April 2000. The Free Movement of Persons for the Pursuit of Economic Activity in the Context of Enlargement. Brussels.
- 1999. Interinstitutional Agreement between the European Parliament, the Council, and the European Commission of 6 May 1999 on Budgetary Discipline and Improvement of the Budgetary Procedure. Brussels.
- Fassmann, Heinz and Christiane Hintermann.** 1997. Migrationspotential Ostmitteleuropa. Struktur und Motivation potentieller Migranten aus Polen und der Slowakei, Tschechien und Ungarn. ISR Forschungsbericht 15, Vienna.
- Fassmann, Heinz and Rainer Münz.** 1996. Die Neue Ost-West Wanderung als Folge der Ost-Öffnung: Bestimmungsfaktoren, Strukturmerkmale und Entwicklungstendenzen. In: Holzmann and Neck, op. cit.
- Fidrmuc, Jarko.** 1999. Trade Diversion in "Left-Outs" in Eastward Enlargement of the European Union: The Case of Slovakia. *Europe Asia Studies* 51 (4), 633–45.
- 1997a. Strength and Advantages of Eastern Europe – EU Net Gains from Accession. International Institute for Applied Systems Analysis, Laxenburg.
  - 1997b. Application of Gravity Models to Commodity Groups and Trade Projections between the EU and the CEECs. Paper presented at the conference Transition to Advanced Market Economies, Warsaw, June.

- Fidrmuc, Jan and Jarko Fidrmuc.** 2000 a. Macroeconomic Developments in the Czech Republic and the EU Accession. Forthcoming in Prague Economic Papers.
- 2000 b. Macroeconomic Developments in Slovakia and the Accession Process. Working Paper IR-00-007. International Institute for Applied Systems Analysis, Laxenburg.
- Fidrmuc, Jarko and Franz Schardax.** 1999. Increasing Integration of Applicant Countries into International Financial Markets: Implications for Monetary and Financial Stability. In: Focus on Transition 2/1999, Oesterreichische Nationalbank, 28–46.
- Fidrmuc, Jarko and Karl Pichlmann.** 1999. Austrian Experience of the Entrance to the European Union. In: Courbis, Raymond and Wladyslaw Welfe (eds.), Central and Eastern Europe on its Way to European Union. Frankfurt am Main, Peter Lang Verlag, 271–293.
- Fidrmuc, Jarko, Daniela Grozea-Helmenstein and Andreas Wörgötter.** 1999. Intra-Industry Trade Dynamics in East-West Trade Relations. *Weltwirtschaftliches Archiv* 135 (2), 332–346.
- Fidrmuc, Jarko, Peter Huber and Jan J. Michalek.** 2000. Poland's Accession to the European Union, Demand for Protection of Selected Sensitive Products. Forthcoming in MOCT/MOST.
- Fidrmuc, Jarko, Peter Huber and Andreas Wörgötter.** 1999. Die Österreichischen Regionen zwischen Ostöffnung und Osterweiterung. In: Federal Ministry for Economic Affairs and Labor, Das Jahrbuch Österreichs Außenwirtschaft 1998, Vienna.
- Gächter, August.** 1995. Auswirkungen einer allfälligen Osterweiterung der Europäischen Union auf die Zuwanderung nach Österreich und auf die Akzeptanz von Zuwanderern. In: Bundeskanzleramt, 1995, op. cit.
- 1998 a. Indirekte Migrationspolitik: Über Ausmaß und Bewältigung der Folgen der Arbeitnehmerfreizügigkeit bei der Osterweiterung der EU. IHS, Vienna.
  - 1998 b. Die Integration der niedergelassenen ausländischen Bevölkerung in den Arbeitsmarkt. IHS, Vienna.
- Gacs, Janos.** 1999. Macroeconomic Developments in the Candidate Countries with Respect to the Accession Process. International Institute for Applied Systems Analysis, Laxenburg and Austrian Institute of Economic Research, Vienna.
- 2000. Macroeconomic Developments in Hungary and the Accession Process. Working Paper IR-00-013. International Institute for Applied System Analysis, Laxenburg.
- Gandolfo, Giancarlo.** 1987. *International Economics I, The Pure Theory of International Trade*, Springer Verlag, Berlin.
- Gasiorek, Michael, Alasdair Smith and Anthony J. Venables.** 1994. Modelling the Effect of Central and East European Trade the European Community. *European Economy* 6, 519–538.
- Gassler, H. and C. Rammer.** 1995. Regionale Unterschiede in der Betroffenheit durch die Ostöffnung. *Wirtschaft und Gesellschaft*, 21 (1), 13–46.
- Grandner, Thomas.** 1998. The Impact of an EU Enlargement on Austria's Labour Market. In: Karl Pichlmann (ed.) *The Economic Consequences of Eastern Enlargement of the European Union – The Austrian View*, IHS.
- Gross, Dominique.** 1999. Three Million Foreigners, Three Million Unemployed? Immigration and the French Labor Market. IMF Working Paper WP/99/124.
- Hamilton, Carl B. and Alan L. Winters.** 1992. Opening up International Trade with Eastern Europe. *Economic Policy*, April, 78–115.
- Hamilton, Clive and Paul Kniest.** 1991. Trade Liberalisation, Structural Adjustment and Intra-Industry Trade. *Weltwirtschaftliches Archiv* 127 (2), 356–367.

- Hofer, Helmut.** 1998. The Impact of Emigration on the Host Country's Wages and Unemployment. In: Karl Pichelmann (ed.), op. cit. Vienna.
- Holzmann Robert, Christian Thimann and Angela Petz.** 1994. Pressure to Adjust Consequences for the OECD Countries for the Reforms in Eastern Europe. *Empirica* 21, 197–220.
- Holzmann, Robert and Reinhard Neck.** 1996. (eds.) *Ostöffnung: Wirtschaftliche Folgen für Österreich.* Vienna.
- Horvorka, G.** 1999. Die Zukunft der Österreichischen Landwirtschaft in einer erweiterten Europäischen Union. In: Federal Ministry for Economic Affairs and Labor; *Das Jahrbuch Österreichs Außenwirtschaft 1998,* Vienna.
- Huber, Peter.** 1999. Effekte der Migration auf den Arbeitsmarkt. In: Gerhard Palme and C. Schremmer; op. cit.
- Huber, Peter and Karl Pichelmann.** 1998. Osterweiterung, struktureller Wandel und Arbeitsmärkte. *Wirtschaftspolitische Blätter* 4, 339–349.
- Keuschnigg, Christian and Wilhelm Kohler.** 1996. Austria in the European Union: Dynamic Gains from Integration and Distributional Implications. *Economic Policy* 22, 155–211.
- 1997. Eastern Enlargement of the EU: How Much is it for Austria? Working Paper 9723. Johannes Kepler Universität Linz, Institut für Volkswirtschaftslehre.
- 1999. Eastern Enlargement of the EU: Economic Costs and Benefits for the EU Present Member States? Part I: Theory, Policy and Results, Part II: Appendix: Model Structure, Data Set and Calibration Method. Study XIX/B1/9801. European Commission, Brussels.
- Kohler, Wilhelm.** 1999. Wer gewinnt, wer verliert durch die Osterweiterung. Speech held at the annual meeting of the Verein für Sozialpolitik in Mainz from September 28 to October 1. Arbeitspapier 9920. Johannes Kepler Universität Linz, Institut für Volkswirtschaftslehre.
- Landesmann, Michael.** 1996. Emerging Patterns of European Industrial Specialisation: Implications for Labour Market Dynamics in Eastern and Western Europe. WIIW Research Report, Vienna.
- Majcen, Boris.** 1999. Measurement of Costs and Benefits of Accession to the EU for selected CEECs: Country Report Slovenia. WIIW, Vienna.
- Mayerhofer, Peter, Norbert Geldner, Gerhard Palme and Matthias Schneider,** 1998. *Ökonomische Auswirkungen einer EU Osterweiterung auf die niederösterreichische Wirtschaft.* Austrian Institute of Economic Research, Vienna.
- Neck, Reinhard, Gottfried Haber and Warwick J. MacKibbin.** 2000. Macroeconomic Impacts of European Union Membership of Central and Eastern European Economies. *Atlantic Economic Journal* 28(1), 71–82.
- Neven, Damien.** 1995. Trade Liberalisation with Eastern Nations: Some Distribution Issues. *European Economic Review* 39(3-4), 622–632.
- Nowotny, Thomas.** 1998. Austria and the Enlargement Debate: Is Geography Destiny? In: Luther, Richard and I. Ogilvie (eds.) *Austria and the European Union Presidency: Background and Perspectives,* Keel.
- OECD/SOPEMI.** 1997. *Trends in International Migration. Annual Report 1996,* Paris.
- Österreichisches Institut für Raumplanung (ÖIR).** 2000. *The Danube Space Study. Regional and Territorial Aspects of Development in the Danube Countries on the European Union.* Study commissioned by EC/DG XIV, Vienna.
- Palme, Gerhard.** 1999. Regionale Problemlagen und regionalpolitische Schlussfolgerungen. In: Gerhard Palme and C. Schremmer; op. cit.

- Palme, Gerhard and C. Schremmer (coordinators).** 1999. Regionale Auswirkungen der EU Integration der MOEL. Austrian Institute of Economic Research, Vienna.
- Piazolo, Daniel.** 2000. Poland's Membership in the European Union: An Analysis with a Dynamic Computable General Equilibrium (CGE) Model. Discussion Paper 89/2000. Center for Transition Economics, Katholieke Universiteit Leuven.
- Pichelmann, Karl, (ed.).** 1998. The Economic Consequences of Eastern Enlargement of the European Union. Institut für Höhere Studien, Vienna.
- Rosati, Dariusz K.** 2000. Macroeconomic Developments in Poland and the Accession Process. Manuscript. International Institute for Applied System Analysis, Laxenburg.
- Sajdik, Martin.** 1999. EU Erweiterung, Hintergrund, Entwicklung, Fakten. Baden-Baden.
- Schneider, Matthias.** 1998. Die Landwirtschaft als kritischer Bereich der EU-Osterweiterung. WIFO Monatsberichte 11 , 781–794.
- Schneider, Martin.** 1998. Modelling the Effects of Future East-West Trade on Austria's Regions: A Multiregional General Equilibrium Approach. Dissertation. University of Vienna.
- Smith, Alasdair and Anthony J. Venables.** 1988. Completing the Internal Market in the European Community, Some Industry Simulations. European Economic Review 32 (7), 1501–1525.
- Stankovsky, Jan and Gerhard Palme.** 1999. Die Auswirkungen der Ostöffnung auf die österreichische Wirtschaft. Austrian Institute of Economic Research, Vienna.
- Strmsnik, Igor, Branka Tavcar, Slavica Jurancic, Jasna Kondza, Sasa Kovacic, Tomaz Kraigher, Joze Markic, Natasa Marzidovsek and Ivanka Zakotnik.** 2000. Slovenia and the European Union, Macroeconomic Developments Scenarios. Working Paper IR-00-025. International Institute for Applied Systems Analysis, Laxenburg.
- Sujan, Ivan and Milota Sujanova.** 1999. EU-Osterweiterung – Die Perspektiven der Tschechischen Republik. In: Österreichs Außenwirtschaft 1998/1999. Federal Ministry for Economic Affairs and Labor, Vienna.
- Viner, Jacob.** 1950. The Customs Union Issue. Carnegie Endowment for International Peace. New York.
- Wallace, Claire,** 1998. Migration Potential in Central and Eastern Europe. International Organization for Migration, Geneva.
- Walterskirchen, Ewald.** 1998. Auswirkungen der EU-Osterweiterung auf den österreichischen Arbeitsmarkt. WIFO Monatsberichte 71 (8).
- Walterskirchen, Ewald and Raimund Dietz.** 1998. Auswirkungen der EU Osterweiterung auf den österreichischen Arbeitsmarkt. Study by the Austrian Institute of Economic Research commissioned by the Federal Chamber of Labor, Vienna.
- Welfe, Wladyslaw, Aleksander Welfe and Waldemar Florczak.** 1997. Alternatywy długookresowego wzrostu gospodarki polskiej. Instytut Rozwoju i Studiów Strategicznych, Warszawa. Quoted according to Kawecka-Wyrzykowska, Elzbieta. 1998. Country Report: Poland. Paper prepared in the framework of ACE Project No. P96-6033-R: Measurement of costs and benefits of accession to the European Union for selected CEECs. The Vienna Institute for International Economic Studies, Vienna.
- WIFO, WIW, IHS.** 1995. Europa 1996 – Auswirkungen der EU Osterweiterung. Publication series of the Austrian Federal Chancellery, Vienna.
- Winter-Ebmer, Rudolf and Josef Zweimüller.** 1996. Die Auswirkungen der Ausländerbeschäftigung auf den österreichischen Arbeitsmarkt 1988–1991. In: Robert Holzmann and Reinhard Neck, op. cit.



O E N B    A C T I V I T I E S

# Lectures Organized by the Oesterreichische Nationalbank

The OeNB continued its series of lectures dealing with topics of particular relevance to transition economies by hosting several presentations by renowned economists and experts in the first half of the year 2000. Focus readers may benefit from the main insights drawn from the lectures, which are presented below. The speakers in the second half of 1999 were *Cristian Popa*, Deputy Governor of the National Bank of Romania, who recounted the evolution of economic conditions and the effectiveness of Romanian monetary policy; *Anita Tiraspolski*, scientist and lecturer at INALCO (the Institut national des langues et civilisations orientales) and IFRI (the Institut français des relations internationales) in Paris, who outlined the impact of the political changes in Russia for the economy; *Uros Cufer*, Head of the Analysis and Research Department of the Banka Slovenje, who highlighted recent monetary developments in Slovenia and described the influence that institutional changes such as the conclusion of the Association Agreement with the EU, the passage of the new foreign exchange regime law and the new banking law, tax reform and pension reform had on the Slovene economy in 1999; *János Kun*, Advisor to the President of the Hungarian Financial Supervisory Authority, who reviewed the recent developments in the Hungarian financial sector against the background of the main economic developments in Hungary, such as dynamic growth, a good investment record, falling unemployment, decreasing net foreign debt levels, gradually falling inflation, the successful operation of the crawling peg exchange rate regime and the development of household savings.

The presentations are routinely rounded off by discussions during which participants have ample opportunity for an exchange with the speakers. The constraints on the length of the Focus on Transition do not allow a detailed account of the discussions in the brief overviews of each lecture the reader will find below.

## **Lecture by Cristian Popa**

### **Nominal-Real Trade-Offs and the Effects of Monetary Policy: The Romanian Experience**

On January 11, 2000, Cristian Popa, Deputy Governor of the National Bank of Romania, gave a lecture titled “Nominal-Real Trade-Offs and the Effects of Monetary Policy: The Romanian Experience” at the OeNB. The presentation focused on the evolution of economic conditions and the effectiveness of Romanian monetary policy. Because budget constraints remained relatively soft and government credibility was poor, the survival strategy of representative Romanian state sector firms consisted of giving priority to short-run insider utility maximization over long-run profit maximization. At least during the first four to five years of transition, Romanian firms attempted to reduce layoffs and minimize real wage losses. Nominal adjustment (via pricing and arrears) has been favored over riskier and more costly real adjustment and restructuring. In these settings, according to Deputy Governor Popa, a monetary stimulus quickly translates into higher inflation without stimulating production (in fact, it might even provide incentives to reduce output). Thus, monetary policy does not really play through to out-

put. Prices can be cut fairly easily at no cost to output, which certainly does not correspond to traditional Keynesian thinking. While refinancing rates have been politically more visible, the adjustment of reserve requirements has proved a more effective monetary policy tool in Romania.

This has changed somewhat since 1997. Although not much restructuring has taken place so far, budget constraints have hardened somewhat and output is now affected by stabilization efforts. However, as Mr. Popa stressed, monetary and credit tightening can still affect restructuring through adverse selection, owing to continuing softer budget constraints of the state compared to private firms. "Enterprise immunity" (a result of size, the political sensitiveness of the respective industry, its importance as a regional employer etc.) to punitive interventions on the part of government authorities or creditors seems to play a large role in the proliferation of financial indiscipline as a repeated game, with large, low-efficiency firms initiating arrears growth and other firms following either voluntarily (due to cost-of-credit differences) or involuntarily (because of a liquidity squeeze). In recent years, the trend of the volume of arrears has not been moving upwards. The introduction of current account convertibility has contributed to the decline of dollarization. According to Mr. Popa, policy conclusions point to the limited effectiveness of monetary policy in macrostabilization if structural reforms or financial discipline are absent or slow, and, in particular to the need for austere monetary policy in sustaining structural adjustment. On the other hand, they point to the danger of expansionary policy aimed at growth and/or employment objectives in such circumstances.

The discussion focused on the way privatization has been carried out, the current sources of economic growth and of commercial banks' earnings, and on the recent evolution of income distribution in Romania. Larger firms have often been privatized through management and employee buyouts, i.e. MEBOs. Therefore, many privatized firms have displayed similar behavior to state-owned ones. The recent depreciation of the lei in 1998 and 1999 considerably increased the price competitiveness of Romanian products and triggered a sizeable expansion of exports, thus improving external balances and the overall economic situation. Commercial banks have also benefited from the depreciation and have strongly engaged in profitable foreign exchange deals. Like in other transition countries, disparities of income have grown in Romania in recent years. All in all, the economic situation of the country remains fragile.

### Lecture by Anita Tiraspolsky

#### Russia between Two Elections: The Future of the Economy in the Balance

On February 21, 2000, Anita Tiraspolsky gave a presentation in French language at the OeNB: “La Russie entre deux élections – son avenir économique” (Russia Between Two Elections: The Future of the Economy in Balance). Ms. Tiraspolsky is scientist and lecturer at INALCO (the Institut national des langues et civilisations orientales) and IFRI (the Institut français des relations internationales) in Paris.

Ms. Tiraspolsky related that since 1992 every major political change in Russia seemed to have been brought about by a “palace intrigue,” in which one clan was able to gain the upper hand over the other. According to Ms. Tiraspolsky, the parliamentary elections of December 1999 did not bring any clear majority. The only clear message voters sent was that they wanted the reforms to be continued – but in moderation, avoiding the extremes (such as those Chubais and Kiriyenko represented).

Why did attempts at “shock therapy” à la Gaidar or Kiriyenko in fact fail in Russia? Ms. Tiraspolsky pointed out that the motive of the radical reformers was to realize a Western, American-style deterministic model of economic reforms in Russia. (Lenin had also been deterministic.) They did not have a continental European (e.g. French) model in mind at all. Gaidar wanted to establish the market as a (near-)complete substitute to the state – “le marché marche soi-même” (the market works of its own accord). Therefore, it appeared to be sufficient to liberalize prices. Enterprises would privatize themselves, and rules would be (spontaneously) established by the market. But the radical reformers were overtaken by reality.

While the relative gap in income and wealth between average Russians and average Americans today is at least as high as when the centrally planned economy was established at the end of the 1920s, a major difference today is that democracy has taken root in Russia. The Russians have become used to the freedom of expression. This may be one of the reasons why, despite the dismal economic situation, there are no major strikes and there is no civil unrest. Russians have “tasted” democracy like never before, and they obviously like it.

There is no consensus on the reasons why Russia has not experienced economic growth for such a long time (at least from 1991 to 1998). Ms. Tiraspolsky underlined the importance of the contraction of military expenditures for growth. Post-Soviet Russia had inherited a daunting structural handicap: Soviet military spending had not amounted to 15% to 20% of national income, as widely believed at the time, but rather to 40% to 50%. Converting or shutting down former military enterprises was extremely costly. Russia inherited an enormous amount of rigid specialization. The agricultural population suffered from the near total absence of memory of private production. To make ends meet during communist rule, Russians had acquired a capacity to cheat the state. This contributed to softening the post-communist recession, but at the same time prolonged it. Radical reformers did not take the weight of these issues in account, which demand

the attention of the state authorities. In this connection, Putin will hopefully be able to introduce some rules that will be observed. But this will take time.

In the course of the lively discussion that followed, Ms. Tiraspol'sky was confident that Putin would be able to tackle some current problems connected to the Russian "mafia," establish an admittedly Russian-style rule of law and thus in the medium term reinject some order into Russian society.

### **Lecture by Uros Cufer**

#### **Recent Developments in the Monetary Sphere in Slovenia**

On April 7, 2000, Dr. Uros Cufer, Head of the Analysis and Research Department of the Banka Slovenije, delivered a lecture on "Recent Developments in the Monetary Sphere in Slovenia" at the Oesterreichische Nationalbank.

Dr. Cufer began by pointing out that although the Slovene economy was growing strongly, some concerns had been raised recently, specifically about the considerable increase in inflation and the disequilibrium in the external balance. He stated that after closely examining the reasons behind these developments, it could easily be shown that the economy exhibited a high degree of robustness and flexibility. Most of these developments can be attributed to institutional changes and to changes in the international economic environment. Without a doubt, the year 1999 can be described as a year of institutional changes. The most important of these changes, said Mr. Cufer, were the conclusion of the Association Agreement with the EU, the passage of the new foreign exchange regime law and the new banking law, the implementation of a tax reform (a value added tax was introduced), and the enactment of a pension reform.

These changes had an impact on the behavior of economic agents and are therefore important for the conduct of monetary policy. From the long-run perspective, the increase in capital mobility implied by the removal of capital controls was probably the most important factor, surmised Mr. Cufer. From the short-run perspective, the introduction of VAT can be considered the reform which had the strongest impact on the behavior of economic agents. According to Mr. Cufer, the uncertainty related to tax reform caused a rise of actual inflation and inflationary expectations and had an impact on saving and consumption behavior. Moreover, it was reflected in the development of the balance of payments and on the foreign exchange market.

Since summer 1998 and until mid 1999, the international environment was less favorable to the Slovenian economy. Changes in the international environment can be seen as the second set of shocks that affected the Slovenian economy. The effects of the Russian crisis, the Kosovo crisis and instability in Croatia, the slowdown and subsequent pickup in economic activity in the EU, and the increase in world oil prices were the main external factors that exerted an influence on the Slovenian economy.

Despite the less benign economic environment, economic activity was strong (4.9% real GDP growth in 1999) and was based mainly on exceptionally robust domestic demand, both private and public, caused by high inflation expectations and the uncertainty related to the introduction of VAT.

Increased lending activity by banks (mainly to the household sector) significantly contributed to the rise in domestic consumption. In the first half of 1999, before the introduction of VAT, inflation was even below expectations. Moderate price growth (around 4.5% per annum) was attributable to the generally low inflation in the international environment (mainly the EU). Administered prices did not rise faster than unadministered prices, and real wage growth was moderate, which cushioned the inflationary impact of the tax reform. The tax reform pushed inflation upward less than expected, and the effect was absorbed within three months. However, the increase of oil prices in the world market exerted upward pressure on prices subsequently. The appearance of a current account deficit did not attract much attention in the first half of 1999, since it was expected and since it was attributed to increased domestic demand, which was to a very large degree import-oriented. Several other elements also contributed to the current account deficit, namely the drop in exports to former Soviet Union countries and the region of former Yugoslavia, and diminished exports of tourist services. In Mr. Cufér's view, the judgment whether the recently observed external disequilibrium was of a temporary or a permanent nature is still out.

### **Lecture by János Kun**

#### **Recent Developments in the Hungarian Financial Sector**

On May 8, 2000, Dr. János Kun, Advisor to the President of the Hungarian Financial Supervisory Authority, delivered a lecture on "Recent Developments in the Hungarian Financial Sector" at the Oesterreichische Nationalbank.

In his introduction, Mr. Kun reviewed the main economic developments in Hungary, referring to the country's dynamic growth performance (except for a temporary setback in late 1998 and early 1999 due to the Russian crisis), its good investment record, falling unemployment, decreasing net foreign debt levels, gradually falling inflation (except for a recent uptick in producer price inflation), the successful operation of the crawling peg exchange rate regime and the development of household savings.

Mr. Kun then gave an overview on the banking sector and its recent evolution. Bank profitability appears to have been fairly weak in 1999 judging from an industry-wide return-on-equity ratio of 8%, but this overall figure masks two contrary developments in the sector: Most banks (encompassing 80% of the sector's total assets) were in fact very profitable, recording an average 20% return on equity last year. Only the remainder of the sector made losses; most of those banks had, however, been in the red already in 1998 – which suggests that it is fairly difficult to turn around the fortunes of loss-making banks and that a number of those institutes will probably have to leave the market in the years to come. More generally, Mr. Kun expects that the number of banks will be halved in the medium run from currently 43 to around 20. The asset total of the banking sector in relation to GDP went down somewhat in 1998 and 1999, mainly due to the (temporary) discontinuation of what Mr. Kun called the "sterilization game" after the onset of the Russian crisis. In the first half of 1998 – and again in early 2000 – many

banks exploited the positive differential between domestic and foreign interest rates.<sup>1)</sup> Domestic banks took loans/deposits from abroad, converted them in HUF and deposited them with the central bank or bought government papers. Consequently, both the net foreign liabilities of Hungarian banks and the central bank's deposit liabilities to the Hungarian banking system increased significantly before the Russian crisis, whereas they fell thereafter and rose again at the beginning of this year. Until the crises, the gains from these operations were split fairly evenly between the banks and domestic speculators, who sold forex futures. Mr. Kun raised the question of whether there were policy tools which could be employed in order to minimize the sterilization costs for Hungary.<sup>2)</sup> He suggested that it might be useful to explore whether domestic interest rates could be lowered, if this was coupled with interest rate subsidies for medium- and long-term deposits by private persons (through partial income tax deductability), arguing that this would not expand aggregate demand significantly, as most large companies but also consumers are rather insensitive to domestic interest rate changes when deciding about the volume of loans they take out. Subsidizing deposit interest rates would help to keep up the savings propensity of private households.

Mr. Kun then went a bit more into the technicalities of the "sterilization game." In doing so, he reviewed the evolution before and during the Russian crisis, by presenting the price developments of forex futures maturing in December 1998. Based on this, he sketched the shake-out in the brokerage firm sector that took place as a consequence of the Russian crisis, reducing the number of brokers from 90 in mid-1998 to 65 today.

Finally, Mr. Kun reviewed the development of the Hungarian stock exchange. While market capitalization is high in comparison with other Central and Eastern European countries (namely around 40% of GDP), it has to be noted that most of the stocks have come to the stock exchange due to privatization, while the number of capital increases through the stock exchange has been very small up to now.

In the ensuing debate, the issue of capital inflows, sterilization and possible policy measures featured prominently. Inter alia, it was discussed how sensitive the Hungarian economy is to interest rate developments, and political economy considerations were also raised. Furthermore, developments in Hungary were compared with those in Poland, both with respect to differences in interest rate policies and possible underlying causes as well as to the role of the stock exchange in raising capital for the real economy. A further issue in the debate was the impact of the pension reform – Hungary moved to a three-pillar pension system in 1998 – on economic and financial sector developments in the country.

1 Domestic interest rates, which were set in line with the real interest rate rule of the Hungarian central bank, were higher than the sum of the foreign real interest rate, conversion costs, preannounced devaluation, foreign exchange risk and country risk.

2 According to Mr. Kun, these costs may have amounted to between 0.6% and 0.8% of GDP annually in recent years.

# The “East Jour Fixe” of the Oesterreichische Nationalbank – A Forum for Discussion

The East Jour Fixe of the Oesterreichische Nationalbank, a series of meetings initiated in 1991 as a forum in which economists, members of academia, government officials and other experts on Eastern Europe meet to discuss specific transition issues, looks back on a long tradition. The history and purpose of these meetings is set out in detail in Focus on Transition 1/1996. The East Jour Fixe series was continued in the first half of the year 2000 with two presentations on January 14 and on May 19. The meetings are always opened with speeches held by experts about key topical issues related to transition economies. High-profile discussants are invited to comment on these contributions, and finally policymakers, analysts and researchers engage in an exchange of views during the general discussion, which is given ample room on the agenda.

At the 37<sup>th</sup> East Jour Fixe on January 14, 2000, Professor Domenico Mario Nuti of the London Business School assessed the development of Poland's exchange rate policy since the economic reforms were initiated in 1990. The meeting was chaired by Kurt Pribil. Professor Nuti outlined the experience with various exchange rate regimes in Central and Eastern European countries since the beginning of transition, stressing the variety of exchange rate policies applied in transition countries. Professor Nuti's lecture was discussed by Leon Podkaminer of The Vienna Institute for International Economic Studies, Jarko Fidrmuc, economist at the OeNB, and Vít Bárta, Head of the Monetary Policy Division of the Czech National Bank. Participants who attended the presentation subsequently focused on two topics brought up during the lecture.

The 38<sup>th</sup> East Jour Fixe on May 19, 2000, had Russia as the common denominator of the two lectures. Professor Dalia Marin, Head of the Seminar on International Relations at the Economics Faculty of the Ludwig Maximilians University in Munich, gave the main presentation entitled “The Financial Crisis in Russia: What Can Be Done?” Professor Christian Haerpfer, Head of the Survey Center at the Institute for Advanced Studies in Vienna and Visiting Research Professor at the Centre for the Study of Public Policy at the University of Strathclyde, Scotland, held the co-lecture on the “Economic Behavior of Russian Households Before and After the Crisis.” Their speeches were commented by Helen Boss, economist at the Vienna Institute for Comparative Economic Studies, and by Stephan Barisitz, economist at the Oesterreichische Nationalbank. The main findings of the two most recent East Jour Fixe meetings are reported below.

## Contribution by Domenico Mario Nuti

### Exchange Rate Policy in Poland 1990 to 1999: Success and Underperformance

The main speaker at the 37<sup>th</sup> East Jour Fixe on January 14, 2000, was Professor Domenico Mario Nuti of the London Business School, who assessed the development of Poland's exchange rate policy since the economic reforms were initiated in 1990. The meeting was chaired by Kurt Pribil, Head of the Foreign Research Division of the Oesterreichische Nationalbank.

Professor Nuti began by outlining the experience with various exchange rate regimes in Central and Eastern European countries since the beginning of transition, stressing the variety of exchange rate policies applied in transition countries. This variety reflects the different level of exchange reserves in transition countries, their imbalances (including the monetary overhang), and government preferences.

In the specific case of Poland between 1990 and 1999, the zloty (PLN) moved from a fixed exchange rate regime (against the U.S. dollar between January 1990 and May 1991; and against a basket of five currencies – 45% USD, 35% DEM, 10% GBP, 5% FRF and 5% CHF – until October 1991) to a crawling peg. The monthly crawling rate was gradually reduced from an initial 1.8% in October 1991 to 0.3% in March 1999, with intermittent devaluations (31.6% in January 1990, 17% in May 1991, 10.7% in February 1992) and a revaluation by 6% in December 1995, within an increasingly broad fluctuation band (from  $\pm 7\%$  in May 1995 to  $\pm 15\%$  since March 1999). As in every transition economy, the real exchange rate appreciated steadily from its initial substantial undervaluation.

Professor Nuti stated that Poland's exchange rate policy has been largely successful for three main reasons. First, nominal wage growth was lower than the relatively high productivity growth associated with the restructuring. Second, the surplus of about USD 5 billion to USD 6 billion annually in "border trade" (unregistered trade mainly with Russia) built up foreign exchange reserves. However, these two sources of exchange rate stability were approaching exhaustion. Third, large-scale inflows of financial capital were attracted by high interest rates, which – net of zloty depreciation, whether expected at the crawling rate or realized ex-post – left a significant yield over and above the interest rate obtainable in reference currencies.

According to Domenico Nuti, the National Bank of Poland's management of monetary policy and exchange rate policies, however, has led to macroeconomic underperformance, with unnecessary ups and downs in the nominal course of the zloty, and a combination of expensive sterilization and excessive (and therefore inflationary) monetary expansion as a response to large-scale capital inflows. In the course of 1990, the National Bank of Poland could have revalued the exchange rate in reaction to an unintended trade surplus and foreign reserve accumulation. This would have contained Polish inflation much earlier and much more effectively, without significant adverse effects on output and employment, in view of initially low trade elasticities.

Mr. Nuti stressed that the stability of the Polish currency depended on continued wage restraint, a stimulation of the currently low domestic savings level, and sustained capital inflows. Recent prospects have worsened, he said, because of perceived political uncertainties and fiscal relaxation. Eventual membership in the EU and then in the euro area requires a change of the current exchange rate policy towards a narrowing of the fluctuation band, and a progressive hardening of the zloty/euro exchange rate.

Professor Nuti's lecture was discussed by Leon Podkaminer (The Vienna Institute for International Economic Studies), Jarko Fidrmuc (OeNB), and Vít Bárta (Head of the Monetary Policy Division, Czech National Bank). The first discussant asked if it were possible to identify optimal criteria to assess the success of the Polish monetary policy. He questioned Professor Nuti's assessment of Poland's exchange rate policy in 1990, arguing that monetary policy had to face a lack of credibility at the beginning of economic reforms. The Polish population widely expected another devaluation and tried to shift their savings into convertible currencies. Balance of payments data that strengthened the credibility of the Polish monetary policy were available only with a significant delay. These conditions prohibited any considerations about a revaluation of the Polish currency during 1990. Mr. Podkaminer also stressed that the first two factors that stabilized monetary developments in Poland (namely low wage growth and a surplus in "border trade") have already nearly disappeared. Therefore, capital inflows to Poland (as a third factor) would provide the ultimate check for the success of the Polish zloty. However, he expressed concern about the implications of the high interest rate level required to attract capital inflows for the Polish economy.

Mr. Fidrmuc mentioned that it was difficult to evaluate economic and monetary policy *ex ante*. Nevertheless, foreign exchange reserves in Poland remained relatively low until 1994. This implied little maneuvering space for exchange rate policy during the first years of transition. From the point of view of the current exchange rate policy, he underlined that (nominal as well as real) depreciation was the most important question the National Bank of Poland had to tackle. Future exchange rate developments in Poland may be relatively turbulent. Poland's accession to the European Union is likely to have positive effects on both wage growth and capital inflows. However, these factors have opposite effects on the exchange rate. As a result, the exchange rate may fluctuate widely, in reaction to most recent news. This creates, however, more difficult conditions for the accession to ERM II or to the euro area.

Mr. Bárta compared the Polish exchange rate policy with the Czech experience. He found many similarities between both countries. The exchange rate policy in the Czech Republic has moved from a rigid fixed exchange rate system to fixed exchange rates with widened bands of fluctuation, and finally after the currency and banking crisis in 1997, to floating exchange rates. Despite increased short-term fluctuations, the nominal average exchange rate of the Czech koruna against the Deutsche mark has remained surprisingly stable since the beginning of transition (the Czech koruna has therefore been nicknamed the "rocky currency"), while the real

exchange rate has appreciated by an average of 6% annually since 1993. The stability of the exchange rate is supported by the current inflation targeting policy.

Mr. Bárta evaluated the exchange rate policy in the Czech Republic (and also in Poland) largely positively. The exchange rate was properly chosen at the beginning of economic reforms. The nominal anchor contributed significantly to price stability in these countries. However, the liberalization of capital transactions has made the rigidly fixed exchange rate system largely inappropriate, although wage growth was the immediate reason for the crisis developments in the Czech Republic in 1997.

In his reply, Professor Nuti stressed some differences between Poland and the Czech Republic. In the former country, prices react less sensitively to exchange rate movements than in the latter, owing to the different size of the two economies. In particular, Poland used a dual exchange rate and monetary aggregate target. However, the liberalization of capital flows in Poland has significantly influenced the effectiveness of this monetary policy. In Domenico Nuti's view, the Czech crisis was caused mainly by structural factors. Although the current account deficit in Poland is also relatively high, it has been financed mainly by FDI. Finally, he again stressed that the good macroeconomic performance in Poland should be viewed as a criterion of success of the exchange rate policy.

The ensuing general discussion concentrated mainly on two topics. First, several participants raised the question whether central banks have to take into account the implication of a possibly restrictive monetary policy on macroeconomic performance (the competitiveness of exports) or not. The role of other factors (e.g. unit labor costs) for macroeconomic performance was also mentioned. Second, a number of participants addressed the link between the current account deficit and the susceptibility to currency crises. In this context, the need to reduce the Polish current account deficit was stressed.

### **Contributions by Dalia Marin and Christian Haerpfer**

The 38<sup>th</sup> East Jour Fixe was held at the OeNB on May 19, 2000, with Russia as the common denominator of the two lectures. Professor Dalia Marin, Head of the Seminar on International Economic Relations at the Economics Faculty of Ludwig Maximilians University in Munich, gave the main presentation, which was entitled "The Financial Crisis in Russia: What Can Be Done?" Professor Christian Haerpfer, Head of the Survey Center at the Institute for Advanced Studies in Vienna and Visiting Research Professor at the Centre for the Study of Public Policy at the University of Strathclyde, Scotland, held the co-lecture on the "Economic Behavior of Russian Households Before and After the Crisis." Their speeches were commented by Helen Boss, economist at The Vienna Institute for Comparative Economic Studies, and by Stephan Barisitz, economist in the Foreign Research Division of the Economics Department, OeNB. The OeNB's 38<sup>th</sup> East Jour Fixe was chaired by Kurt Pribil, Head of the Foreign Research Division.

Professor Marin analyzed the nature of the continuous crisis of demonetization in Russia and tried to expound why the total output collapse result-

ing from transition was much more severe in Russia than in the countries of Central Europe. Drawing on extensive empirical data gathered on barter deals in Russia and Ukraine, Professor Marin focused on barter as a major element of demonetization. According to her research, output in Russia (and in some other CIS countries) collapsed because of input shortages resulting from a lack of trust and the disorganization of agents in the economy. This triggered a breakdown of the production chain. The disorder has been so much larger in Russia than in Central European countries because the latter have been more exposed to international trade and competition and less infested with monopolies. Inter-enterprise arrears, in turn, help to deal with the trust problem by constraining input suppliers' bargaining power. Finally, barter creates a deal-specific collateral, which softens the liquidity squeeze in the economy when credit enforcement is prohibitively costly.

Thus, as Professor Marin pointed out, barter can be seen as a substitute for a poorly working banking system, which suggests the following explanation for the evolution of barter over time: After the breakdown of central planning and of state authority in Russia, the arrears crisis emerged in 1992, while barter started to augment in 1994. This expansion took place because around that time nonpayments reached the critical level at which production became unsustainable. At that point, barter started to substitute for the non-active banking sector as well as for trade credits in cash, which explains the explosive increase in this form of trade. Although barter and nonpayments have declined somewhat since the crisis of August 1998, largely for macro-economic reasons, such transactions are still a major difficulty and inevitably lead to the question of what can be done to overcome this problem. As distortions are pervasive, a relaxation of monetary policy would not help; it could even bring about a further fall of output. According to Professor Marin, the banking sector would have to be revamped by introducing relationship banking along the lines of the (traditional) German-Austrian banking model.

Christian Haerpfer complemented this macroeconomic enterprise and financial sector-oriented view by presenting an analysis of household behavior before and after the critical juncture of the August 1998 crisis. Professor Haerpfer showed the results of recent surveys conducted by the Centre for the Study of Public Policy and the VCIOM Russian Center for Public Opinion Research, including polls of about 2,000 respondents conducted in March and April 1998 and in January 2000. These polls showed a slight decline in the employment of respondents in state enterprises and organizations and an impressive increase in self-employment in the last two years. In this period, the amount of wage arrears declined. As one could expect, the vast majority of respondents (90%) did not earn enough from their main job to meet their basic needs. Households' financial situation worsened from spring 1998 to the beginning of 2000; consequently, most people became less satisfied with their own situation. Garden plots became more and more important as a source of income and subsistence.

On the other hand, interestingly, the share of families that felt that their economic situation had improved or remained the same as before perestroika

has continually expanded since the mid-1990s. Combining this with the increase in self-employment and garden plots, Professor Haerpfer inferred that, despite serious material problems, many households have become able to cope better. Another apparent contradiction (at least at first glance) is the growing appreciation of the pre-perestroika economic system that has accompanied rising optimism about what the Russian economy will look like in five years. Professor Haerpfer concluded that, given the date of the last poll (January 2000), this combination may be explained by the popularity of Putin and his political stance, reflecting some undoubtable nostalgia for the Soviet period (although concentrating more on the country's former great power status) as well as optimism on the future development of Russia. As to the probable duration of economic transition, an increasing number of households thought that it would be a long-term undertaking (more than ten years); at the same time, households were more optimistic than in the past about their own economic prospects.

The ensuing discussion was very lively. Focusing on Professor Marin's presentation, Helen Boss pointed out that while she agreed on the general importance of barter and in particular, on its substitutional function in a situation where credit markets are not working, she felt that the basic cause for the long-lasting output collapse in Russia was not the shortage of inputs, but the collapse of government-supported demand, followed by a continuous lack of restructuring and competition. Russia is different from Central Europe because it has inherited even greater structural distortions from socialist industrialization (take, for example, the energy intensity of industry and the bias toward defense). Successive Russian governments have colluded with (big ex-socialist) enterprises in refusing to harden budget constraints. Despite the recent economic recovery, by and large, this situation remains unchanged. Russia is still locked into a hybrid type of economic system, featuring a combination of markets and prevailing explicit or implicit soft budget constraints.

Commenting on Professor Marin's presentation, Stephan Barisitz added that in his opinion the tightening of Russian monetary policy and banking regulations in 1994/95 also constituted an important trigger of the expansion of interenterprise arrears and barter. Furthermore, Mr. Barisitz asked Professor Haerpfer whether the respondents in the most recent poll appeared to be prepared for deep economic reforms and whether the tendency of polarization of incomes still persisted in Russia. He then informed the audience of some results of an OECD meeting on investment policies in the Russian Federation that had taken place the day before in Paris. On the whole, the Russian delegation had given a quite sober description of the state of affairs, in particular the persistent lack of rule of law in their country, a factor which also affects foreign investors. The tax regime remains a major disincentive to investment in Russia. The bankruptcy law, which, at least in theory, is well written and based on the German-French model, is difficult to enforce, given that about two thirds of enterprises remain technically bankrupt.

Replying to these comments, Professor Marin stressed that according to her data, it is not so much restructuring that is driving barter and that it is

not necessarily competition that is lacking, but that barter and inter-enterprise arrears stem from the fact that firms frequently incur high costs when they switch from one supplier to another in an environment characterized by a lack of trust and of rule of law. She agreed that many institutions do not function properly in Russia. Professor Haerpfer said that only about a third of the people favored deep structural reforms, but that the rest of the population was rather split on what it actually wanted. In any case, there appears to be a consensus that people do not believe in a "big bang." The polarization of incomes has been continuing with no sign of stopping. The general discussion that followed concentrated on the suggestion of introducing a German-Austrian type banking system. Many participants deemed this rather unfeasible as long as there was no rule of law.

*Olga Radzyner Award*  
*for Scientific Work on Monetary and Finance Themes*  
*for Young Economists from Central, Southeastern*  
*and Eastern European Transition Economies*

**Invitation to Submit Applications**

The Oesterreichische Nationalbank has established an award to commemorate Olga Radzyner, former Head of its Foreign Research Division, who died in a tragic accident in August 1999. The Olga Radzyner Award will be bestowed on young economists for excellent research focused on monetary and finance issues in economics. Three applicants are eligible to receive a single payment of EUR 2,500 each from an annual total of EUR 7,500.

**Conditions for Participation:**

1. The submitted work shall qualify as scientific. It may be in the form of a master's or doctoral thesis, a working paper or a scientific article.
2. The submitted work shall deal with monetary or finance issues, with the panel of judges giving preferential treatment to topics dealing with the integration of Central, Southeastern and Eastern transition economies within Europe.
3. The review process shall, above all, assess the quality and originality of the work.
4. The author shall submit the work (date of submission as in item 5) before his/her 35<sup>th</sup> birthday, and shall be a citizen of a Central, Southeastern or Eastern European transition country. The author shall provide proof that both of these conditions are fulfilled by providing copies of the respective documents along with the submitted work.
5. The submitted work shall be typewritten and shall be in English or German. To identify their work as a submission, applicants shall mark the envelope with the reference "**Olga Radzyner Preis.**" The Oesterreichische Nationalbank shall receive the work submitted for the first award by August 31, 2000, at the latest, and the work shall be sent to the Oesterreichische Nationalbank, Foreign Research Division, Otto Wagner-Platz 3, P.O. Box 61, A-1011 Vienna, Austria.

Apart from the copy of the applicant's birth or citizenship certificate, the author shall provide a brief CV and a written recommendation by a university professor, a recognized expert in the field or an internationally recognized scientific institution. If the work is a master's or doctoral thesis, the professor responsible must make the recommendation.

If the work submitted has already won an award or if it has been submitted for other awards, this circumstance shall be mentioned in the application. Moreover, the applicant shall notify the reviewers whether and when parts of the work or the entire work have been published. Submissions for the Olga Radzyner Award shall be treated confidentially.

6. The work shall be reviewed by a panel of four reviewers, who shall be qualified OeNB staff members. The award shall be conferred on recommendation of the panel by the Oesterreichische Nationalbank's Governing Board.
7. If the panel should come to the conclusion that none, or only one or two of the submitted works qualify for the award, it is authorized to suggest to the OeNB's Governing Board that no award be conferred, or that only one or two awards be conferred.

8. The panel shall determine the award winners by simple majority. The chairperson shall have the casting vote. The decision of the Governing Board based on the proposal of the panel shall be final and, like the decision of the panel, shall not be subject to appeal. The applicants shall not have any legal recourse.
9. The Oesterreichische Nationalbank is entitled, but by no means obligated to publish the work for which the award was bestowed in part or in full, without obligation to make any additional payments. The Oesterreichische Nationalbank shall reserve the right to invite award winners to hold a speech; it shall reimburse the award winners for any travel and accommodation costs incurred. The award winners, in turn, shall declare their willingness to hold such a speech free of charge. The Oesterreichische Nationalbank shall have the right to issue, or to have someone issue, press releases or other notifications in connection with the presentation of the award, which shall take place for the first time in the second half of 2000.
10. By submitting their work, applicants shall consent to the above terms and conditions. The granting of awards shall not entail any further obligations for the OeNB.
11. For further information please contact Ms. Eva Wasserbauer, Foreign Research Division, (+43-1) 404 20 ext. 5205.

Vienna, April 2000.

# *Technical Cooperation of the Oesterreichische Nationalbank with Countries in Transition*

In the first half of 2000, the OeNB continued its cooperation activities with reforming countries in Central and Eastern Europe, the West Balkans and the CIS republics both on a bilateral and on a multilateral level.

At the bilateral level, the OeNB scheduled a number of highly specialized seminars for central bankers in the series started in 1997. Four one-week seminars cover the following topics: "Austria's First Five Years in the EU – Lessons and Experiences after One Year in EMU" (March 20 to 24, 2000), "Accounting in the OeNB as a Member of the ESCB" (August 28 to September 1, 2000), "Changeover to the Euro: Monetary Policy and Foreign Exchange Management – The OeNB's Experience with Monetary Policy Operations and Financial Reporting in the Eurosystem" (September 11 to 15, 2000) and "Payment Systems – Adapting to the ESCB Environment" (October 9 to 13, 2000).

In addition to these seminars, the OeNB is involved in a number of bilateral cooperation activities with central banks in reforming countries. Typically, these "tailor-made" activities are organized to meet the particular needs of individual central banks and are often short-term and of an ad-hoc nature, e.g. workshops, consultations or study visits. As a case in point, the OeNB plans a one-day workshop on "Economic, Fiscal and Monetary Policy Coordination" in July 2000 with the National Bank of Hungary (NBH). Moreover, in the second half of 2000 the OeNB plans to hold a workshop on "Supervising Derivative Transactions" and another one on "IT – Statistical Background for Central Bank Statistical Systems" with the NBH. In September 2000, the OeNB will host a two-day study visit for the National Bank of Poland, covering – in parallel – the following topics: "Legal Aspects of Financial Instruments"; "Model of the Functioning of the Central Register for Treasury Securities at Central Banks in Connection with the ESCB" and "Accounting Standards." Following a request from the National Bank of Slovakia (NBS), the OeNB will hold a two-day workshop in Bratislava on "The Preparation of EU and EMU Accession – the Central Bank's Experience" in fall 2000. Moreover, the OeNB plans to host a one-day study visit from the NBS to Vienna on "Human Resources Management and the OeNB's Social Scheme" in the second half of the year. Furthermore, bilateral cooperation was continued with the Bank of Slovenia. In April 2000 a two-day workshop in Ljubljana covered the following issues: introduction of and changeover to euro coins and banknotes; planning and monitoring of cash in circulation; destroying damaged banknotes; coping with counterfeit banknotes; other security issues. In May 2000, the OeNB hosted a two-day study visit from the Bank of Slovenia on SAP 3 implementation in accounting. Moreover, the OeNB welcomed a high-ranking delegation from the National Bank of Kazakhstan in April 2000, which paid a study visit on "Bookkeeping and Accounting – The Ledger System." In May 2000, the Czech National Bank (CNB) hosted a one-day seminar on "The Experience with Joining the EU/EMU: Preparations and Reality" in cooperation with the OeNB. The OeNB was represented by a high-ranking delegation, including the Vice Governor and a number of experts in this field. Apart from these short-term cooperation activities, the OeNB plans to host a two-month traineeship of an employee of the CNB in the second half of 2000.

At the multilateral level, the OeNB for the first time took part in the EU-financed twinning program and submitted a project proposal on “Strengthening the Capacity of the Romanian Institutions for the Prevention and Control of Money Laundering” in March 2000.

As a result of restructuring the Joint Vienna Institute’s (JVI) academic program as of 1999, the JVI’s course in Applied Economic Policy (AEP), the successor of the former Comprehensive Course, includes an “Austrian segment,” which is jointly financed by the Austrian Ministry of Finance and the OeNB. In the first part of this segment, experts from a variety of academic and organizational backgrounds present 2½ days of lectures devoted to specific features of Austria’s market economy, such as the political and economic structure, social partnership, issues of fiscal federalism, incomes policies, Austria’s experience with EU accession and the introduction of the euro. In the second part, the so-called study tour, participants spend three days visiting companies, state and local government authorities, banks, media centers and the like to gain an insight into the structures of Austria’s economy and administration.

The program for each study tour is organized by the OeNB. Moreover, in addition to the four one-week seminars held by the OeNB every year, the Austrian authorities (OeNB and Ministry of Finance) jointly organize two one-week seminars at the JVI. The topics of these two seminars in 2000 are as follows: “The Changing Role of Government in Economic Reforms” (May 22 to 26, 2000), and “Foreign Direct Investment and Privatization Policies” (June 5 to 9, 2000).

S T A T I S T I C A L     A N N E X

## Gross Domestic Product

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
Annual change in %											
1990	-9.1	-1.2	x	-3.5	x	x	-11.6	-5.6	-3.0	-2.5	-4.7
1991	-11.7	-11.5	x	-11.9	x	x	-7.0	-12.9	-5.0	-14.6	-8.9
1992	-7.3	-3.3	-12.4	-3.1	x	x	+2.6	-8.8	-14.5	-6.5	-5.5
1993	-1.5	+0.6	-8.5	-0.6	-14.9	-16.2	+3.8	+1.5	-8.7	-3.7	+2.8
1994	+1.8	+2.2	-2.0	+2.9	+0.6	-9.8	+5.2	+3.9	-12.7	+4.9	+5.3
1995	+2.9	+5.9	+4.3	+1.5	-0.8	+3.3	+7.0	+7.1	-4.1	+6.9	+4.1
1996	-10.1	+4.8	+3.9	+1.3	+3.3	+4.7	+6.0	+3.9	-3.4	+6.6	+3.5
1997	-7.0	-1.0	+10.6	+4.6	+8.6	+7.3	+6.8	-6.9	+0.9	+6.5	+4.6
1998	+3.5	-2.2	+4.0	+4.9	+3.6	+5.1	+4.8	-5.4	-4.9	+4.4	+3.9
1999	+2.5	-0.2	-1.3	+4.4	+0.0	-3.0	+4.1	-3.2	+3.2	+1.9	+4.9
1997											
1st quarter	-11.7	+0.4	+10.8	+2.1	+5.0	+5.2	+7.0	x	+0.3	+6.3	+3.2
2nd quarter	-8.3	-0.9	+12.4	+4.3	+8.5	+9.0	+7.6	x	-0.6	+6.2	+5.4
3rd quarter	-10.0	-2.1	+11.5	+5.1	+10.0	+6.4	+6.8	x	+1.0	+6.6	+3.0
4th quarter	+2.4	-1.4	+13.5	+5.3	+10.7	+4.5	+6.5	x	+2.6	+6.9	+6.5
1998											
1st quarter	+18.5	-1.1	+9.3	+4.5	+8.9	+6.9	+6.5	-9.4	-0.1	+6.2	+6.4
2nd quarter	+6.3	-1.8	+4.4	+5.1	+5.6	+9.7	+5.3	-1.0	-1.8	+6.1	+3.0
3rd quarter	-5.9	-2.5	+1.7	+5.6	+2.2	+3.2	+4.9	..	-7.5	+5.1	+4.0
4th quarter	-4.9	-3.3	-0.7	+5.2	-1.9	+0.2	+2.9	..	-7.8	+0.5	+3.6
1999											
1st quarter	-0.7	-3.3	-4.8	+3.3	-2.3	-4.2	+2.3	-4.6	-2.8	+1.8	+3.0
2nd quarter	+1.6	+0.1	-2.3	+3.9	-1.8	-4.0	+3.0	-3.2	+1.4	+2.9	+7.4
3rd quarter	+4.5	+1.0	+0.0	+4.5	+0.0	-5.0	+5.0	-3.6	+5.6	+0.6	+4.1
4th quarter	+4.6	+1.0	+1.9	+5.9	+4.0	+1.2	+6.2	-1.4	+8.8	+2.4	+5.0

Source: WIW (The Vienna Institute for International Economic Studies); Estonia, Latvia, Lithuania: IMF; Estonia: national source from 1997. Quarterly data: national sources.

## Industrial Production

	Bulgaria	Czech Republic	Estonia <sup>1)</sup>	Hungary	Latvia	Lithuania <sup>1)</sup>	Poland	Romania	Russia	Slovak Republic <sup>2)</sup>	Slovenia
Annual change in %											
1990	-16.7	-3.3	x	-10.2	x	x	-24.2	-19.0	-0.1	-4.0	-10.5
1991	-20.2	-21.2	x	-16.6	x	-4.9	-8.0	-22.8	-8.0	-19.4	-12.4
1992	-18.4	-7.9	x	-9.7	-34.6	-51.6	+2.8	-21.9	-18.0	-9.3	-13.2
1993	-9.8	-5.3	x	+4.0	-38.1	-34.7	+6.4	+1.3	-14.1	-3.8	-2.8
1994	+10.6	+2.1	-2.1	+9.6	-9.5	-29.8	+12.1	+3.3	-20.9	+4.8	+6.4
1995	+4.5	+8.7	+2.0	+4.6	-6.3	+0.9	+9.7	+9.4	-3.3	+8.3	+2.0
1996	+5.1	+2.0	+3.5	+3.4	+1.4	+3.5	+8.3	+6.3	-4.0	+2.5	+1.0
1997	-10.0	+4.5	+13.0	+11.1	+6.1	+8.0	+11.5	-7.2	+1.9	+2.7	+1.0
1998	-12.7	+3.1	+0.8	+12.5	+2.0	+7.0	+3.5	-16.8	-5.2	+5.0	+3.7
1999	-12.5	-3.1	..	+10.5	-8.8	..	+4.3	-8.0	+8.1	-3.3	-0.5
1999											
February	-14.0	-8.1	-12.8	+5.1	-12.0	-13.0	-5.8	-8.9	-3.0	-10.2	-7.7
March	-10.9	-7.9	-9.6	+8.5	-11.5	-4.3	+3.3	-8.1	+0.4	-10.7	-0.4
April	-11.3	-4.8	-9.4	+7.3	-15.3	+3.1	+0.3	-7.6	+0.6	-4.4	-8.0
May	-14.9	-1.9	-7.9	+4.0	-16.0	-11.1	+2.2	-10.0	+6.0	-9.1	-0.4
June	-8.2	-3.2	-6.1	+9.9	-14.5	-5.5	+1.0	-9.2	+9.0	-1.9	+3.1
July	-16.1	-5.0	-5.5	+5.5	-9.8	-11.2	+1.4	-9.2	+12.8	+1.7	-3.4
August	-4.2	+2.6	+0.7	+13.3	-5.8	-12.5	+7.1	-9.2	+16.0	-4.2	+1.1
September	-5.5	-2.1	+4.3	+13.6	-1.1	+1.5	+8.7	-9.2	+20.2	-1.6	+0.8
October	-5.1	-3.9	+6.4	+15.5	-2.1	-13.3	+8.9	-9.2	+10.3	+2.4	+1.7
November	-2.7	+4.4	+4.3	+18.8	+2.5	-16.4	+15.7	-9.2	+12.9	+2.2	-0.1
December	-7.8	+9.1	+7.5	+12.7	-0.9	-11.5	+19.0	-9.2	+11.1	-1.6	+8.2
2000											
January	+4.4	+3.4	+13.1	+17.7	+4.3	+6.9	+7.9	-2.4	+10.7	-3.0	+2.5
February	+2.8	+5.1	+14.4	+24.3	+3.6	+14.3	+16.5	+0.4	+13.7	+8.8	+11.8
March	..	..	+11.3	+20.3	..	..	+6.7	..	+9.6	+7.7	+7.5

Source: Annual data: WIW; Estonia, Latvia, Lithuania: national sources. Monthly data: national sources.

<sup>1)</sup> Industrial sales.

<sup>2)</sup> Beginning in 1999: change in % against 1998 monthly average.

## Unemployment Rate

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
<i>End of period (in %)</i>											
1990	1.7	0.8	x		x	x	6.3	x	x	1.6	5.8
1991	11.1	4.1	x		x	x	11.8	3.0	x	11.8	10.1
1992	15.2	2.6	x	9.8	2.3	x	13.6	8.2	5.2	10.4	13.4
1993	16.4	3.5	4.1	11.9	5.8	3.4	16.4	10.4	6.0	14.4	15.4
1994	12.8	3.2	4.1	10.7	6.5	3.8	16.0	10.9	7.7	14.8	14.2
1995	11.1	2.9	4.0	10.2	6.6	6.1	14.9	9.5	9.0	13.1	14.5
1996	12.5	3.5	4.3	9.9	7.2	7.1	13.2	6.6	9.9	12.8	14.4
1997	13.7	5.2	3.6	8.7	7.0	6.7	10.3	8.9	11.2	12.5	14.8
1998	12.2	7.5	4.0	7.8	7.6	6.9	10.4	10.4	13.3	15.6	14.6
1999	16.0	9.4	5.2	7.0	9.7	8.4	13.0	11.5	12.3	19.2	13.0
1999											
February	13.2	8.3	4.8	7.6	9.8	8.1	11.9	12.0	14.1	16.5	14.3
March	13.2	8.4	5.3	6.7	10.1	8.5	12.1	12.0	13.6	16.7	14.1
April	13.3	8.2	5.3	7.3	10.2	8.1	11.8	11.7	13.0	16.4	14.0
May	13.0	8.1	5.2	7.0	10.1	7.8	11.6	11.5	12.4	16.5	13.7
June	12.8	8.4	5.0	6.3	10.0	7.5	11.6	11.4	12.0	17.7	13.4
July	13.0	8.8	5.0	7.5	9.9	7.8	11.8	11.3	11.8	18.3	13.4
August	13.6	9.0	5.0	6.8	9.8	8.1	11.9	10.9	11.7	18.2	13.3
September	14.2	9.1	5.2	6.6	9.5	8.4	12.1	10.9	11.9	17.8	13.1
October	14.7	8.9	5.2	6.7	9.3	8.9	12.2	10.8	12.1	17.7	13.0
November	15.6	9.0	5.2	6.6	9.1	9.5	12.5	11.1	12.3	18.3	13.0
December	16.0	9.4	5.2	6.3	9.1	10.0	13.0	11.5	12.3	19.2	13.0
2000											
January	17.2	9.8	5.4	7.0	9.1	10.8	13.6	11.9	12.3	19.5	13.3
February	18.1	9.7	5.6	7.2	9.1	11.2	13.9	12.2	12.3	19.5	13.0
March	..	9.5	..	6.0	9.0	11.4	13.9	11.9	12.3	19.3	12.6

Source: WIW; Estonia, Latvia, Lithuania: national sources.

## Consumer Price Index

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
<i>Period average (annual change in %)</i>											
1990	+ 23.8	+ 9.7	x	+28.9	x	x	+585.8	+ 5.1	+ 5.3	+10.4	x
1991	+ 338.5	+56.6	x	+35.0	x	x	+ 70.3	+170.2	+ 92.6	+61.2	x
1992	+ 91.2	+11.1	x	+23.0	+243.3	x	+ 43.0	+210.4	+1,526.5	+10.0	+201.3
1993	+ 72.8	+20.8	+89.8	+22.5	+108.8	+410.2	+ 35.3	+256.1	+ 873.5	+23.2	+ 32.3
1994	+ 96.0	+10.0	+47.7	+18.8	+ 35.9	+ 72.2	+ 32.2	+136.8	+ 307.0	+13.4	+ 19.8
1995	+ 62.1	+ 9.1	+28.8	+28.2	+ 25.0	+ 39.7	+ 27.8	+ 32.3	+ 197.5	+ 9.9	+ 13.4
1996	+ 123.0	+ 8.8	+23.1	+23.6	+ 17.6	+ 24.6	+ 19.9	+ 38.8	+ 47.8	+ 5.8	+ 9.9
1997	+1,082.3	+ 8.5	+10.6	+18.3	+ 8.4	+ 8.9	+ 14.9	+154.8	+ 14.8	+ 6.1	+ 8.4
1998	+ 22.3	+10.7	+ 8.2	+14.3	+ 4.6	+ 5.1	+ 11.8	+ 59.1	+ 27.6	+ 6.7	+ 7.9
1999	+ 0.3	+ 2.1	+ 3.3	+10.0	+ 2.4	+ 0.8	+ 7.3	+ 45.8	+ 85.7	+10.6	+ 6.1
1999											
March	- 2.8	+ 2.5	+ 3.6	+ 9.3	+ 2.3	+ 1.3	+ 6.2	+ 35.8	+ 107.6	+ 6.7	+ 5.1
April	- 3.6	+ 2.5	+ 3.3	+ 9.4	+ 1.5	+ 0.7	+ 6.3	+ 38.7	+ 112.9	+ 6.8	+ 4.6
May	- 4.7	+ 2.4	+ 3.3	+ 8.9	+ 1.9	+ 0.2	+ 6.4	+ 42.8	+ 116.5	+ 6.7	+ 4.3
June	- 3.3	+ 2.2	+ 3.1	+ 9.1	+ 1.9	+ 0.6	+ 6.5	+ 48.2	+ 120.5	+ 6.8	+ 4.3
July	+ 1.3	+ 1.1	+ 2.6	+10.1	+ 1.7	- 0.2	+ 6.3	+ 48.6	+ 126.3	+ 7.7	+ 6.0
August	+ 3.2	+ 1.4	+ 2.6	+10.9	+ 2.1	+ 0.2	+ 7.2	+ 49.5	+ 120.9	+ 8.6	+ 6.8
September	+ 1.7	+ 1.2	+ 2.8	+10.9	+ 2.3	+ 1.4	+ 8.0	+ 50.2	+ 62.0	+ 9.3	+ 7.5
October	+ 3.0	+ 1.4	+ 2.8	+10.5	+ 2.8	+ 0.2	+ 8.8	+ 50.7	+ 57.2	+ 9.7	+ 7.7
November	+ 4.6	+ 1.9	+ 3.2	+10.6	+ 3.2	+ 0.1	+ 9.2	+ 53.7	+ 50.5	+10.1	+ 7.8
December	+ 6.1	+ 2.5	+ 3.8	+11.2	+ 3.2	+ 0.3	+ 9.8	+ 54.8	+ 36.6	+10.5	+ 8.0
2000											
January	+ 5.2	+ 3.4	+ 3.3	+10.0	+ 3.1	+ 0.8	+ 10.1	+ 56.8	+ 28.9	+13.6	+ 7.8
February	+ 5.7	+ 3.7	+ 3.1	+ 9.8	+ 3.4	+ 0.8	+ 10.4	+ 55.7	+ 25.1	+15.1	+ 8.3
March	+ 5.3	+ 3.8	+ 3.1	+ 9.6	+ 3.2	+ 0.0	+ 10.3	+ 49.0	+ 22.4	+15.6	+ 9.0
April	..	..	+ 3.1	+ 9.2	..	..	+ 9.8	..	..	+15.9	+ 9.2

Source: WIW; Estonia, Latvia, Lithuania: IMF.

## Trade Balance

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
USD million											
1990	+ 23.8	+ 9.7	x	+28.9	x	x	+585.8	+ 5.1	+ 5.3	+10.4	x
1991	+ 338.5	+56.6	x	+35.0	x	x	+ 70.3	+170.2	+ 92.6	+61.2	x
1992	+ 91.2	+11.1	x	+23.0	+243.3	x	+ 43.0	+210.4	+1,526.5	+10.0	+201.3
1993	+ 72.8	+20.8	+89.8	+22.5	+108.8	+410.2	+ 35.3	+256.1	+ 873.5	+23.2	+ 32.3
1994	+ 96.0	+10.0	+47.7	+18.8	+ 35.9	+ 72.2	+ 32.2	+136.8	+ 307.0	+13.4	+ 19.8
1995	+ 62.1	+ 9.1	+28.8	+28.2	+ 25.0	+ 39.7	+ 27.8	+ 32.3	+ 197.5	+ 9.9	+ 13.4
1996	+ 123.0	+ 8.8	+23.1	+23.6	+ 17.6	+ 24.6	+ 19.9	+ 38.8	+ 47.8	+ 5.8	+ 9.9
1997	+1,082.3	+ 8.5	+10.6	+18.3	+ 8.4	+ 8.9	+ 14.9	+154.8	+ 14.8	+ 6.1	+ 8.4
1998	+ 22.3	+10.7	+ 8.2	+14.3	+ 4.6	+ 5.1	+ 11.8	+ 59.1	+ 27.6	+ 6.7	+ 7.9
1999	+ 0.3	+ 2.1	+ 3.3	+10.0	+ 2.4	+ 0.8	+ 7.3	+ 45.8	+ 85.7	+10.6	+ 6.1
1999											
March	- 2.8	+ 2.5	+ 3.6	+ 9.3	+ 2.3	+ 1.3	+ 6.2	+ 35.8	+ 107.6	+ 6.7	+ 5.1
April	- 3.6	+ 2.5	+ 3.3	+ 9.4	+ 1.5	+ 0.7	+ 6.3	+ 38.7	+ 112.9	+ 6.8	+ 4.6
May	- 4.7	+ 2.4	+ 3.3	+ 8.9	+ 1.9	+ 0.2	+ 6.4	+ 42.8	+ 116.5	+ 6.7	+ 4.3
June	- 3.3	+ 2.2	+ 3.1	+ 9.1	+ 1.9	+ 0.6	+ 6.5	+ 48.2	+ 120.5	+ 6.8	+ 4.3
July	+ 1.3	+ 1.1	+ 2.6	+10.1	+ 1.7	- 0.2	+ 6.3	+ 48.6	+ 126.3	+ 7.7	+ 6.0
August	+ 3.2	+ 1.4	+ 2.6	+10.9	+ 2.1	+ 0.2	+ 7.2	+ 49.5	+ 120.9	+ 8.6	+ 6.8
September	+ 1.7	+ 1.2	+ 2.8	+10.9	+ 2.3	+ 1.4	+ 8.0	+ 50.2	+ 62.0	+ 9.3	+ 7.5
October	+ 3.0	+ 1.4	+ 2.8	+10.5	+ 2.8	+ 0.2	+ 8.8	+ 50.7	+ 57.2	+ 9.7	+ 7.7
November	+ 4.6	+ 1.9	+ 3.2	+10.6	+ 3.2	+ 0.1	+ 9.2	+ 53.7	+ 50.5	+10.1	+ 7.8
December	+ 6.1	+ 2.5	+ 3.8	+11.2	+ 3.2	+ 0.3	+ 9.8	+ 54.8	+ 36.6	+10.5	+ 8.0
2000											
January	+ 5.2	+ 3.4	+ 3.3	+10.0	+ 3.1	+ 0.8	+ 10.1	+ 56.8	+ 28.9	+13.6	+ 7.8
February	+ 5.7	+ 3.7	+ 3.1	+ 9.8	+ 3.4	+ 0.8	+ 10.4	+ 55.7	+ 25.1	+15.1	+ 8.3
March	+ 5.3	+ 3.8	+ 3.1	+ 9.6	+ 3.2	+ 0.0	+ 10.3	+ 49.0	+ 22.4	+15.6	+ 9.0
April	..	..	+ 3.1	+ 9.2	..	..	+ 9.8	..	..	+15.9	+ 9.2

Source: WIIW; Estonia, Latvia, Lithuania: IMF.

## Current Account

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic <sup>1)</sup>	Slovenia
USD million											
1990	x	x	x	127.0	x	x	x	-3,337.0	x	x	x
1991	x	x	x	267.0	x	x	- 1,359.0	-1,012.0	x	x	x
1992	x	x	x	324.0	191.4	x	- 269.0	-1,564.0	x	x	926.2
1993	x	455.8	21.1	-3,455.0	428.0	- 83.5	- 2,329.0	-1,174.0	12,792.0	- 601.2	191.9
1994	x	- 786.8	-165.2	-3,911.0	200.8	- 90.4	- 944.0	- 428.0	8,850.0	664.9	600.1
1995	x	-1,369.1	-157.9	-2,480.0	- 17.9	- 56.6	5,455.0	-1,774.0	8,025.0	391.4	- 22.8
1996	x	-4,292.2	-399.4	-1,678.0	-280.0	- 722.6	- 1,352.0	-2,571.0	12,448.0	- 601.2	39.0
1997	426.5	-3,211.0	-562.8	- 981.0	-346.2	- 981.3	- 4,312.0	-2,137.0	3,537.0	-1,952.3	36.6
1998	-375.4	-1,336.0	-479.7	-2,298.0	-707.8	-1,298.0	- 6,810.0	-2,968.0	1,037.0	-2,063.1	- 3.8
1999	-660.2	-1,058.2	-315.9	-2,076.0	..	-1,053.4	-11,660.0	-1,303.0	24,990.0	-1,083.1	-581.4
1999											
February	- 40.7	x	x	- 64.0	x	x	- 513.0	- 50.0	x	- 118.3	- 30.9
March	- 52.6	- 315.1	- 74.1	- 359.0	- 18.9	- 46.9	- 833.0	- 85.0	4,716.0	- 109.7	- 73.1
April	- 85.8	x	x	- 178.0	x	x	- 938.0	- 152.0	x	- 134.2	-121.5
May	- 46.8	x	x	- 59.0	x	x	- 681.0	- 161.0	x	- 311.8	-116.9
June	- 24.8	279.0	- 83.4	- 383.0	- 91.7	- 377.8	- 1,139.0	- 131.0	4,406.0	- 28.6	-213.6
July	- 53.5	x	x	- 136.0	x	x	- 1,070.0	10.0	x	- 28.8	51.2
August	66.7	x	x	154.0	x	x	- 783.0	3.0	x	- 3.8	34.6
September	- 3.4	- 151.2	18.3	- 88.0	-104.0	- 248.2	- 1,156.0	74.0	5,628.0	- 27.1	- 34.3
October	- 11.5	x	x	- 54.0	x	x	- 846.0	- 74.0	x	- 10.0	- 12.5
November	- 95.9	x	x	- 161.0	x	x	- 1,024.0	- 206.0	x	- 57.1	- 36.3
December	-150.6	- 882.1	-175.5	- 573.0	..	- 380.5	- 1,689.0	- 389.0	10,239.0	- 224.9	-105.0
2000											
January	-153.4	x	x	- 78.1	x	x	- 1,207.0	1,291.0	x	- 13.5	- 28.9
February	- 97.0	x	x	- 153.4	x	x	- 962.0	..	x	- 11.9	- 30.7
March	..	..	..	- 139.8	..	..	- 1,344.0	..	..	..	-115.7

Source: national central banks; Latvia: Central Statistical Office.

<sup>1)</sup> Beginning in 1997: BOP Manual, 5<sup>th</sup> edition.

## Total Reserves Minus Gold

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
End of period (USD million)											
1990	x	x	x	1,069	x	x	4,492.1	524	x	x	x
1991	311	x	x	3,934	x	x	3,632.6	695	x	x	112.1
1992	902	755.0	170.2	4,425	x	45.3	4,099.1	826	x	x	715.5
1993	655	3789.4	386.1	6,700	431.6	350.3	4,091.9	995	5,835.0	415.7	787.8
1994	1,002	6144.5	443.4	6,735	545.2	525.5	5,841.8	2,086	3,980.4	1,691.2	1,499.0
1995	1,236	13843.0	579.9	11,974	505.7	757.1	14,774.1	1,579	14,382.8	3,363.9	1,820.8
1996	484	12352.0	636.8	9,720	654.1	772.3	17,844.0	2,103	11,276.4	3,418.9	2,297.4
1997	2,249	9733.7	757.7	8,408	704.0	1,010.0	20,407.2	3,803	12,894.7	3,230.3	3,314.7
1998	2,831	12542.1	810.6	9,319	728.2	1,409.1	26,432.3	2,867	7,801.4	2,868.8	3,638.5
1999	3,083	12882.2	853.1	10,954	840.2	1,195.0	24,535.0	2,690	8,457.2	3,370.7	3,168.0
1999											
February	2,629	12,077	730.3	9,432	720.1	1,284.6	25,858.7	2,397	7,284.2	2,855.6	3,523.3
March	2,599	11,874	705.5	8,834	746.0	1,339.2	25,674.2	2,393	6,678.5	2,759.8	3,868.1
April	2,575	11,958	816.8	8,680	736.6	1,379.7	25,459.6	2,430	7,074.3	2,677.1	3,760.0
May	2,539	11,715	634.8	8,746	871.9	1,302.0	25,257.3	1,938	8,033.7	2,250.3	3,531.0
June	2,581	11,693	728.3	9,339	887.0	1,261.8	24,985.9	1,825	8,189.5	2,898.5	3,310.8
July	2,454	11,999	811.7	9,770	879.3	1,231.3	25,479.2	2,007	7,826.9	2,810.0	3,290.2
August	2,572	11,872	789.4	9,762	814.3	1,183.0	25,299.1	2,391	6,823.8	2,750.4	3,191.9
September	2,689	11,938	780.4	10,275	767.6	1,167.2	25,042.3	2,601	6,633.5	2,880.0	3,195.3
October	2,690	13,106	786.7	10,199	856.4	1,191.8	24,804.7	2,665	7,080.9	2,897.7	3,170.4
November	2,709	12,678	707.1	10,861	854.0	1,315.5	24,465.9	2,590	7,598.5	2,814.1	3,184.2
December	3,083	12,882	853.1	10,954	840.2	1,195.0	24,534.6	2,690	8,457.2	3,370.7	3,168.0
2000											
January	2,827	12,779	731.3	11,245	816.3	1,133.1	24,636.2	2,674	8,912.4	3,338.8	3,079.5
February	2,772	12,644	743.2	11,550	782.2	1,323.5	24,531.0	2,573	9,606.2	3,433.1	3,014.1
March	2,715	..	728.2	10,665	847.2	1,245.9	24,678.1	..	11,456.4	3,672.1	3,334.9

Source: IMF.

## Central Government Surplus/Deficit

	Bulgaria	Czech Republic	Estonia <sup>1)</sup>	Hungary	Latvia	Lithuania	Poland <sup>2)</sup>	Romania	Russia <sup>3)</sup>	Slovak Republic	Slovenia <sup>4)</sup>
% of GDP											
1990	x	-0.2	x	-0.1	x	x	+0.4	-0.4	x	-0.2	x
1991	x	-2.0	x	-4.6	x	x	-3.8	-1.9	x	-3.4	+2.6
1992	-5.8	-0.2	x	-6.7	-3.0	x	-6.0	-4.4	-10.4	-2.8	+0.2
1993	-11.0	+0.1	-0.4	-5.6	-0.2	x	-2.8	-1.7	-6.5	-6.2	+0.3
1994	-6.2	+0.9	-0.6	-8.1	-1.9	-1.9	-2.7	-4.2	-11.4	-5.2	-0.2
1995	-6.6	+0.5	+0.3	-5.5	-3.8	-1.8	-2.4	-4.1	-5.4	-1.6	+0.0
1996	-10.9	-0.1	-1.6	-1.9	-0.8	-2.5	-2.4	-4.9	-7.9	-4.4	+0.3
1997	-3.7	-0.9	+1.6	-4.0	+1.2	-1.0	-1.3	-3.6	-7.0	-2.6	-1.2
1998	+1.3	-1.6	-1.9	-3.7	+0.2	-1.3	-2.4	-2.8	-5.0	-2.7	-0.8
1999	-1.0	-1.6	-4.8	-2.9	-3.0	..	-2.1	-2.6	-1.7	-2.2	-0.6
1997											
1st quarter	-7.4	-2.2	-0.7	-5.8	+1.4	-0.5	-3.5	-4.8	-9.0	-2.9	x
2nd quarter	-3.8	-1.5	-0.4	-2.6	+2.1	-1.0	-3.7	-2.1	-8.3	-6.0	x
3rd quarter	-0.9	+1.1	+4.6	-3.8	+1.4	+1.3	+1.7	-4.2	-7.6	-8.7	x
4th quarter	-2.6	-1.1	+2.3	-4.2	-0.1	-3.5	+0.1	-3.5	-7.0	-5.2	x
1998											
1st quarter	+7.2	+2.0	-0.7	-7.6	+3.1	-0.7	-3.0	-3.4	-4.9	+0.7	x
2nd quarter	-5.7	-1.3	-0.1	-0.7	+1.0	-0.7	-4.4	-4.9	-5.3	-2.7	x
3rd quarter	+6.6	+1.0	-1.5	-3.0	+0.8	+0.3	-0.8	-0.2	-4.4	-2.4	x
4th quarter	-2.7	-7.2	-5.1	-10.1	-3.8	-3.9	-1.8	-3.0	-5.0	-5.9	x
1999											
1st quarter	+1.8	+0.5	-8.6	-9.0	+0.3	-1.3	-6.5	-2.0	-4.8	+0.6	x
2nd quarter	+3.7	-1.7	-5.0	-2.5	-5.2	-3.8	-1.8	-5.6	-3.5	-4.1	x
3rd quarter	-5.5	-0.5	-1.3	-1.5	-2.8	+1.6	+0.0	-2.5	-2.2	-2.6	x
4th quarter	-2.3	-4.5	-4.7	+0.4	-3.9	..	-0.7	-1.5	-1.7	-1.2	x

Source: WIW; Russia: IMF; Latvia, Lithuania: national sources; Estonia: national sources from 1996. Quarterly data: national sources.

<sup>1)</sup> Including social budget in 1993 and 1994.

<sup>2)</sup> Since 1998: privatization receipts treated as financing items.

<sup>3)</sup> Quarterly data are cumulative.

<sup>4)</sup> General government deficit; revised methodology since 1999.

## Gross Debt in Convertible Currencies

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania <sup>1)</sup>	Russia	Slovak Republic <sup>2)</sup>	Slovenia
	USD million										
1990	10,007.0	x	x	21,505.0	x	x	48,475.0	1,140.0	56,200.0	x	1,954.0
1991	12,247.1	x	x	22,812.0	x	x	48,412.0	2,131.0	70,100.0	x	1,866.0
1992	13,805.7	7,762.3	58.4	21,644.0	64.6	56.0	47,044.0	3,240.0	80,200.0	2,981.0	1,741.0
1993	13,836.4	9,604.9	153.9	24,566.0	235.8	328.0	47,246.0	4,249.0	112,784.0	3,626.0	1,873.0
1994	11,338.4	12,209.7	186.0	28,526.0	373.8	494.0	42,174.0	5,563.0	121,600.0	4,310.0	2,258.0
1995	10,148.0	17,190.3	286.4	31,660.0	462.6	763.0	43,957.0	6,482.1	120,500.0	5,827.0	2,970.0
1996	9,601.6	21,180.5	405.3	28,043.0	472.2	1,286.0	40,558.0	8,344.9	125,000.0	7,810.0	4,010.0
1997	9,760.2	21,616.5	658.0	24,395.0	503.0	1,541.0	38,495.7	9,502.7	130,800.0	10,700.0	4,176.0
1998	10,241.6	24,348.4	782.0	27,280.0	756.0	1,950.0	56,900.0	9,807.0	145,000.0	11,900.0	4,959.0
1999	9,984.4	22,863.4	..	29,279.0	..	..	60,528.0	8,589.0	158,800.0	10,474.0	5,491.0

Source: WIW; Estonia, Latvia, Lithuania: World Bank; Czech Republic: national sources from 1997.

<sup>1)</sup> Medium- and long-term gross debt.

<sup>2)</sup> The official level of foreign debt was USD 9.9 billion; however, this figure was distorted by an accounting operation.

## Exchange Rate

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
	Period average (ATS per 100 units of national currency) <sup>1)</sup>										
1990	519.17	x	x	17.99	x	x	1,196.82	50.69	x	x	x
1991	65.64	x	x	15.62	x	x	1,104.00	15.29	x	x	42.35
1992	47.08	x	x	13.91	1,492.10	619.88	806.49	3.57	x	x	13.52
1993	42.16	39.90	87.97	12.65	1,722.52	267.77	642.13	1.53	1,162.41	37.80	10.27
1994	21.10	39.68	87.92	10.86	2,040.34	287.14	502.65	0.69	516.66	35.64	8.87
1995	15.01	37.99	87.94	8.02	1,910.82	252.04	415.73	0.50	219.13	33.93	8.51
1996	5.95	39.00	87.97	6.94	1,922.04	264.67	392.66	0.34	204.87	34.54	7.82
1997	0.73	38.50	87.92	6.53	2,100.91	305.11	372.16	0.17	209.07	36.30	7.64
1998	0.70	38.33	87.95	5.77	2,098.86	309.48	356.19	0.14	127.55	35.13	7.45
1999	0.05	2.72	6.39	0.40	160.39	23.47	23.66	0.0061	3.81	2.27	0.52
1999											
March	0.05	2.64	6.40	0.39	156.54	22.97	23.30	0.0065	3.91	2.26	0.53
April	0.05	2.63	6.39	0.40	158.36	23.36	23.35	0.0063	3.78	2.23	0.52
May	0.05	2.66	6.39	0.40	158.68	23.53	23.90	0.0062	3.85	2.18	0.52
June	0.05	2.69	6.40	0.40	161.41	24.09	24.44	0.0061	3.97	2.20	0.52
July	0.05	2.74	6.39	0.40	161.59	24.16	24.89	0.0061	3.98	2.22	0.51
August	0.05	2.75	6.39	0.39	160.96	23.58	23.87	0.0059	3.82	2.24	0.51
September	0.05	2.75	6.39	0.39	163.64	23.81	23.34	0.0058	3.74	2.29	0.51
October	0.05	2.74	6.39	0.39	162.15	23.35	22.73	0.0056	3.63	2.30	0.51
November	0.05	2.75	6.39	0.39	166.40	24.17	22.73	0.0055	3.68	2.32	0.51
December	0.05	2.78	6.39	0.39	169.66	24.73	23.72	0.0055	3.69	2.35	0.51
2000											
January	0.05	2.78	6.40	0.39	169.25	24.67	24.04	0.0054	3.50	2.37	0.51
February	0.05	2.81	6.40	0.39	171.21	25.43	24.54	0.0054	3.54	2.37	0.50
March	0.05	2.82	6.40	0.39	173.99	25.93	25.35	0.0054	3.64	2.41	0.50
April <sup>2)</sup>	0.05	2.75	6.39	0.39	172.83	26.40	24.96	0.0053	3.66	2.41	0.50

Source: IMF.

<sup>1)</sup> Up to December 31, 1998, in ATS; as of January 1, 1999, in EUR.

<sup>2)</sup> Source: Slovak Republic, Slovenia: national sources; Czech Republic, Estonia, Hungary, Poland: OeNB; Bulgaria, Lithuania, Romania, Russia: OeNB, end of period.

# Official Lending Rate<sup>1)</sup>

	Bulgaria	Czech Republic	Estonia	Hungary <sup>2)</sup>	Latvia	Lithuania	Poland	Romania	Russia <sup>3)</sup>	Slovak Republic	Slovenia
<i>End of period</i>											
1990	4.5	x	x	22.0	x	x	48.0	x	x	x	x
1991	54.0	9.5	x	22.0	x	x	36.0	18.0	5.0	9.5	x
1992	41.0	9.5	x	21.0	120.0	x	32.0	70.0	80.0	9.5	25.0
1993	52.0	8.0	x	22.0	27.0	x	29.0	70.0	210.0	12.0	18.0
1994	72.0	8.5	x	25.0	25.0	x	28.0	58.0	180.0	12.0	16.0
1995	34.0	9.5	x	28.0	24.0	x	25.0	35.0	160.0	9.8	10.0
1996	180.0	10.5	x	23.0	9.5	x	22.0	35.0	48.0	8.8	10.0
1997	6.7	13.0	x	20.5	4.0	13.0	24.5	40.0	28.0	8.8	10.0
1998	5.1	7.5	x	17.0	4.0	13.0	18.3	35.0	60.0	8.8	10.0
1999	4.5	5.0	x	14.5	4.0	13.0	19.0	35.0	55.0	8.8	8.0
1999											
February	4.9	7.5	x	16.0	4.0	13.0	15.5	35.0	150.8	8.8	8.0
March	4.8	7.5	x	16.0	4.0	13.0	15.5	35.0	154.8	8.8	8.0
April	4.6	6.0	x	16.0	4.0	13.0	15.5	35.0	161.6	8.8	8.0
May	4.4	6.0	x	16.0	4.0	13.0	15.5	35.0	168.3	8.8	8.0
June	4.8	6.0	x	15.5	4.0	13.0	15.5	35.0	55.0	8.8	8.0
July	4.8	6.0	x	15.5	4.0	13.0	15.5	35.0	55.0	8.8	8.0
August	4.8	6.0	x	15.5	4.0	13.0	15.5	35.0	55.0	8.8	8.0
September	4.5	5.5	x	15.5	4.0	13.0	15.5	35.0	55.0	8.8	8.0
October	4.4	5.0	x	15.5	4.0	13.0	15.5	35.0	55.0	8.8	8.0
November	4.5	5.0	x	15.0	4.0	13.1	19.0	35.0	55.0	8.8	8.0
December	4.5	5.0	x	14.5	4.0	9.1	19.0	35.0	55.0	8.8	8.0
2000											
January	3.9	5.0	x	13.0	4.0	8.9	19.0	35.0	45.0	8.8	8.0
February	3.1	5.0	x	13.0	4.0	..	20.0	35.0	45.0	8.8	8.0
March	3.6	..	x	..	..	..	20.0	..	33.0	8.8	8.0

Source: IMF; Poland, Russia: national sources; Lithuania, Romania: OECD.

<sup>1)</sup> Due to currency board arrangements, the Bank of Estonia and the Bank of Lithuania do not lend to the government or enterprises. Therefore these two countries do not define or publish discount rates. On October 9, 1997, the Bank of Lithuania introduced an "official lending rate": weighted average rate on domestic currency lending to residents.

<sup>2)</sup> Base rate.

<sup>3)</sup> Refinancing rate.

