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Jarko Fidrmuc, Gabriel Moser, Wolfgang Pointner, Doris Ritzberger-Grünwald, Paul Schmidt, Martin Schneider, Alexandra Schober-Rhomberg, Beat Weber

The literature survey on selected aspects of Eastern enlargement of the EU covers a broad range of issues. Some of them are analyzed in more detail in studies which are published in this issue of Focus on Transition, others you will find in Focus on Austria 2/2002, another publication of the OeNB. All in all, the survey tries to summarize the available literature on the macroeconomic effects of EU enlargement in terms of growth, welfare and trade, capital markets, fiscal aspects and the labor market. Furthermore, regional implications are also dealt with. The survey concludes that gains from the enlargement outweigh its costs, which, however, may be significant in selected areas in the short run. In general, the effects on Austria are greater than those on the European Union as a whole.

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Franz Schardax

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

Editorial

This volume of the Oesterreichische Nationalbank's semiannual periodical Focus on Transition may look very similar to the previous ones, and like its predecessors contains a wealth of information, analyses and interesting results of ongoing research, but the attentive reader is certain to spot some changes and innovative concepts in this edition.

Starting at the beginning of the volume, the chapter "Developments in Selected Countries" has undergone a major revision. In a nutshell, the Russian Federation was added to the five Central and Eastern European countries reviewed, and the economic analysis is now done country by country, applying a uniform analytical structure. Tables and charts enhance the written report. This new concept was introduced to allow a better cross-country comparison of relevant economic indicators and selected parameters. One of the results is that the Czech Republic, Hungary, Slovakia and Slovenia have hardly been affected by the economic slowdown in their major trading partner, the EU, whereas growth in Poland slackened significantly, basically a home-made development resulting from an inadequate policy mix and not necessarily the effect of an international downturn. Moreover, the introduction delineates the latest developments in the accession process, pointing out which negotiation chapters are still open and what decisions and steps still need to be taken.

The second innovation refers to a unique event: The 2/2000 issue of Berichte und Studien, the OeNB's quarterly publication with input mainly from the Economic and Research Section, covers the process of EU accession in a series of studies. Nearly all contributions analyze the economic and institutional implications for the European Union in general and for Austria in particular. The studies provide a comprehensive overview, and we consider that their findings are worth spreading more broadly. Moreover, these issues are of major interest for most of the Central and Eastern European countries (CEECs). Of these studies, those which cover issues that seem to be more relevant for the EU countries or Austria were chosen for publication in the English-language Focus on Austria, and the studies which cover issues of relevance for Central and Eastern Europe were chosen for publication in the present issue of Focus on Transition. If you should find our splitting illogical, or if you are interested in receiving the entire set of studies on EU accession in German in Berichte und Studien 2/2002 or the complementary English studies to the Focus on Transition 1/2002 in Focus on Austria 2/2002, please do not hesitate to contact us. All three publications may of course be accessed on the OeNB's website at www.oenb.at.

So this unique event – the splitting of studies among OeNB publications – represents a decision taken for a specific purpose and should not be interpreted to signal a new concept for the Focus on Transition. Of course, if there is good reason to, we may well repeat the procedure in a future issue. In this case, our good reason is the desire to provide comprehensive information about the highly topical accession process of the EU applicant countries, which appears to be entering the final stage. As a result, the economic implications of the EU accession process have become a major issue in the EU countries. For well-known grounds – its historical ties and close trade links – Austria has an intrinsic interest in the countries in the run-up to EU accession. This close relationship enriches the discussion, analysis and research in Austria.

The following contributions were selected for the Focus on Transition: A literature survey serves as a general introduction to accession issues, in which special attention is paid to the implications for growth, welfare, trade, labor market, regional and financial aspects. Some of these aspects are deepened in the following studies, for instance growth effects within the EU, which are a frequently cited model for the accession countries' catching-up process. Maria Antoinette Dimitz, Jesús Crespo-Cuaresma and Doris Ritzberger-Grünwald show that EU membership has accelerated growth. Fundamentally, all member countries have benefited from EU membership, with the lower-income countries clearly benefiting to an above-average extent. This promoted catching up and convergence within the EU. Even if the results cannot be applied directly to the CEECs, they are encouraging with a view to the future entry of countries whose per capita income is substantially below the current EU average.

In his contribution, René Dell'mour analyzes foreign direct investment (FDI) in those EU accession countries which are generally assumed to contribute considerably to catching up. The author draws attention to some characteristic features of Austrian affiliates and Austrian investors and analyzes the motives for investment.

Iikka Korhonen attempts to estimate a monetary conditions index for Central and Eastern European accession countries. While the estimates for the Czech Republic (and to some extent the Slovak Republic) exhibit certain parallels to small OECD member countries, the results for Poland indicate a surprisingly large influence of the exchange rate on economic performance. The author emphasizes that exensive research is still required to verify these assumptions.

The paper by Franz Schardax presents an early warning model for currency crises for a sample of quarterly data from 12 Central and Eastern European transition countries. In general, the model presented appears to track developments in individual countries rather well, with the exception of countries with consistently strong macroeconomic fundamentals. The results of this study lend support to the hypothesis that currency crises in Central and Eastern Europe may be considered "first-generation" types of crises.

The last part of the Focus on Transition is structured along the traditional lines, offering short summaries of the events which took place in the six months between the publication of issues and which were hosted by the Foreign Research Division. It is no coincidence that most of the lectures and Jour Fixe meetings broadly dealt with EU accession. A description of the OeNB's recent technical cooperation activities is followed by the Statistical Annex, which rounds out the statistical material presented in the contribution on the developments in selected countries.

Finally, let me draw your attention to the Olga Radzyner Award, bestowed on young economists for excellent research focused on monetary and finance issues in economics. The Award has already been given twice, traditionally during the annual East-West Conference of the Oesterreichische Nationalbank. This year's East-West Conference is scheduled for November 3 to 5, meaning that applications for the Olga Radzyner Award have to be submitted by September 30. You will find further details on the application conditions in this issue of Focus on Transition as well as on the Oesterreichische Nationalbank's website.

If you are interested in participating in any of the events which have been mentioned above and which focus on Central and Eastern European countries regularily, or if you want to address any comments or suggestions you may have about this publication, or any of the studies it contains, please contact:

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Klaus Liebscher
Governor

Recent Economic Developments

Developments in Selected Countries

Stephan Barisitz,
Jarko Fidrmuc,
János Kun,
Thomas Reininger,
Franz Schardax,
Katrin Simhandl

1 Introduction

The current overall growth performance of the Central European accession countries (Poland, Czech Republic, Slovakia and Hungary) is certainly remarkable in view of the slowdown in the EU, the principal export market of the accession countries. Weighted real GDP growth reached 2.4% in 2001 (after 3.8% in 2000), whereas growth in the euro area only amounted to 1.5% (2000: 3.4%). The marked deceleration of export growth was an important determinant of business activity in all Central European countries: real exports expanded only about half as fast as in 2000. Exports usually constitute the demand component that makes the biggest contribution to GDP growth in the Central European accession countries. The overall picture, i.e. the weighted average, is biased by Poland, the biggest country of the region. The very high real interest rates and the worsening of export prospects because of the slackening of the German business cycle triggered a decline of capital formation, and of domestic demand as a whole in Poland. With investment declining, imports stagnated. Thus, despite the weakening of export growth, net exports delivered a positive – albeit modest – contribution to Polish GDP growth. The general growth constellation in Slovenia in 2001 was similar to that in Poland, but due to the bigger weight of external transactions, the slowdown of economic activities in Slovenia was less pronounced.

In contrast, Slovakia and the Czech Republic were just witnessing an acceleration of growth of domestic demand when the economic slowdown in the EU set in. Therefore, in 2001 GDP growth still quickened in both countries in comparison to 2000. In the Czech Republic, more sluggish import growth followed reduced export growth in the second half of 2001, so that the deterioration of net exports was limited. In the Slovak Republic, however, the import expansion lost momentum only with a delay and only partially, and furthermore followed a substantial deceleration of export growth, resulting in strongly negative net exports and a large current account deficit. In 2001 Hungary again showed the highest GDP growth of the countries analyzed. However, growth had cooled down to 3.8% against 5.2% in 2000, mostly because of lower investment growth in the wake of less favorable export prospects.

In Russia, real GDP continued its strong expansion in 2001 (4.9%), although it clearly slowed down against 2000 (8.7%). The declining oil price notwithstanding, Russian export revenues have maintained a high level. Substantial exports and dynamic private consumer demand supported the surge in investment. The increase of private consumption reflected rising wages and declining wage arrears. However, shrinking real net exports and, in particular, expanding imports (owing to domestic demand and real appreciation) dampened Russian GDP growth.

Inflation was on the decline in the Central European accession candidates as well as in Russia in the second half 2001 and the first quarter of 2002. The rise of industrial producer prices declined particularly markedly; some countries even witnessed a decline of the producer price index. Lower producer prices were based to a considerable extent on the development of the oil price, which generally plays a crucial role in these economies, since they are more energy-intensive than those of the EU. This supply-side factor, which favored disinflation, also supported GDP growth in the second half of 2001.

The EU enlargement process has entered into a decisive phase in 2002. This year negotiation chapters with a strong and direct budgetary relevance ("Regional Policy," "Agriculture" and "Financial and Budgetary Regulations") are to be treated. In its official negotiating timetable, the EU has set itself the goal to internally agree on common negotiating positions on these chapters until the end of the Spanish presidency in mid-2002. This would enable the EU to close the negotiations with up to ten accession candidates by the end of 2002. At the end of January 2002 the European Commission presented its Common Financial Framework 2004–2006 for the enlargement, which should serve as a basis for reaching the above-mentioned consensus within the EU. The Medium-Term Financial Perspective of the Union for 2000–2006, which had been endorsed by the European Council of Berlin in 1999, was based on the assumption of six countries acceding in 2002 and resulting expenditures of EUR 45.4 billion (payment appropriations, in prices of 1999) or 0.10% of the GNP of the EU-15 until 2006. The Common Financial Framework, on the other hand, assumes that the enlargement will only start at the beginning of 2004; moreover, it proceeds from the assumption of ten countries joining the EU already at the beginning of accession. The point of departure of the Common Financial Framework are the expenditures (EUR 19.7 billion) which had already been earmarked for the six accession countries mentioned in Berlin (the Czech Republic, Cyprus, Estonia, Hungary, Poland and Slovenia) to cover the first three years after joining. Furthermore, expenditures of EUR 8.3 billion are proposed to cover, first, the increase of the number of countries to join already at the beginning of enlargement from six to ten[1]) and, second, additional measures under regional and structural policies (mainly means for the Cohesion Fund), agricultural policies (including direct payments on the order of 25% in 2004 to 35% in 2006 of the EU level) as well as policies enhancing the security of nuclear reactors and strengthening administrative capacities. On the whole, the Common Financial Framework provides for spending in 2004–2006 of EUR 28.0 billion (in prices of 1999). This accounts for 0.10% of the GNP of the EU-15 in 2004–2006 or 0.06% of the GNP of the EU-15 in 2002–2006. The savings compared to the EUR 45.4 billion of spending originally planned in Berlin, namely EUR 17.4 billion, mostly result from the elimination of enlargement-related expenditures in the years of 2002–2003 because of the postponement of enlargement to 2004 (EUR 10.9 billion). Compared to the – then remaining – EUR 34.5 billion initially budgeted in Berlin, the Common Financial Framework envisages EUR 28.0 billion for that period, implying additional savings of EUR 6.5 billion, even though a larger number of countries are now anticipated to become EU members before 2006. As regards the revenue side, the Common Financial Framework suggests that new members immediately pay their contributions to the EU budget in full (no "phasing in").

In the view of independent experts, the suggestion of the Commission does not sufficiently accommodate the accession countries, since even in the case of very optimistic assumptions regarding the utilization of payment appropriations with respect to cofinanced expenditures, the accession countries would be

1 *Apart from the already mentioned six countries, these are Latvia, Lithuania, Malta and Slovakia.*

saddled with a net payer status amounting to about EUR 1.2 billion in the first year of membership (2004). According to the WIIW, the accession countries would – under pessimistic assumptions – be net payers to the tune of EUR 3.8 billion in 2004, EUR 2.2 billion in 2005 and EUR 1.6 billion in 2006. In contrast, the Commission argues that immediate full contribution payments should be offset by compensation payments to avoid the emergence of a net payer status in the first years of membership. However, the Commission's Common Financial Framework 2004–2006 earmarks only about EUR 0.8 billion annually for this purpose.

A major point in the discussions between the member countries is the Commission proposal to allow farmers in accession countries to participate in the system of direct payments. Since the Commission proposal on the whole corresponds to the interests of many current member countries, an agreement can be expected to be eventually concluded along the lines of the Common Financial Framework. Apart from this goal, the Commission is striving to open all remaining negotiation chapters with Bulgaria and Romania still this year.

The situation after the round of negotiations on April 19 and 22, 2002, was the following: Of a total of 31 negotiation chapters, 27 were provisionally closed with Cyprus, 26 were closed with Slovenia as well as with Lithuania, 25 with the Czech Republic, 24 with Estonia, Latvia, Slovakia and Hungary, 23 with Poland, 21 with Malta, 17 with Bulgaria and 11 chapters were provisionally closed with Romania. The catching-up process of Bulgaria, which managed to close three chapters in this round of negotiations, is particularly remarkable. Following the wrap-up of the chapter "Economic and Monetary Union" with Bulgaria, all three chapters of direct relevance for central banks (free trade in services, free movement of capital, economic and monetary union) have now been provisionally closed with all candidate countries, save Romania.

The drafting of the accession treaties started in mid-March: The working hypothesis is the accession of ten new member states on January 1, 2004. The work of the ad-hoc group "Accession Agreement" is to be terminated in just under a year.

In parallel to the enlargement process, the EU strives to intensify political and economic relations with Russia, which are based on the Partnership and Cooperation Agreement between the Union and the Russian Federation that entered into force in 1997. In recent years, the EU has drafted and updated a "Common Understanding on Russia" and a "Common Strategy on Russia." Both documents point to the EU's commitment to help promote democracy, the rule of law and the market economy in Russia, to help integrate Russia into economic and social structures in Europe and, in particular, to foster economic cooperation. The EU supports Russia's accession to the WTO at the earliest possible date. The concept of a "Common European Economic Area" as a medium- and long-term objective of EU-Russia economic integration is currently being jointly elaborated by Moscow and Brussels.

2 Individual Country Reports

2.1 Czech Republic: Domestic Demand Accelerates GDP Growth

In 2001, the Czech Republic was hit by the global weakening of growth at a time at which the country itself was going through an economic upswing. Still, the

increase of imports followed the reduced growth of exports in the second half, so that the deterioration of net exports was limited and strong internal demand (in particular investment demand) translated into an acceleration of GDP growth in the year as a whole. However, the dynamics of the year-on-year expansion of real GDP fell to 3.2% in the fourth quarter.

Table 1

Gross Domestic Product and Its Demand Components

	1998	1999	2000	2001	2001	
					1st half	2nd half
	Real year-on-year change in %					
Gross domestic product	−1.2	−0.4	2.9	3.6	3.8	3.4
Private consumption	−2.0	1.9	1.9	3.7	3.6	3.9
Public consumption	−2.7	0.0	− 1.4	− 1.0	− 1.7	−0.4
Gross fixed capital formation	1.5	−0.7	4.1	7.0	7.6	6.5
Exports of goods and services	9.8	6.2	17.2	12.4	17.2	7.6
Imports of goods and services	6.7	5.3	16.9	14.1	18.6	9.7

Source: Eurostat, national statistical office, OeNB, WIIW.

While growth of gross industrial production accelerated in the year 2001, the increase of labor productivity fell slightly behind that of production. This corresponded to a demand-side contribution of the labor market to maintaining the jobless rate almost unchanged against the previous year at slightly below 9%. Like in 2000, industrial unit labor costs remained stable and did not exert any cost-push inflationary pressure. Given an annual average PPI increase as high as that of the major trade partners, the Czech Republic's international competitive position deteriorated only due to the nominal appreciation.

Table 2

Labor Productivity, Wages, Producer Prices and the Exchange Rate

	1998	1999	2000	2001	2001	
					1st half	2nd half
	Year-on-year change in %					
Gross production of industry (real)	2.0	−3.1	5.4	6.9	8.7	5.2
Labor productivity of industry (real)	2.3	3.6	9.1	5.7	6.7	4.6
Gross average wage of industry (nominal)	10.1	6.6	7.1	6.3	7.0	5.7
Unit labor cost of industry (nominal)	7.6	3.0	−1.8	0.6	0.3	1.0
Producer price index (PPI) of industry	4.9	1.0	4.9	2.9	4.1	1.7
Exchange rate (nominal, period average):						
CZK[1]) per 1 EUR, + = EUR appreciation	1.0	2.0	−3.4	−4.3	−4.1	−4.5
EUR per 1 CZK, + = CZK appreciation	− 1.0	−1.9	3.6	4.5	4.3	4.7

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) CZK: Czech koruna.

The decline of wage growth and the increase of inflation especially in the second half of the year brought about a dampening of the expansion of CPI-adjusted average industrial wages. However, this development has not (yet) affected private consumption. Owing to food prices and the oil price, inflation (year on year) grew from 4.2% in January to 5.9% in July 2001, before it receded to 4.1% in December. Net inflation amounted to 2.4%, which was

consistent with the net inflation goal of the central bank of 2% to 4% in 2001.[1]) CPI growth (year on year) amounted to 3.7% in March 2002. Since the beginning of 2002, the central bank has pursued an inflation goal corresponding to a band which diminishes from a CPI increase (year on year) of 3% to 5% in January 2002 to 2% to 4% in December 2005.

Table 3

Key Interest Rate, CPI Inflation and Nominal Exchange Rate Changes

	Dec. 1998	Dec. 1999	Dec. 2000	March 2001	Dec. 2001	March 2002
	%					
Key interest rate (per annum)	9.5	5.3	5.3	5.0	4.8	4.3
CPI inflation (year on year)	6.8	2.5	4.0	4.1	4.1	3.7
Nominal year-on-year change of the exchange rate:						
CZK[1]) per 1 EUR, + = EUR appreciation	−8.7	2.0	−3.4	−2.8	−6.4	− 9.3
EUR per 1 CZK, + = CZK appreciation	9.5	−2.0	3.6	2.9	6.8	10.2

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) CZK: Czech koruna.

The strength of the currency, the disinflation from July 2001 and the interest rate cuts of the ECB led to reductions of the key interest rate (two-week active repo rate) in November 2001, February and April 2002 by 0.5 percentage point in each case to 3.75%. The moving 12-month average of the key interest rate in real terms in the first quarter of 2002 amounted to 1.3% (as measured by the CPI) and 5.2% (as measured by the PPI). Thus, given the decline of inflation, the real key interest rate was clearly higher than in the third quarter of 2001 (0.5%, respectively 3.4%). Until end-2001, broad money increased nominally by 12.1% and by 7.7% in real terms (deflated by the CPI). The expansion of broad money was dominated by the increase of net foreign assets by 8.6 percentage points. The negative contribution of credits to enterprises and the positive contribution of net claims of the banking system on the public sector are primarily explained by the transfer of bad loans to the state-owned consolidation bank in exchange for the placement of government bonds in the portfolios of credit institutions.

Table 4

Monetary Developments

	end-1998	end-1999	end-2000	end-2001
	Nominal year-on-year change in %			
Broad money (incl. foreign currency deposits)	5.2	8.1	6.8	12.1
	Contributions to the nominal year-on-year change of broad money in percentage points			
Net foreign assets of the banking system	7.1	11.3	7.4	8.6
Domestic credit (net) of the banking system	−2.3	− 1.1	1.8	− 2.4
thereof: claims on households	−0.3	0.4	0.8	1.1
claims on enterprises	−2.9	− 3.6	−2.9	−13.2
claims (net) on general government	0.9	2.1	3.9	9.7
Other domestic assets (net) of the banking system	0.3	-2.1	-2.4	6.0

Source: National central bank, OeNB.

1 *Net inflation results from changes of the CPI by excluding in particular adjustments of administered prices and indirect tax rates from the latter.*

The fiscal goal for 2001 for the deficit of the central government was originally fixed at 2.3% of GDP, but was later adjusted to 3.9% of GDP. In the event, the central government deficit in 2001 turned out to be 3.2% of GDP. The original goal was missed on account of lower than forecast turnover tax revenues and UMTS proceeds. On the other hand, the central government deficit of 2001 was contained by carrying over expenditures for covering losses of state institutions for bank rehabilitation coming to 0.6% of GDP (CZK 12 billion) into the first quarter of 2002. According to an estimate of the finance ministry, the deficit of the public sector amounted to 5.7% of GDP in 2001, 2.5 percentage points of which accounted for covering the losses of bank rehabilitation institutions. In the first quarter of 2002 the central government deficit reached CZK 15.7 billion or 34% of the annual target, which results from the above-mentioned carryover of spending to cover losses as well as to lower than forecast VAT revenues. Most independent observers expect tax revenues not to reach planned targets this year, either. At the same time, a further increase of the public sector deficit to 9% of GDP (including 4.6% of GDP to cover losses of bank rehabilitation institutions) is being forecast.[1])

Table 5

Government Budget

	1998	1999	2000	2001	2002 (Budget Act)
	% of GDP				
Central government					
Revenues	28.9	29.8	29.8	29.0	28.6
Expenditures	30.5	31.4	32.1	32.2	30.6
thereof: interest payments	1.0	0.9	1.0	0.8	0.9
Balance	– 1.6	– 1.6	– 2.4	– 3.2	– 2.0
Primary balance	– 0.6	– 0.7	– 1.3	– 2.3	– 1.0
General government					
Balance (national methodology)	– 1.5	– 0.6	– 3.2	– 5.7	
Balance (European Commission)			– 3.3	– 5.5	

Source: European Commission, Eurostat, national ministry of finance, OeNB, WIIW.

In contrast to trade flows as measured by national accounts, according to balance of payments statistics the weakening of export growth was less pronounced than that of import growth. As a result, the current account deficit remained almost stable. It was again exceeded by far by inflows of foreign direct investment. This contributed to the appreciation pressure on the Czech koruna.

Table 6

Balance of Payments

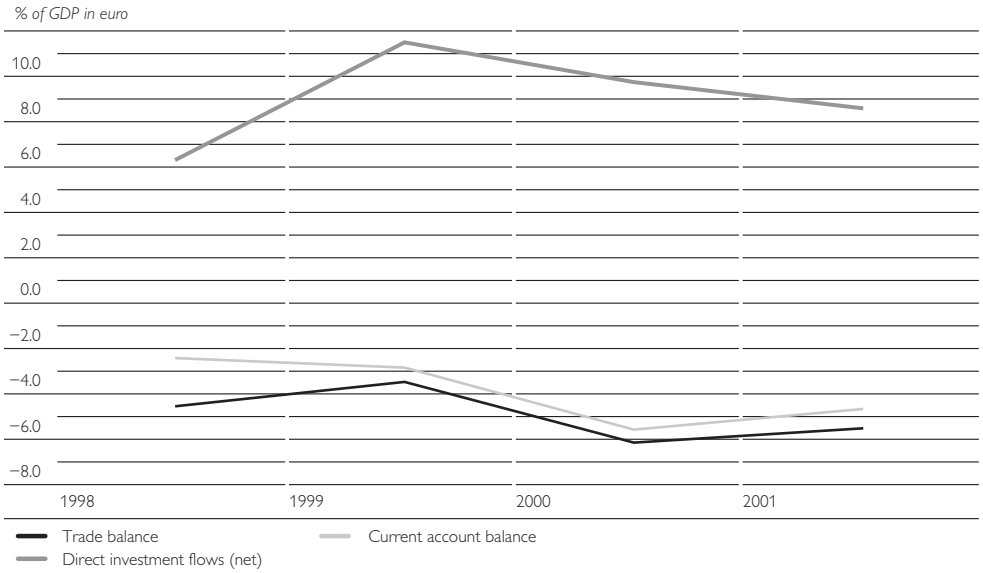
	1998	1999	2000	2001
	EUR million			
Merchandise exports	23,063	24,651	31,509	37,237
Merchandise exports: year-on-year change in %	*16.7*	*6.9*	*27.8*	*18.2*
Merchandise imports	25,398	26,448	34,918	40,740
Merchandise imports: year-on-year change in %	*5.3*	*4.1*	*32.0*	*16.7*
Trade balance	– 2,335	– 1,797	– 3,409	– 3,502
Services balance	1,600	1,039	1,437	1,588
Income balance (factor services balance)	– 879	– 1,198	– 1,446	– 1,418
Current transfers	364	479	321	369
Current account balance	– 1,250	– 1,477	– 3,096	– 2,964
Direct investment flows (net)	3,193	5,879	5,356	5,397

Source: National central bank, OeNB.

1 *The European Commission expects a deficit of the public sector of 6.7% of GDP in 2002.*

Chart 1

Balance of Payments



Source: Eurostat, national central bank, OeNB, WIIW.

The ratio of gross official reserves to GDP increased slightly, and the ratio of gross foreign indebtedness to GDP declined, which was due exclusively to the increase of GDP as measured in euro. The long-term foreign currency liabilities of the Czech Republic are currently rated Baa1 (Moody's) and A– with a stable outlook (Standard & Poor's).

Table 7

Gross Official Reserves and Gross External Debt

	end-1998	end-1999	end-2000	end-2001
	EUR million			
Gross official reserves (excluding gold)	10,815	12,745	13,937	16,261
Gross external debt	20,611	22,473	22,671	24,391
	% of GDP			
Gross official reserves (excluding gold)	21.3	24.9	25.3	25.8
Gross external debt	40.6	43.9	41.2	38.7
	Import months of goods and services			
Gross official reserves (excluding gold)	4.3	4.8	4.1	4.2

Source: Eurostat, national central bank, OeNB, WIIW.

Turning to structural and reform policies, despite the upcoming parliamentary elections, which are scheduled for June 2002, structural reforms have continued to make progress in a number of areas.

In February 2002 parliament passed a new draft of the central bank law, after essential parts of the preceding draft of this law had been rejected by the Constitutional Court and criticized by the EU. The new law entered into force on May 1, thus harmonizing Czech legislation with relevant EU norms. As regards the banking sector, Erste Bank, which is the majority owner of Česka Spořitelna, the second-largest credit institution, in April made an offer for the remaining

shares of that institution. Therefore, instead of Česka Spořitelna, in the future shares of Erste Bank could be quoted on the Prague Stock Exchange. After years of losses and with strong government support, the Czech banking sector made a substantial profit for the first time in 2001.

The emphasis of other sectoral structural reforms were privatization measures in the telecommunications, steel, gas, electricity, oil and chemical industries. Altogether, in 2001 privatization proceeds of CZK 164 billion (about 8% of GDP) were obtained. The sale of a 51% stake in the country's dominant telecommunications enterprise appears to be imminent: The period for submitting offers expired at the end of April. Progress was achieved in the efforts to privatize two steel producers in financial difficulties; one firm has already received a purchase offer by a Dutch steel producer. At the beginning of May 2002 the Czech competition authority cleared the takeover of the gas distribution company Transgas by the German RWE, whose bid was accepted in December 2001. Featuring a price tag of EUR 4.1 billion, this was the biggest privatization transaction in the Czech Republic so far. On the other hand, the privatization of the electricity sector planned for the beginning of 2002 had to be postponed (because of diverging price expectations of the government and bidders). The divestiture of the oil/chemical enterprise Unipetrol took place at end-2001. However, the new majority owner is currently striving to dispose of important parts of the concern.

2.2 Hungary: Weakening Export Expansion Dampens Investments and GDP Growth

GDP growth slowed down in the course of 2001. Economic activity in the fourth quarter was only 3.3% above that of the corresponding period of the previous year. The marked weakening of export growth triggered a reduction of equipment investments as well as – in the second half of the year – a curtailment of real imports, although private consumption growth increased. The strong expansion of construction investment drew on public infrastructure investments and private housebuilding based on subsidized credits. This expansion prevented gross fixed capital formation from contracting.

Table 8

Gross Domestic Product and Its Demand Components

	1998	1999	2000	2001	2001	
					1st half	2nd half
	Real year-on-year change in %					
Gross domestic product	4.9	4.2	5.3	3.9	4.2	3.5
Private consumption	5.1	5.4	4.4	4.9	4.8	5.1
Public consumption	1.9	1.5	2.0	0.1	0.4	–0.2
Gross fixed capital formation	13.3	5.9	7.5	3.1	3.3	3.0
Exports of goods and services	17.6	12.9	21.7	10.0	17.2	2.9
Imports of goods and services	23.1	12.3	20.8	7.3	16.0	–1.5

Source: Eurostat, national statistical office, OeNB, WIIW.

While the slowdown of gross production growth dominated the development of industrial productivity, the unemployment rate (according to ILO methodology) declined to 5.8% in the first quarter of 2002 (first quarter of

2001: 6.0%). Since wages rose considerably more than productivity in 2001, unit labor costs grew markedly and exceeded the level of the PPI increase. Furthermore, the price-related competitive position was weakened by the movement of the exchange rate.

Table 9

Labor Productivity, Wages, Producer Prices and the Exchange Rate

	1998	1999	2000	2001	2001	
					1st half	2nd half
	Year-on-year change in %					
Gross production of industry (real)	12.6	10.1	18.5	4.5	8.8	0.2
Labor productivity of industry (real)	10.9	5.1	17.0	6.1	9.2	2.9
Gross average wage of industry (nominal)	16.6	13.4	15.0	14.5	15.6	13.5
Unit labor cost of industry (nominal)	5.2	7.9	– 1.7	7.9	5.8	10.3
Producer price index (PPI) of industry	11.3	5.1	11.6	5.2	8.4	2.0
Exchange rate (nominal, period average):						
HUF[1]) per 1 EUR, + = EUR appreciation	14.2	4.9	2.9	– 1.3	1.6	– 4.1
EUR per 1 HUF, + = HUF appreciation	–12.4	– 4.7	– 2.8	1.3	– 1.5	4.3

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) HUF: Hungarian forint.

The strong increases of minimum wages (at the beginning of 2001 and 2002) as well as of public sector wages and the decline of inflation in the second half of 2001 boosted overall CPI-adjusted average wages by 8%. This explains the acceleration of private consumption. The disinflation is founded on the petering out of the base effect of high food price adjustments due to bad harvests in 2000 and on the oil price decline. The nominal appreciation of the forint after the widening of the exchange rate band at the beginning of May 2001 probably only modestly contributed to the slowdown of inflation, at least until end-2001. With a time lag, however, it could exert a stronger dampening effect in 2002. Meanwhile, the new government has expressed concerns about the strength of the forint, suggesting that the monetary authorities should influence the exchange rate to contain further appreciation of the domestic currency. The CPI increase (year on year) amounted to 5.9% in March 2002, whereas the National Bank of Hungary is targeting 4.5% ±1% for December 2002 and 3.5% ±1% for December 2003.

Table 10

Key Interest Rate, CPI Inflation and Nominal Exchange Rate Changes

	Dec. 1998	Dec. 1999	Dec. 2000	March 2001	Dec. 2001	March 2002
	%					
Key interest rate (per annum)	16.8	14.3	11.8	11.3	9.8	8.5
CPI inflation (year on year)	10.3	11.2	10.1	10.5	6.8	5.9
Nominal year-on-year change of the exchange rate:						
HUF[1]) per 1 EUR, + = EUR appreciation	13.9	– 0.5	4.2	3.6	–6.5	–8.2
EUR per 1 HUF, + = HUF appreciation	–12.2	0.5	– 4.0	– 3.5	7.0	8.9

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) HUF: Hungarian forint.

The strength of the forint, marked disinflation as well as the interest rate cuts of the ECB led to cuts of the basic interest rate (two-week passive repo rate) in the fourth quarter of 2001 and the first quarter of 2002 by altogether

2.5 percentage points to 8.5%. The moving 12-month average of the key interest rate in real terms in the first quarter of 2002 amounted to 4.8% as measured by the CPI and to 14.1% as measured by the PPI, which declined over the year. Given the drop of inflation, this interest rate was clearly higher at 3.7% than in the third quarter of 2001 (8.8%), despite the reductions of the key interest rate. Net foreign assets contributed 9.3 percentage points and credits to enterprises contributed 12.6 percentage points to the nominal expansion of broad money in 2001. While real growth of broad money (as adjusted by the GDP deflator) remained stable at slightly over 4%, the real expansion of enterprise loans slipped from 17.4% to 11.8%.

Table 11

Monetary Developments

	1998	1999	2000	2001
	Nominal year-on-year change of the annual average stock in %			
Broad money (incl. foreign currency deposits)	17.9	17.7	14.3	13.7
	Contributions to the nominal year-on-year change of broad money in percentage points			
Net foreign assets of the banking system	10.9	11.4	13.5	9.3
Domestic credit (net) of the banking system	18.2	4.8	7.2	9.6
thereof: claims on households	1.0	1.7	2.9	4.2
claims on enterprises	13.4	7.4	14.0	12.6
claims (net) on general government	3.8	– 4.3	– 9.7	– 7.2
Other domestic assets (net) of the banking system	–11.2	1.5	– 6.4	– 5.2

Source: National central bank, OeNB.

The general government budget deficit, as announced by the finance ministry, amounted to 3.1% of GDP in 2001. This is 0.3 percentage points less than originally planned in the two-year budget law of 2001 and 2002, which was passed in the fall of 2000. However, the traditional methodology of the finance ministry differs from that of Eurostat (ESA95) in that the deficit does not include state-guaranteed credits provided by the Hungarian Investment Bank for infrastructural investments or expenditures of the state-owned Privatization and Asset Management Company. The budget shortfall calculated by the finance ministry according to ESA95 definitions reached 4.1% of GDP, while the Economic Research Institute (GKI) calculated a deficit of 5.0%. GKI justified its differing result by pointing out that the finance ministry had not taken into consideration the amounts booked onto a separate account at end-2000 and

Table 12

Government Budget

	1998	1999	2000	2001
	% of GDP			
Central government				
Revenues	26.0	28.3	28.0	27.5
Expenditures	31.5	31.3	30.8	30.2
thereof: interest payments			6.1	4.9
Balance	– 5.5	– 3.0	– 2.8	– 2.8
Primary balance			3.3	2.1
General government				
Balance (national methodology)	– 6.3	– 3.4	– 3.4	– 3.1
Balance (European Commission)			– 3.1	– 4.3

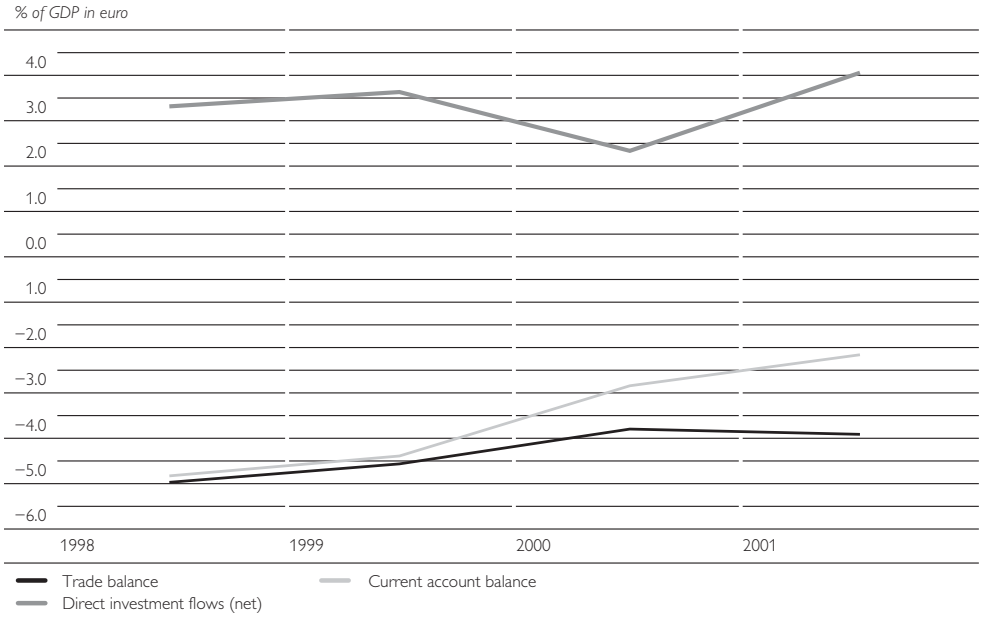
Source: European Commission, Eurostat, national ministry of finance, OeNB, WIIW.

spent in the course of 2001. The National Bank of Hungary estimated a budget deficit of 5.3% of GDP. In the first quarter of 2002, the central government budget gap reached 38.5% of the annual target.

In contrast to foreign trade flows in 2001 as measured by the national accounts, the growth of exports according to balance of payments data weakened more than the growth of imports. However, the resulting increase in the trade deficit was more than offset by the expansion of the surplus of the services balance, since tourism hardly reacted to the appreciation of the forint. The current account deficit was more than covered by FDI inflows.

Chart 2

Balance of Payments



Source: Eurostat, national central bank, OeNB, WIIW.

Table 13

Balance of Payments

	1998	1999	2000	2001
	EUR million			
Merchandise exports	18,447	20,521	27,988	31,346
Merchandise exports: year-on-year change in %	*6.1*	*11.2*	*36.4*	*12.0*
Merchandise imports	20,527	22,574	29,904	33,611
Merchandise imports: year-on-year change in %	*7.4*	*10.0*	*32.5*	*12.4*
Trade balance	– 2,080	– 2,054	– 1,916	– 2,265
Services balance	1,591	1,315	1,938	2,425
Income balance (factor services balance)	– 1,662	– 1,556	– 1,706	– 1,681
Current transfers	130	320	249	273
Current account balance	– 2,020	– 1,975	– 1,434	– 1,248
Direct investment flows (net)	1,387	1,634	1,179	2,348

Source: National central bank, Eurostat, OeNB.

Measured in absolute terms, official gross reserves remained more or less constant from end-2000 to end-2001, while gross foreign liabilities clearly went up. Because the GDP increase is measured in euro, the ratio of gross reserves to GDP shrank to 21% at end-2001 and the ratio of indebtedness to GDP remained almost unchanged at 65%. Long-term foreign currency-denominated

liabilities of the Republic of Hungary are currently equipped with ratings of A3 (Moody's) and A– with a stable outlook (Standard & Poor's).

Table 14

Gross Official Reserves and Gross External Debt

	end-1998	end-1999	end-2000	end-2001
	EUR million			
Gross official reserves (excluding gold)	7,981	10,757	11,883	12,072
Gross external debt	23,383	29,155	32,610	37,533
	% of GDP			
Gross official reserves (excluding gold)	19.1	23.9	23.5	20.8
Gross external debt	55.8	64.7	64.5	64.8
	Import months of goods and services			
Gross official reserves (excluding gold)	4.0	4.9	4.1	3.6

Source: Eurostat, national central bank, OeNB, WIIW.

Turning to structural and reform policies, after the parliamentary elections of April 2002, a governing coalition of the Socialist and Liberal Parties was established. Together, they command a majority in the legislature. Reform policies will generally be continued.

Although most privatization activities were completed a few years ago, about 162 enterprises are still under the control of the Privatization and State Asset Management Company (APV Rt.), with little change in 2001 and so far in 2002. Postabank, which had been renationalized through a bailout in 1999, was transferred free of charge to the Hungarian Post. This happened after the government had expressed its dissatisfaction with the price offered for Postabank by Hungary's largest commercial credit institution, the OTP. APV generated privatization proceeds of EUR 145 million in 2001, about 50% of which resulted from the sale of the real estate firm CD Hungary. Further, a share of 23.76% of Budapest Bank was sold to its strategic owner (GE Capital) for EUR 25 million. APV Rt. was not required to hand over privatization revenues of earlier years to the budget, but needed EUR 130 million to indemnify the state electricity holding for losses resulting from the failure to adjust administered prices.

The authorities undertook substantial liberalization measures in the telecommunications sector by introducing competition to the fixed line network. Steps to liberalize the electricity sector are planned for 2003. In the gas sector, on the other hand, the government failed to increase administered prices for households, which triggered sizeable losses for the producer (MOL) and led to negotiations on a renationalization of the gas sector. In the electoral campaign, the new government made the promise not to liberalize gas prices in the near future nor to raise administered gas prices for households substantially. In order to support small and medium-sized enterprises and to strengthen infrastructure development, the former government had introduced the "Széchenyi Plan," which includes various assistance programs. The eligibility criteria for these programs, however, appear to be unclear in many cases. While more than 10,000 tenders were held in 2001, only EUR 65 million were disbursed as of end-April 2002. The new government intends to continue the "Széchenyi Plan" in a more transparent form.

2.3. Poland: Stagnation of GDP in the Second Half of 2001

In the course of 2001, real GDP growth against the corresponding period of the previous year descended steadily to only 0.3% in the fourth quarter. The current drop in GDP growth is dominated by a real contraction of investment, which was caused by a very restrictive monetary policy as well as by export prospects that worsened over the year. As a consequence of the slowdown, real imports stagnated; the resulting improvement of the trade balance actually prevented a recession in 2001.

Table 15

Gross Domestic Product and Its Demand Components

	1998	1999	2000	2001	2001 1st half	2001 2nd half
	Real year-on-year change in %					
Gross domestic product	4.9	3.9	4.1	1.1	1.6	0.5
Private consumption	4.9	5.3	2.6	2.1	1.6	2.7
Public consumption	1.6	1.3	1.4	0.4	0.3	0.5
Gross fixed capital formation	14.8	6.6	3.1	– 8.7	–3.5	–14.0
Exports of goods and services	15.1	–2.5	23.3	10.7	8.7	12.8
Imports of goods and services	18.9	1.0	15.6	– 0.1	–1.8	1.6

Source: Eurostat, national statistical office, OeNB, WIIW.

With gross production stagnating, industrial productivity only augmented because of labor shedding. The jobless rate reached 18% in the first quarter of 2002, which is more than 2 percentage points above the level of the corresponding period of the previous year. The development of unit labor costs has not given rise to inflationary pressure for some time now. But despite stagnating unit labor costs, exchange rate movements caused Poland's price competitiveness to deteriorate.

Table 16

Labor Productivity, Wages, Producer Prices and the Exchange Rate

	1998	1999	2000	2001	2001 1st half	2001 2nd half
	Year-on-year change in %					
Gross production of industry (real)	5.0	4.7	7.8	0.6	2.1	–0.9
Labor productivity of industry (real)	6.1	9.6	17.9	6.0	7.2	4.8
Gross average wage of industry (nominal)	14.9	9.4	10.9	6.9	7.2	6.7
Unit labor cost of industry (nominal)	8.3	–0.1	– 5.9	0.8	– 0.1	1.7
Producer price index (PPI) of industry	7.3	5.6	7.9	1.6	3.2	0.1
Exchange rate (nominal, period average):						
PLN[1]) per 1 EUR, + = EUR appreciation	5.9	7.8	– 5.1	–8.5	–10.9	–6.1
EUR per 1 PLN, + = PLN appreciation	– 5.6	–7.2	5.4	9.3	12.2	6.5

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) PLN: Polish zloty.

The strong decline of inflation enabled an increase of CPI-adjusted average wages particularly in the second half of 2001. This strengthened private consumption. Given the very restrictive monetary conditions (high real interest rates and strong real appreciation), the decline in growth as well as external factors (the oil price decline), disinflation turned out to be quite marked. CPI inflation amounted to 3.3% in March 2002 (year on year), compared to a

central bank goal of 5.0% ±1% for December 2002. For end-2003, the central bank aims at a CPI increase (year on year) of less than 4%.

Table 17

Key Interest Rate, CPI Inflation and Nominal Exchange Rate Changes

	Dec. 1998	Dec. 1999	Dec. 2000	March 2001	Dec. 2001	March 2002
	%					
Key interest rate (per annum)	15.5	16.5	19.0	17.0	11.5	10.0
CPI inflation (year on year)	8.6	9.8	8.5	6.2	3.6	3.3
Nominal year-on-year change of the exchange rate:						
PLN[1]) per 1 EUR, + = EUR appreciation	4.4	3.0	– 8.1	– 6.5	– 7.7	– 2.0
EUR per 1 PLN, + = PLN appreciation	– 4.2	– 2.9	8.8	6.9	8.3	2.0

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) PLN: Polish zloty.

The development of inflation led to repeated reductions of the key interest rate (one-month passive repo rate). These adjustments from September 2001 to March 2002 came to 4.5 percentage points altogether. On April 25, 2002, the key interest rate was cut by an additional half a percentage point to 9.5%. The moving 12-month average key interest rate in real terms in the first quarter of 2002 amounted to 11.1% as based on the CPI and 14.3% as based on the PPI. Despite easing inflation, the interest rate reductions brought this level (14%) to below that of the third quarter of 2001 (18.0%), which still seems to be a remarkably high level. Credits to enterprises and net foreign assets each contributed about 4.5 percentage points, and credits to households contributed around 3.0 percentage points to the nominal increase of broad money in 2001. While real growth of broad money (as adjusted by the CPI) slightly accelerated (from 7.4% in 2000 to 8.6% in 2001), the real expansion of enterprise credits fell from 9.9% in 2000 to 4.2% in 2001, despite the pronounced decline of inflation.

Table 18

Monetary Developments

	1998	1999	2000	2001
	Nominal year-on-year change of the annual average stock in %			
Broad money (incl. foreign currency deposits)	25.8	23.2	14.9	13.4
	Contributions to the nominal year-on-year change of broad money in percentage points			
Net foreign assets of the banking system	11.2	7.9	7.2	4.4
Domestic credit (net) of the banking system	20.5	22.7	11.9	6.9
thereof: claims on households	3.7	4.5	5.7	3.0
claims on enterprises	14.5	13.5	9.5	4.8
claims (net) on general government	2.3	4.7	– 3.3	– 0.9
Other domestic assets (net) of the banking system	– 5.9	– 7.4	– 4.2	2.1

Source: National central bank, OeNB.

In 2001 the target value for the central government budget balance was –2.6% of GDP, the target values for the general government balance were –2.9% of GDP ("financial balance") and –1.9% of GDP ("economic balance"). The "economic balance" is calculated by deducting the UTMS proceeds (in 2001: 0.4% of GDP) from revenues and by subtracting transfers for the capitalization of mandatory private pension funds (in 2001: 1.2% of GDP) from expenditure. Whether the deduction of the transfers is permissible according

to ESA95 is an issue currently being examined by Eurostat. In any case, as the following table shows, the balances achieved in 2001 according to both concepts lie far above the targets. The evident deviation is mostly caused by the fact that nominal GDP grew much less than originally expected. Thus the revenues (which, moreover, had been budgeted at unrealistically high levels) turned out to be much smaller than planned, whereas the expenditure ratio to GDP increased markedly. The weaker than expected nominal GDP growth partly also reflects an unrealisitic planning approach (e.g. the increase of the GDP deflator was assumed to match CPI inflation), partly it reflects the decline in real growth and the strong disinflation. According to the mid-term development strategy of the government, GDP is expected to grow by 1.0% in 2002. The goal of achieving expenditure growth to the measure of CPI inflation plus 1 percentage point was established as a new "fiscal rule" for the coming years. Such growth implies a declining share of expenditures in GDP, as far as the GDP expansion surpasses 1% and the increase of the GDP deflator matches or exceeds that of CPI inflation. In the first quarter of 2002, the central government deficit reached 41% of the annual target, because revenues again failed to match planned levels.

Table 19

Government Budget

	1998	1999	2000	2001	2002 (Budget Act)
	% of GDP				
Central government					
Revenues	22.9	20.5	19.8	19.4	19.2
Expenditures	25.2	22.5	22.1	23.9	24.5
thereof: interest payments	3.2	3.1	2.6	2.9	3.4
Balance	– 2.4	– 2.0	– 2.2	– 4.5	– 5.3
Primary balance	0.9	1.0	0.4	– 1.6	– 1.9
General government					
"Financial" balance (national methodology)	– 3.2	– 3.2	– 2.6	– 5.6	– 6.1
"Economic" balance (national methodology)	– 3.2	– 2.9	– 2.1	– 5.1	– 4.9
Balance (European Commission)			– 3.8	– 5.6	

Source: European Commission, Eurostat, national ministry of finance, OeNB, WIIW.

The weakening of import growth as well as the recovery of net exports in petty cross-border trade (particularly with Russia and Ukraine) reduced the current account deficit. This shortfall was covered by FDI inflows, which did not, however, reach the privatization-related high level of 2000.

Table 20

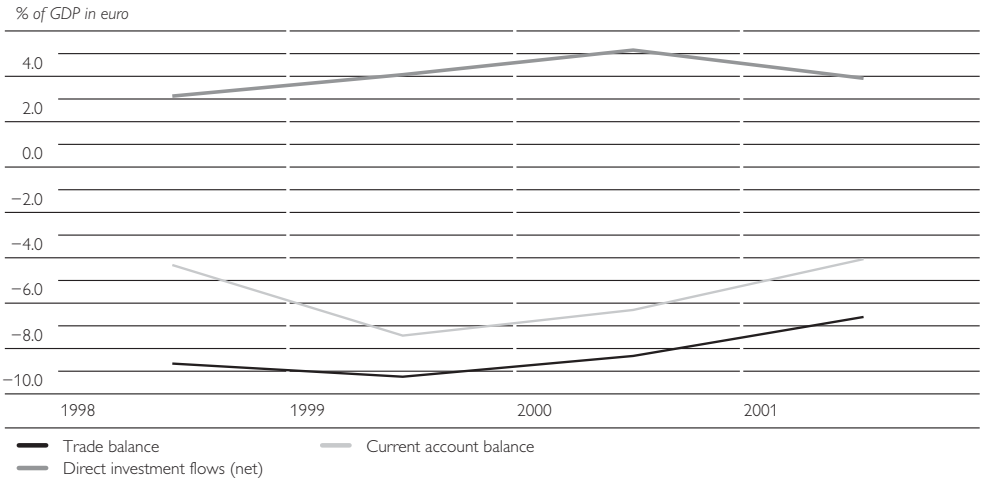
Balance of Payments

	1998	1999	2000	2001
	EUR million			
Merchandise exports	26,882	24,697	30,569	33,787
Merchandise exports: year-on-year change in %	*12.0*	*– 8.1*	*23.8*	*10.5*
Merchandise imports	39,127	38,175	44,815	46,816
Merchandise imports: year-on-year change in %	*15.1*	*– 2.4*	*17.4*	*4.5*
Trade balance	– 12,245	–13,478	–14,246	–13,029
Services balance	– 436	– 1,529	– 1,824	– 1,089
Income balance (factor services balance)	– 508	– 745	– 821	– 1,000
Current transfers	1,732	1,513	1,819	2,216
Unclassified transactions (small cross-border trade)	5,350	3,410	4,306	4,905
Current account balance	– 6,106	–10,829	–10,767	– 7,997
Direct investment flows (net)	4,435	5,954	8,838	7,732

Source: National central bank, OeNB.

Chart 3

Balance of Payments



Source: Eurostat, national statistical office, national central bank, OeNB, WIIW.

Measured in absolute figures, official gross reserves as well as gross external debt increased. But their ratios to GDP shrank because of the strong GDP expansion as measured in euro. Long-term foreign currency-denominated liabilities of the Republic of Poland currently bear ratings of Baa1 (Moody's) and BBB+ with a stable outlook (Standard & Poor's).

Table 21

Gross Official Reserves and Gross External Debt

	end-1998	end-1999	end-2000	end-2001
	EUR million			
Gross official reserves (excluding gold)	23,421	26,192	28,179	28,837
Gross external debt	50,710	64,994	73,841	78,876
	% of GDP			
Gross official reserves (excluding gold)	16.6	18.0	16.5	14.6
Gross external debt	35.9	44.7	43.2	40.1
	Import months of goods and services			
Gross official reserves (excluding gold)	6.6	7.3	6.7	6.6

Source: Eurostat, national central bank, OeNB, WIIW.

Turning to structural and reform policies, after the parliamentary elections of September 2001 a governing coalition of social democrats and the traditional agrarian party was formed.

Amendments to the banking law came into force at the beginning of 2002, providing for the supervision of credit institutions on a consolidated basis. A new commercial code also became effective at the beginning of 2002, which, according to the Polish employers' association, constitutes an important step to improving the business climate in Poland. Members of parliament of the governing parties have indicated that they would initiate a parliamentary debate on the central bank law and, in particular, on the extent of central bank independence. In the realm of monetary policy the government is pleading for stronger interest rate cuts and interventions in the foreign exchange market; it views the

appreciation of the zloty with concern. On the other hand, the government is cooperating with the monetary authorities in drafting a new foreign exchange law, which is to fully liberalize capital flows (except real estate transactions) and thus adjust respective rules to the *acquis communautaire* by end-2002. After a slowdown of reforms immediately before and after the elections, the new government on January 29, 2002, announced its program "Entrepreneurship – Development – Work: A Strategy for the Economic Development of Poland" for 2002–2005, which aims at accelerating annual growth to 3% in 2003, 5% in the year 2004 and more than 5% in the following years.

One of the three essential points of the program is the abolition of barriers to founding and managing enterprises. Planned changes to a number of laws that are already envisaged to take place in the first half of 2002 include rendering labor laws more flexible (reducing overtime allowances, facilitating protection against dismissals), slashing the number of declarations and reports that have to be filed by businesses, adjusting the number of enterprise inspections and simplifying the tax regime (e.g. extension of lump-sum taxation). The second major point is to help graduates find a first job, for instance by providing tax and social insurance benefits for companies. Moreover, supplementary earning possibilities for pensioners are set to be restricted. The third focus is on the strengthening of infrastructure (housebuilding, road networks, modernization of train and air travel, telecommunications).

The program includes other decisions as well: The sectoral reform programs (coal, electricity, oil and gas, chemicals, steel, armaments, railroad) will be carried on. The state will maintain its control over the Polish commercial bank harboring most deposits (PKO BP). PKO BP is to focus on the retail business. Privatization proceeds will be earmarked for promoting new technologies in small and medium-sized enterprises as well as for extending export guarantees. Exports are to be comprehensively promoted (marketing programs, simplification of access to and price reductions for export credits and insurance). Strong support is also planned for investment abroad. In agriculture, the authorities plan to bring intervention policies to EU standards and to introduce a system of direct payments. In agricultural as well as regional policy, institutions are to be established to permit an efficient absorption and use of EU subsidies before as well as after accession, which is expected for the beginning of 2004. All of the measures constituting this program are currently still under preparation.

2.4 Slovakia: Twin Deficits Reemerge

Slovakia was struck by the global weakening of growth at a time when its own domestic demand was in an upswing. In this respect, its experience paralleled that of the Czech Republic. The global slowdown of course primarily affected the expansion of Slovakia's own exports. While Slovak growth in 2000 had exclusively resulted from an improvement of net exports, in 2001 it was based only on domestic demand. The increase of private as well as of public consumption even accelerated in the second half of the year. Import growth, stimulated by domestic demand, adjusted to the lower export growth only with a delay and only partially. On the whole, the expansion of domestic demand overcompensated the marked deterioration of net exports and thus gave a boost to GDP growth in 2001.

Table 22

Gross Domestic Product and Its Demand Components

	1998	1999	2000	2001	2001 1st half	2001 2nd half
	Real year-on-year change in %					
Gross domestic product	4.2	1.9	2.2	3.3	2.9	3.7
Private consumption	5.8	– 0.2	– 3.4	4.0	2.9	5.1
Public consumption	4.1	– 7.0	– 1.6	5.2	3.7	6.7
Gross fixed capital formation	12.0	–18.6	– 0.2	12.3	14.4	10.3
Exports of goods and services	12.2	3.5	16.0	6.7	10.2	3.3
Imports of goods and services	19.8	– 5.9	10.2	12.1	15.4	8.8

Source: Eurostat, national statistical office, OeNB, WIIW.

Industrial gross production and labor productivity changed at the same pace in the course of 2001. This corresponds to the fact that the unemployment rate in the first quarter of 2002 (19.1%) remained approximately at the same level as in the respective period of the previous year. Although nominal unit labor costs of industry increased less than producer prices on the annual average of 2001, their growth more than offset the depreciation of the currency against the euro. Therefore, measured in euro, unit labor costs as well as producer prices of industry edged up for the first time in years.

Table 23

Labor Productivity, Wages, Producer Prices and the Exchange Rate

	1998	1999	2000	2001	2001 1st half	2001 2nd half
	Year-on-year change in %					
Gross production of industry (real)	4.8	– 2.6	8.5	7.0	8.0	6.1
Labor productivity of industry (real)	9.2	0.3	12.0	6.0	6.7	5.2
Gross average wage of industry (nominal)	8.1	7.9	9.1	10.2	10.3	10.1
Unit labor cost of industry (nominal)	–1.1	7.5	– 2.6	4.0	3.4	4.7
Producer price index (PPI) of industry	3.3	3.7	9.9	6.5	8.9	4.2
Exchange rate (nominal, period average): SKK[1]) per 1 EUR, + = EUR appreciation	4.1	11.4	– 3.4	1.7	3.0	0.3
EUR per 1 SKK, + = SKK appreciation	–4.0	–10.2	3.5	– 1.7	– 3.0	– 0.3

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) SKK: Slovak koruna.

After CPI-deflated industrial wages had declined by almost 3% in 2000, they advanced again by almost 3% in 2001, which probably supported private consumption. This development is attributable to marked disinflation. In December 2001, the inflation rate (year on year) amounted to 6.4%. The core inflation rate came to 3%, which was lower than the band of 3.6% to 5.3% (originally 3.2% to 5.3%) targeted by the monetary authorities. Given the fact that regulated prices were not raised as planned in 1999 at the beginning of 2002, the base effect of respective price adjustments in 2001 came to bear fully. Thus the inflation rate in March 2002 reached only 3.6%. Under its monetary policy program, the central bank expects CPI to climb by 4.1% to 4.9% (annual

Table 24

Key Interest Rate, CPI Inflation and Nominal Exchange Rate Changes

	Dec. 1998	Dec. 1999	Dec. 2000	March 2001	Dec. 2001	March 2002
	%					
Key interest rate (per annum)	8.8	8.8	8.0	7.8	7.8	7.8
CPI inflation (year on year)	5.6	14.2	8.4	6.6	6.4	3.6
Nominal year-on-year change of the exchange rate:						
SKK[1]) per 1 EUR, + = EUR appreciation	10.6	0.0	2.2	5.0	–0.9	–4.0
EUR per 1 SKK, + = SKK appreciation	– 9.6	0.0	–2.2	–4.8	0.9	4.2

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) SKK: Slovak koruna.

average) in 2002, and for December 2002 it expects a CPI rise (year on year) of 3.5% to 4.9%. The core inflation rate should amount to 3.2% to 4.7% in December 2002.

After a reduction in March 2001 by 0.25 percentage point to 7.75%, the key interest rate (two-week active repo rate) was left unchanged until April 2002, despite subsiding inflation. On April 26, 2002, the central bank raised the interest rate by half a percentage point to 8.25%, not least because of external economic developments. However, given the decline of inflation, the moving 12-month average key interest rate in real terms was already markedly higher in the first quarter of 2002 (4.3% as measured by the CPI and 6.5% as measured by the PPI) than in the third quarter of 2001 (0.9% and 3.3%). Until end-2001, broad money rose nominally by 11.9% (year on year) and by 7.7% in real terms (deflated by the CPI). Monetary aggregate growth can be almost fully explained by the expansion of net claims of the banking system on the public sector. Only part of this contribution relates to the placing of state securities in the portfolios of commercial banks in exchange for the transfer of nonperforming credits to the state.

Table 25

Monetary Developments

	end-2000	end-2001
	Nominal year-on-year change in %	
Broad money (incl. foreign currency deposits)	15.4	11.9
	Contributions to the nominal year-on-year change of broad money in percentage points	
Net foreign assets of the banking system	8.9	– 0.2
Domestic credit (net) of the banking system	6.6	13.4
thereof: claims on households	1.5	1.3
claims on enterprises	– 1.3	–13.6
claims (net) on general government	6.4	25.6
Other domestic assets (net) of the banking system	0.0	– 1.3

Source: National central bank, OeNB.

For 2001 the finance ministry had envisaged a general government budget deficit of 3.9% of GDP, after a deficit of 2.0% of GDP had been achieved in 2000. However, the shortfall of 2000 also includes the balance of received credit repayments minus granted credits as well as privatization proceeds. According

to calculations of the finance ministry, the deficit realized in 2001 was in line with plans. In 2002 the public deficit should amount to 3.5% of GDP. But the budget law harbors a number of risks, one of which relates to the effects of a new cut of the corporate income tax rate from 29% to 25%, after this rate had already been reduced from 40% to 29% in 2001. Ahead of the parliamentary elections of September 2002, it also appears to be difficult to execute the spending cuts provided for in the budgetary program; rather, there is a probability that expenditure overruns will occur. In mid-April the finance ministry warned of the danger of exceeding the deficit goal by 2 percentage points, especially because of the revenue losses as compared to previous plans. In the first quarter of 2002 the central government deficit came to 40% of the planned balance of 2002, but the share declines to 15% if expenditures on bank restructuring are excluded.

Table 26

Government Budget

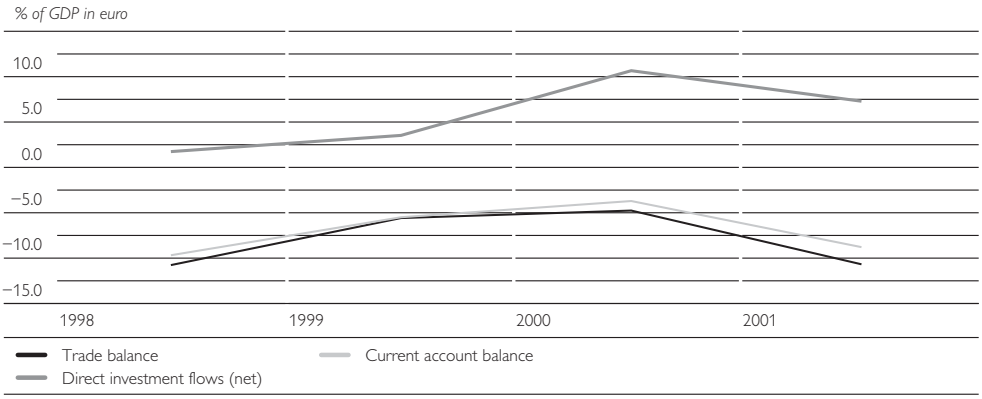
	1998	1999	2000	2001	2002 (Budget Act)
	% of GDP				
Central government					
Revenues	23.7	26.7	24.1	21.3	20.6
Expenditures	26.2	28.8	27.2	25.9	24.2
thereof: interest payments		2.7	2.5		2.6
Balance	– 2.6	– 2.1	– 3.1	– 4.6	– 3.6
Primary balance		0.6	– 0.6		– 1.0
General government					
Balance (national methodology)	– 4.6	– 3.6	– 2.0	– 3.9	– 3.5
Balance (European Commission)			– 4.8	– 5.5	

Source: European Commission, Eurostat, national ministry of finance, OeNB, WIIW.

Balance of payments data also bear out that import dynamics followed the abrupt slowdown of export expansion only to a limited degree. This produced a strong rise of the current account disequilibrium, which was almost fully covered by inflows of foreign direct investments, though.

Chart 4

Balance of Payments



Source: Eurostat, national central bank, OeNB, WIIW.

Table 27

Balance of Payments

	1998	1999	2000	2001
	EUR million			
Merchandise exports	9,520	9,558	12,841	14,097
Merchandise exports: year-on-year change in %	*22.8*	*0.4*	*34.4*	*9.8*
	EUR million			
Merchandise imports	11,566	10,592	13,833	16,479
Merchandise imports: year-on-year change in %	*27.8*	*– 8.4*	*30.6*	*19.1*
	EUR million			
Trade balance	– 2,046	– 1,034	– 992	– 2,382
Services balance	18	140	475	535
Income balance (factor services balance)	– 137	– 282	– 382	– 349
Current transfers	328	162	127	236
Current account balance	– 1,838	– 1,015	– 771	– 1,960
Direct investment flows (net)	333	657	2,227	1,630

Source: National central bank, OeNB.

The ratio of official gross reserves to GDP (in euro) was about 21% at end-2001 and remained stable compared to a year ago, while gross foreign indebtedness increased to 57% of GDP. Expressed in months of imports of goods and services, reserves shrank from 3.3 at the end of December 2000 to 3.0 a year later. This contraction may be traced to the growth of imports. Slovak long-term public liabilities currently feature ratings of Baa3 (Moody's) and BBB– with a positive outlook (Standard & Poor's).

Table 28

Gross Official Reserves and Gross External Debt

	end-1998	end-1999	end-2000	end-2001
	EUR million			
Gross official reserves (excluding gold)	2,506	3,404	4,325	4,709
Gross external debt	10,200	10,453	11,461	12,669
	% of GDP			
Gross official reserves (excluding gold)	13.2	18.4	20.8	21.1
Gross external debt	53.8	56.5	55.0	56.9
	Import months of goods and services			
Gross official reserves (excluding gold)	2.2	3.3	3.3	3.0

Source: Eurostat, national central bank, OeNB, WIIW.

On the topic of structural and reform policies, parliamentary elections are scheduled for September 2002. While this has recently complicated fiscal policymaking, structural reforms have continued in several areas, in particular privatization.

Recently, a new commercial code came into force, improving framework conditions for business activities. On March 31, 2002, the financial market supervision authority (UFT), which had been founded at end-2000, was abolished. It was newly established on April 1. This step represents part of the announced introduction of an integrated financial market supervision body until 2004. Privatization has been quite dynamic in recent months. After the two most important commercial banks of the country had already been privatized, at the beginning of 2002 Hungary's OTP Bank acquired a stake of 92.55% of the

share capital of Investičná rozvojová banka (IRB)[1]) for about EUR 16 million. In March the Austrian bank BAWAG purchased all shares of Istrobanka for EUR 51 million. Moreover, 66.8% of the capital of the insurance company Slovenská poist'ovňa was sold to the German insurer Allianz AG[2]) for EUR 144.9 million.

In January 2002 an independent supervisory authority for price regulation in network industries was created. This step was a precondition for privatizing the energy sector. The output of the biggest electricity producer, Slovenské elektrárne (84% total of output), was separated from nationwide transmission. Only the former activity of the enterprise is being prepared for partial privatization (49%). Up to 49% of the three regional electricity distribution outfits are to be sold to foreign investors until mid-2002. At the beginning of April, Transpetrol, the operator of the Slovak oil pipeline network, was sold to a Russian oil business. At the end of April, a consortium of Gaz de France, Ruhrgas and Gazprom acquired 49% of the gas distribution company SPP for USD 2.7 billion. All in all, privatization proceeds in 2002 are expected to reach an amount corresponding to a new historic maximum of about 17% of GDP. Already in the past two years, privatization revenues had accounted for the lion's share of large FDI inflows to Slovakia. The government announced its intention to use these funds to pay off state liabilities and contribute to financing the pension reform.

2.5 Slovenia: Net Exports Stimulate Growth

GDP growth in 2001 weakened to 3.0%. This performance may be poinpointed to domestic demand, which climbed even more sluggishly than in the preceding year, since gross domestic investments and inventories contracted in real terms. Stagnating domestic demand triggered a strong decline of import growth. This containment of imports more than offset the halving of the export growth rate in 2001. Thus, like in 2000, the expansion of net exports constituted the largest contribution to growth (2.5 percentage points). In the course of 2001, the contribution of domestic demand gained importance, though.

Table 29

Gross Domestic Product and Its Demand Components

	1998	1999	2000	2001	2001	
					1st half	2nd half
	Real year-on-year change in %					
Gross domestic product	3.8	5.2	4.7	3.0	3.0	3.0
Private consumption	3.3	6.1	0.8	1.7	1.6	1.8
Public consumption	5.8	4.6	3.1	3.2	3.2	3.2
Gross fixed capital formation	11.3	19.1	0.2	−1.9	−3.7	−0.2
Exports of goods and services	6.7	1.7	12.7	6.2	8.6	3.9
Imports of goods and services	10.4	8.2	6.1	2.1	2.7	1.5

Source: Eurostat, national statistical office, OeNB, WIIW.

1 *IRB is the third-largest bank in the country (in terms of assets); it is, however, much smaller than the already privatized Slovenská Sporitel'ňa and the Všecná úverová banka.*

2 *Apart from that transaction, Allianz AG acquired a further 24.3% stake of Slovenská poist'ovňa from a private Slovak investor, so that Allianz AG's total participation exceeds 90%. Slovenská poist'ovňa and the already existing Slovak branch of Allianz AG, Allianz poist'ovňa, a.s., Bratislava, together account for a market share of about 50%.*

Given that the growth of productivity fell to slightly below the declining growth rate of gross industrial production, the unemployment rate decreased slightly (year on year), namely by 0.2 percentage point to 11.8% in February 2002. Although the expansion of nominal unit labor costs was somewhat lower than the PPI rise, it will probably still mean some inflationary pressure. Moreover, the increase of the unit labor costs and of industrial producer prices was not fully offset by the depreciation.

Table 30

Labor Productivity, Wages, Producer Prices and the Exchange Rate

	1998	1999	2000	2001	2001	
					1st half	2nd half
	Year-on-year change in %					
Gross production of industry (real)	3.9	−0.5	6.3	3.1	3.6	2.6
Labor productivity of industry (real)	5.4	1.3	7.2	2.3	2.4	2.2
Gross average wage of industry (nominal)	10.7	9.3	11.7	10.8	12.4	9.4
Unit labor cost of industry (nominal)	5.0	7.9	4.2	8.3	9.8	7.0
Producer price index (PPI) of industry	6.0	2.2	7.6	9.0	10.1	7.9
Exchange rate (nominal, period average):						
SIT[1]) per 1 EUR, + = EUR appreciation	3.3	4.0	5.9	5.9	6.6	5.3
EUR per 1 SIT, + = SIT appreciation	− 3.2	−3.8	− 5.6	− 5.6	− 6.2	−5.0

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) SIT: Slovenian tolar.

Nominal average wage growth in the entire economy even accelerated in 2001. Therefore, given a parallel decrease of inflation, CPI-adjusted real wages expanded by 3.2%. But this wage development has not yet tangibly influenced private consumption. The decrease of inflation in the second half year was paralleled by that of the PPI, which was determined to a large degree by the oil price development. Until December 2001, inflation decreased to 7.0% (end-2000: 8.9%). The adjustment of the VAT rate at the beginning of 2002 triggered an increase in January to 8.4%, before inflation receded to 7.6% in March 2002.

Table 31

Key Interest Rate, CPI Inflation and Nominal Exchange Rate Changes

	Dec. 1998	Dec. 1999	Dec. 2000	March 2001	Dec. 2001	March 2002
	%					
Key interest rate (per annum)	10.0	8.0	10.0	10.0	11.0	9.0
CPI inflation (year on year)	6.5	8.0	8.9	8.9	7.0	7.6
Nominal year-on-year change of the exchange rate:						
SIT[1]) per 1 EUR, + = EUR appreciation	0.9	4.5	7.1	6.8	4.8	4.3
EUR per 1 SIT, + = SIT appreciation	− 0.9	−4.3	− 6.6	− 6.4	− 4.6	−4.1

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, WIIW.
[1]) SIT: Slovenian tolar.

After the key interest rate (discount rate) had been fixed at 11% in April 2001, it was reduced to 9% in January 2002, given the strong disinflation in the second half of 2001. However, the dimension of this measure was corrected by an adjustment of the interest rate to 10% on April 1, 2002. But the moving 12-month average of the key interest rate in real terms amounted to 3.2% (measured by the CPI) and 4.4% (measured by the PPI) in the first quarter

of 2002. Because inflation diminished, this rate was higher than in the third quarter of 2001 (2.7% and 2.6%). Broad money grew nominally until end-2001 (year on year), advancing by 29.7%; in real terms (deflated by the CPI) the increase was 21%, which exceeded the central bank-determined reference band of 11% to 17% for 2001. However, the increase of net foreign assets of the banking system accounted for 18.7 percentage points of the nominal growth. In its mid-term monetary policy program, published in November 2001, the central bank defined broad money (including foreign exchange deposits) as the "first pillar" of the indicators observed for monetary policy purposes. Reference values for the year-on-year growth of broad money were set at 12% to 18% for 2002 and 9% to 15% for 2003.

Table 32

Monetary Developments

	end-1998	end-1999	end-2000	end-2001
	Nominal year-on-year change in %			
Broad money (incl. foreign currency deposits)	20.2	12.0	15.6	29.7
	Contributions to the nominal year-on-year change of broad money in percentage points			
Net foreign assets of the banking system	2.2	0.0	5.5	18.7
Domestic credit (net) of the banking system	19.3	15.6	14.6	15.2
thereof: claims on households	4.2	7.7	2.8	1.8
claims on enterprises	11.9	7.3	9.5	10.2
claims (net) on general government	3.2	0.6	2.3	3.2
Other domestic assets (net) of the banking system	– 1.3	– 3.6	– 4.6	– 4.1

Source: National central bank, OeNB.

Given above-plan salary and pension expenditures, the targeted reduction of the public sector deficit to 1% of GDP in 2001 did not materialize. The realized shortfall amounted to 1.4%. On the basis of the new budget law it was possible for the first time to draw up a two-year budget for 2002 and 2003. With an eye to the effort to accede to NATO and the EU, the authorities plan to raise expenditures for border control and defense in the coming two years. As regards revenues, the VAT increase was brought forward one year to the beginning of 2002. The IMF has commented positively on the medium-term goal of balancing the budget and stresses the need to cut spending, which should also include a cutback of personnel expenditures in the public sector. The finance ministry expects a deficit of SIT 120 billion in the first quarter of 2002, which contrasts with a budgeted central government deficit for the entire year of SIT 125 billion (about 2.6% of GDP). The budgetary disequilibrium accrued so far is relatively high for technical reasons: While the value-added-tax proceeds of January 2002 are still being included in revenues of 2001, VAT refunds are already registered as expenditure for 2002. While this effect has decisively lifted the deficit of the first quarter, the budgetary gap for the entire year of 2002 is likely to be markedly higher than in past (and in coming) years, since the hitherto usual prolongation of the budgetary year until January of the following year has been discontinued.

Given a stable real exchange rate and weak domestic demand, the decline in import growth as measured by the balance of payments far surpassed the weakening of export growth; the development of real exports and imports was much

the same. As a result, the trade and current account deficits shrank, while foreign direct investment inflows widened substantially, albeit from a modest point of departure.

Table 33

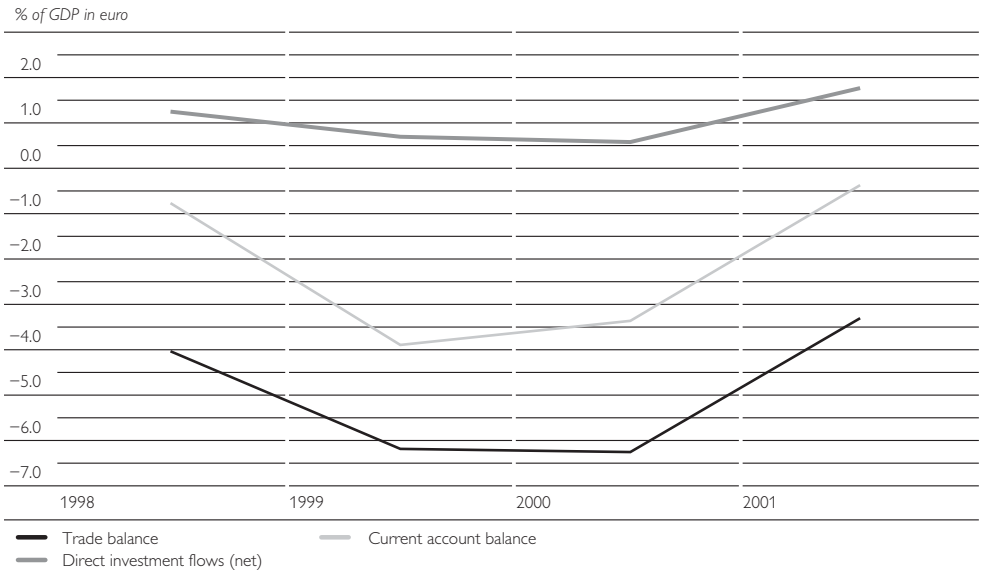
Government Budget

	1998	1999	2000	2001
	% of GDP			
Central government				
Revenues	25.0	25.8	24.6	25.1
Expenditures	26.1	26.4	25.5	26.2
thereof: interest payments				
Balance	– 1.1	– 0.5	– 0.9	– 1.1
Primary balance				
General government				
Balance (national methodology)	– 0.8	– 0.6	– 1.4	– 1.4
Balance (European Commission)			– 1.6	– 1.3

Source: European Commission, Eurostat, national ministry of finance, OeNB, WIIW.

Chart 5

Balance of Payments



Source: Eurostat, national central bank, OeNB, WIIW.

The evolution of the current account and of foreign direct investments was also reflected in the fact that official gross reserves accumulated more dynamically than gross foreign debt. Slovene long-term public foreign currency-denominated liabilities are currently vested with ratings of A2 (Moody's) and A with a stable outlook (Standard & Poor's).

Moving on to structural and reform policies, all remaining restrictions on capital flows (with the exception of the opening of accounts abroad by natural persons) were lifted on January 1, 2002. The new draft central bank law is currently in its second reading in parliament. In the opinion of the government and the monetary authorities, this draft law is harmonized with the EU *acquis communautaire*. In the area of sectoral structural reform, the banking sector is particularly worth mentioning. After recurring delays, the government of Slovenia decided in April 2002 to sell 34% of the share capital of Nova Ljubljanska banka

Table 34

Balance of Payments

	1998	1999	2000	2001
	EUR million			
Merchandise exports	8,114	8,082	9,529	10,426
Merchandise exports: year-on-year change in %	*9.5*	*– 0.4*	*17.9*	*9.4*
	EUR million			
Merchandise imports	8,818	9,249	10,761	11,119
Merchandise imports: year-on-year change in %	*8.9*	*4.9*	*16.3*	*3.3*
	EUR million			
Trade balance	– 704	–1,167	– 1,232	– 694
Services balance	440	341	472	559
Income balance (factor services balance)	25	– 23	– 27	– 83
Current transfers	109	115	125	143
Current account balance	– 131	– 734	– 662	– 75
Direct investment flows (net)	223	135	118	377

Source: National central bank, OeNB.

Table 35

Gross Official Reserves and Gross External Debt

	end-1998	end-1999	end-2000	end-2001
	EUR million			
Gross official reserves (excluding gold)	3,119	3,148	3,390	4,868
Gross external debt	4,213	5,367	6,595	7,551
	% of GDP			
Gross official reserves (excluding gold)	17.9	16.7	17.2	23.2
Gross external debt	24.1	28.5	33.5	35.9
	Import months of goods and services			
Gross official reserves (excluding gold)	3.7	3.5	3.3	4.6

Source: Eurostat, national central bank, OeNB, WIIW.

(NLB) to the Belgian KBC Bank. The original privatization plan for this biggest commercial bank of the country had already been modified earlier. According to this modification, the strategic investor now no longer has the option to acquire shares over and above the stake of 34%. 33% of the share capital is to remain in the ownership of the government. 19% are already held by predominantly domestic institutional investors, and the government intends to sell a further 14% of share capital to such investors.

The most recent attempt to privatize Nova kreditna banka Maribor (NKBM) failed, after the government had decided to follow the negative recommendation of the privatization committee. This had determined that none of the bids fulfilled the requirements. Apart from Bank Austria, Unicredito and a Slovene-dominated consortium had submitted bids for 65% of the shares of NKBM. In March 2002 the bid of the Italian bank SanPaolo IMI for the purchase of a further stake of 47.1% of the fifth-largest credit institution of the country, Banka Koper, was accepted. Therefore, SanPaolo IMI now holds 62% of the capital, but only 32.9% of the voting rights of the bank. Raiffeisen Zentralbank shortly took over Krekova banka, the ninth-largest Slovene bank. The privatization of insurance companies continues to be held up by constitutional legal uncer-

tainties. The government initiated the closure of the privatization agency Slovene Development Corporation (SRD), which has existed since 1997. The remaining objects will be privatized by the respective ministries.

2.6 Russian Federation: Growth Remains Strong and Inflation Eases

Real GDP growth amounted to almost 5% in 2001. GDP thus continued to expand strongly, albeit clearly less so than in 2000. The investment-led acceleration of economic activity in the second half of 2001 was remarkable. Investment growth was fuelled by still substantial export revenues buoyed by the high, if declining, oil price. Another factor stimulating investment growth was private consumer demand. The expansion of private consumption reflected the rise of wages and the decline of wage arrears. On the other hand, the decline of real net exports, and in particular, the expansion of imports (triggered by internal demand and real appreciation) shaved about 2 percentage points off GDP growth.

Table 36

Gross Domestic Product and Its Demand Components

	1998	1999	2000	2001	2001 1st half	2001 2nd half
	Real year-on-year change in %					
Gross domestic product	–4.3	4.7	8.7	4.9	4.3	5.5
Private consumption	–2.4	– 4.4	9.3	8.6	9.5	7.8
Public consumption	0.4	2.6	1.3	– 0.9	–1.2	– 0.8
Gross fixed capital formation	–9.8	4.7	13.3	11.5	9.7	12.4
	Contribution to the real year-on-year change of GDP in percentage points					
Net exports of goods and services	7.1	10.2	– 1.4	– 2.0	–1.6	– 2.4

Source: National statistical office, OeNB, RECEP (Russian-European Centre for Economic Policy), WIIW.

Employment remained more or less stable (according to the ILO methodology); gross value added and labor productivity developed almost in parallel. At the same time, a decline of the unemployment rate to 8.9% in March 2002 (March 2001: 9.6%) is registered. Contrary to earlier years, unit labor costs grew more strongly than prices in 2001, whether measured by the GDP defla-

Table 37

Labor Productivity, Wages, Prices and the Exchange Rate

	1998	1999	2000	2001	2001 1st half	2001 2nd half
	Year-on-year change in %					
Gross value added of the economy (real)	– 4.9	5.4	9.1	5.0	5.0	5.0
Labor productivity of the economy (real)	– 3.4	5.0	8.3	3.9	3.1	4.8
Gross average wage of the economy (nominal)	14.9	42.6	42.5	45.7	45.3	46.0
Unit labor cost of the economy (nominal)	18.9	35.9	31.6	40.2	40.9	39.4
GDP deflator	13.2	67.4	40.5	17.7	20.3	15.7
Exchange rate (nominal, period average):						
RUR[1]) per 1 EUR, + = EUR appreciation	69.1	137.2	– 0.8	0.4	– 5.4	6.8
EUR per 1 RUR, + = RUR appreciation	–40.9	– 57.8	0.8	– 0.4	5.7	– 6.3

Source: Datastream, national statistical office, national central bank, OeNB, RECEP, WIIW.
[1]) RUR: Russian ruble.

tor or by the PPI of all sectors. Therefore, given nominal exchange rate stability against the euro on the average in 2001, unit labor costs as well as producer prices, expressed in euro, mounted.

Because of the minimum wage increases (by 91% in real terms on the annual average) and of the adjustments of average pensions (by 21% in real terms) as well as of public sector wages, average wages (as deflated by the CPI) grew by almost 20% in 2001, after they had already expanded by 18% in the preceding year. CPI growth (year on year) declined from 23.8% in March 2001 (23.7% in June 2001) to 16.9% in March 2002. The increase of the agricultural producer price index correspondingly shrank from 26.6% to 11.7% and that of the industrial producer price index moved from 24.5% to only 5.6%. This discrepancy is partly explained by the surge in service prices, which in March 2002 amounted to 38.9% (year on year), corresponding approximately to the rise of the previous year (39.7%). On the other hand, the slowdown of the PPI increase was favored by the oil price decline. However, it is necessary to emphasize that the domestic oil price was lowered less than the prices of Russian export oil and Brent oil. As a result, the domestic oil price picked up from a level of about 27% of the export price on the annual average in 2000 to about 40% at the beginning of 2002.

Table 38

Key Interest Rate, CPI Inflation and Nominal Exchange Rate Changes

	Dec. 1998	Dec. 1999	Dec. 2000	March 2001	Dec. 2001	March 2002
	%					
Key interest rate (per annum)	60.0	55.0	25.0	25.0	25.0	25.0
CPI inflation (year on year)	84.4	36.6	20.1	23.8	18.8	16.9
Nominal year-on-year change of the exchange rate:						
RUR[1]) per 1 EUR, + = EUR appreciation	255.0	15.6	– 7.4	– 5.1	6.9	4.2
EUR per 1 RUR, + = RUR appreciation	– 71.8	–13.5	8.0	5.4	– 6.5	– 4.1

Source: Datastream, national statistical office, national central bank, OeNB, RECEP, WIIW.
[1]) RUR: Russian ruble.

The marked slowdown of the increase of industrial producer prices, coupled with the nominal depreciation of the ruble against the euro as well as against the U.S. dollar particularly in the second half of 2001, led to a slowdown of real appreciation tendencies of the ruble. In the first quarter of 2002, real appreciation (over the corresponding period of the previous year) came to but 1% to 5%, whereas it had amounted to 20% to 30% in the preceding year. Given the most recent evolution of the trade balance, this trend was also supported by the central bank. The real effective exchange rate in June 2001 had already reached 80% of the level of the precrisis year 1997. In April 2002 the monetary authorities cut the refinancing rate for the first time since November 2000, namely from 25% to 23%. The 12-month moving average of the key interest rate in real terms amounted to 9.6% (as measured by the CPI) or 21.3% (as measured by the PPI) in the first quarter 2002. Due to the decline of inflation, this indicator was clearly higher than in the third quarter of 2001 (6.9%, respectively 11.6%). Because of the accumulation of reserves, the overnight money market rate has been below the key interest rates for more than two years, however. It amounted to around 12% a year in the first quarter of 2002. The 12-month

moving average of money market interest rates in real terms amounted to –4.6% as measured by the CPI and 5.6% on the basis of the PPI in the first quarter of 2002.

Until the end of 2001, broad money nominally grew by 36% (year on year); in real terms (deflated by the CPI) it grew by 14.5%. The gain in net foreign assets of the banking system accounted for 23 percentage points of the nominal rate of expansion of broad money. While overdue liabilities of enterprises (in particular to employees, suppliers and the state) stagnated nominally throughout 2001 and thus contracted by about 13% in real terms, total enterprise debt grew by 18% in real terms. Claims of banks on enterprises expanded by 36% in real terms and therefore contributed 27.4 percentage points to the nominal growth of broad money. The banking sector therefore appears to be making some progress on its way to becoming a financial intermediary between savers and the real sector.

Table 39

Monetary Developments

	end-1999	end-2000	end-2001
	Nominal year-on-year change in %		
Broad money (incl. foreign currency deposits)	56.7	58.4	36.1
	Contributions to the nominal year-on-year change of broad money in percentage points		
Net foreign assets of the banking system	32.3	63.5	23.1
Domestic credit (net) of the banking system	57.4	17.8	31.8
thereof: claims on households	29.5	–17.3	– 1.6
claims on enterprises	23.1	32.3	27.4
claims (net) on general government	4.9	2.8	6.0
Other domestic assets (net) of the banking system	–33.0	–22.8	–18.8

Source: National central bank, OeNB, RECEP.

Owing to continued robust economic growth, but particularly to successful tax reforms (see the paragraph on structural and reform policies), improved tax administration and expenditure restraint, the Russian Federation achieved a substantial budget surplus again in 2001. At the same time, annual average inflation remained at a relatively high level (21.6%). While the federal budget law had provided for a balanced budget, in the event a surplus of 3.1% of GDP (primary balance: +5.6%) was achieved. The authorities created a financial "stabilization fund" to be financed from excess revenues. The federal budget for 2002 envi-

Table 40

Government Budget

	1998	1999	2000	2001	2002 (Budget Act)
	% of GDP				
Central government					
Revenues	8.9	12.4	15.4	17.6	19.4
Expenditures	13.7	13.8	14.3	14.5	17.8
thereof: interest payments	3.9	3.4	3.5	2.5	2.6
Balance	– 4.8	– 1.4	1.2	3.1	1.6
Primary balance	– 0.9	2.0	4.7	5.6	
General government					
Balance (national methodology)	– 5.2	– 1.0	4.3	3.3	

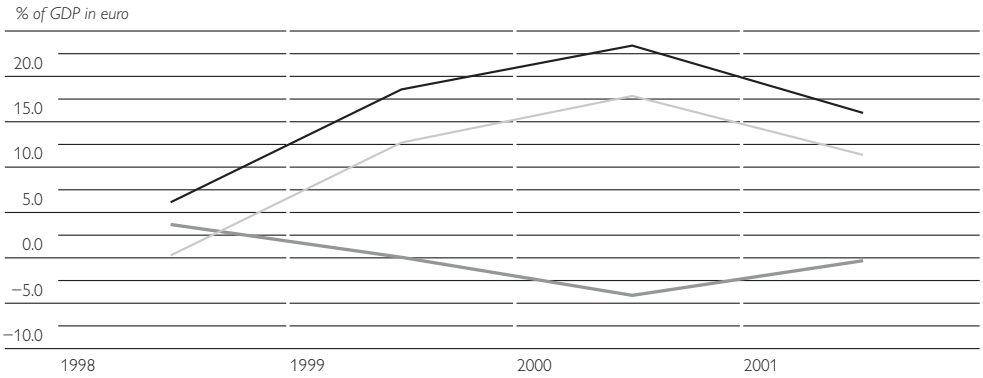
Source: OeNB, RECEP, Russian Economic Expert Group (Ministry of Finance of the Russian Federation), WIIW.

sages a surplus of 1.6% of GDP. Risks for budget execution in 2002 (oil price, foreign economic developments) currently appear to be minor. According to preliminary information, in the first quarter of 2002 a federal surplus of 4.4% of (pro rata) GDP was achieved.

In contrast to exports as measured in national accounts, exports according to balance of payments data are subject to price movements, e.g. for export oil. (In 2000, the average annual price for export oil increased 65.4% over the previous year, in 2001 it fell 13.7%.) Despite the oil price decline, exports did not contract in 2001, but grew by 0.8%. The high expansion of imports is founded on the reestablishment of financing structures, on powerful domestic demand growth and on the real appreciation of the ruble. The trade surplus in 2001 was the source of financing the new net outflow of direct and portfolio investments, the large foreign debt service payments, other net capital outflows and the increase of official gross reserves. The gross external debt of the Russian Federation increased from EUR 153 billion at end-2000 to EUR 157 billion a year later, but this corresponds to a decline of the ratio of external debt to GDP from 54% to 45%, given the increase of GDP in 2001 as measured in euro.

Chart 6

Balance of Payments



Source: National central bank, national statistical office, OeNB, RECEP, WIIW.

Table 41

Balance of Payments

	1998	1999	2000	2001
	EUR million			
Merchandise exports	66,847	70,955	114,247	115,171
Merchandise exports: year-on-year change in %	*– 14.8*	*6.1*	*61.0*	*0.8*
Merchandise imports	51,764	37,024	48,577	60,041
Merchandise imports: year-on-year change in %	*– 18.4*	*– 28.5*	*31.2*	*23.6*
Trade balance	15,083	33,837	65,670	55,130
Services balance	– 3,659	– 4,030	– 8,331	– 11,383
Income balance (factor services balance)	–10,531	– 7,217	– 7,249	– 4,352
Current account balance	625	23,152	50,091	39,172
Direct and portfolio investment flows (net)	9,014	94	– 11,684	– 1,116

Source: National central bank, OeNB, RECEP, WIIW.

Long-term foreign currency liabilities of the Russian Federation currently feature ratings of Ba3 (Moody's, since November 2001) and B+ with a positive outlook (Standard & Poor's, since February 2002).

Table 42

Gross Official Reserves

	end-1998	end-1999	end-2000	end-2001
	EUR million			
Gross official reserves (excluding gold)	6,686	8,406	25,739	36,585
	% of GDP			
Gross official reserves (excluding gold)	2.7	4.6	9.1	10.5
	Import months of goods and services			
Gross official reserves (excluding gold)	1.6	2.7	6.4	7.3

Source: National central bank, national statistical office, OeNB, RECEP, WIIW.

Turning to structural and reform policies, Russia today boasts a degree of political stability unknown for years. President Putin enjoys very high rates of popular approval. Since the beginning of 2001, the general pace of economic reforms has speeded up and tax reforms in particular are already showing first tangible results: Government revenues have picked up markedly.

The first important tax reform measure became effective at the beginning of 2001: The personal income tax rate was cut to a uniform 13% level (flat tax), a number of loopholes were abolished, and social security contributions were standardized. The second major step, the reduction of the corporate income tax rate to a uniform 24%, took place a year later. According to expert estimates, about a third of the additional federal tax revenues obtained in the last two years are due to fiscal reforms and improved tax administration. In the course of the second half of 2001 and in the first months of 2002, a number of new laws were passed, were amended or came into force. The new Labor Code makes hiring and firing easier, but also clarifies the rights of employees and unions. The forty-hour week was introduced, and the requirement was established that the minimum wage cover the subsistence minimum.[1]) The new Land Code enables private ownership of nonagricultural land (also by foreigners) in Russia for the first time since 1917. Purchases, sales and mortgages of e.g. industrially used properties are now generally permitted.

New enterprise laws are to rein in the scope for administrative arbitrariness, bureaucracy and red tape with respect to licensing enterprises and carrying out state inspections. For instance, the number of business activities subject to official authorizations was adjusted from 500 to 120. Pension reforms were initiated by a principal decision to introduce a three pillar-scheme at the beginning of 2002, which is to combine pay-as-you-go elements with a capitalization system. In the future, individual pensions are to consist of a tax-financed base pension, a wage-dependent component financed by compulsory contributions of the employer and third element financed from individual savings. However, for pension reform to become operational, further legal preconditions (e.g. a law on pension funds) need to be put in place. In preparation for Russia's strived-for accession to the WTO, import taxes were streamlined and reduced.

1 *However, it was not determined how the subsistence minimum is to be calculated.*

Foreign exchange regulations were somewhat relaxed by reducing the mandatory exchange requirement of 75% of export proceeds to 50%.

On the other hand, progress in restructuring "natural monopolies" (electricity, gas and railroads) and in reforming commercial banks has so far been modest. An anti-money laundering law was passed, not least owing to foreign pressure. In February 2002 the Russian anti-money laundering agency, which is to review transactions exceeding a volume of USD 20,000, became operational. In late 2001, the government and the central bank formulated an (overdue) banking sector reform strategy, which provides for the passing of a number of draft laws in 2002. However, the implementation of major parts of these laws is only envisaged from 2004. Thus, banks are to adopt international accounting standards as of 2004. The deposit guarantee scheme, which currently only covers state-owned credit institutions, will be extended to all banks and will provide deposit protection up to a yet-to-be-defined ceiling. The authorities plan to raise minimum capital requirements to EUR 5 million and obligatory capital adequacy to 10% for all banks between 2005 and 2007. This should contribute to the necessary consolidation of the banking sector. Legislation will be drafted to improve the enforcement of credit collateral. Finally, the state intends to sell its stakes in banks where it holds equity positions of 25% or less. The change at the helm of the Bank of Russia at the end of March 2002 is expected to stimulate banking reforms as well.

Cutoff date for data: May 8, 2002.

S T U D I E S

EU Enlargement to the East: Effects on the EU-15 in General and on Austria in Particular

An Overview of the Literature on Selected Aspects

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1 Introduction

Two completely divergent vantage points might be applied to analyze the economic effects of the imminent Eastern enlargement of the European Union (EU): On the one hand, the state of the preparatory work and the catching-up process in the Central and Eastern European countries (CEECs) themselves may be analyzed. On the other hand, the possible effects of enlargement on the EU Member States may be examined. The latter angle was chosen for this survey of the literature, with a specific emphasis on macroeconomic impacts. The survey is designed to acquaint the reader with enlargement issues without anticipating the statements made in the individual studies in this issue of Focus on Transition and in Focus on Austria 2/2002.

The set of aspects scrutinized in the literature survey begins with the assessment of the effects of EU enlargement toward the East on growth and welfare in the current EU Member States. Numerous surveys come to the conclusion that in the long run, EU Eastern enlargement will have positive – albeit rather small – effects on the economic growth of the EU-15. Most of the models capture a ten-year horizon. The results vary between 0.0 and 0.8 percentage point; the European Commission forecasts cumulative additional GDP growth to run to 0.5 to 0.7 percentage point. The macroeconomic effects on Austria are greater, because the country has more intense economic relationships with the region: numerous studies identify growth effects ranging between ¾ percentage point and 1½ percentage points.

With a free trade zone between the EU and the associated countries having been established, most of the trade effects have already taken place; hence, the above estimates do not refer to trade effects. Therefore, most of the process of trade intensification has already come about since the opening up began in the early 1990s, with the exception of special products such as agricultural goods. As a small open economy located at the perimeter of the CEEC region, Austria has benefited to an especially great extent from the opening up of Eastern Europe: In 2000, some 11% of Austria's imports derived from the CEE accession countries and about 13% of Austria's exports were delivered to that destination. As a consequence, Austria has the strongest economic ties to the region of all EU countries.

The financial effects of EU Eastern enlargement represent a second aspect of this literature survey. The literature goes into possible impacts on capital flows (it should be noted that the liberalization of capital transactions has been largely completed) and into the effects of financial sector deregulation. While the danger of financial crises grows as markets are liberalized, so does the opportunity for growth. In this light, it is essential that a suitable institutional environment be established so that both the current Member States and the accession countries reap the advantages of deregulation in the long run. Austrian hopes to develop the Vienna stock exchange into a popular market for Eastern European equities have not come to fruition yet. Currently, only few equities are listed on the NEWEX (New Europe Exchange), and sales are low. Much rather, national locations, such as the Budapest or Warsaw stock exchanges, are striving to gain a foothold among the plethora of European stock exchanges.

Like trade, foreign direct investment (FDI) was intensified in the 1990s, although investment in the CEECs is much higher than in the opposite direc-

tion. Whereas low unit labor costs and a number of other locational advantages prompted Western European companies to invest in the CEECs, these countries have still invested only little in Western Europe.

Another chapter of this survey reflects on the possible influence of enlargement on the labor market. The estimates patently signal the great uncertainty attached to this issue, as they cover an unusually broad range: Between 41,000 and 680,000 persons are expected to migrate to the EU after enlargement or after the transition period restricting the free movement of persons ends. It is fairly certain that the migration flows will differ strongly from country to country, depending on the income differentials, the relative tightness of the labor market and the geographical proximity of the countries. Accordingly, Germany and Austria are sought-after targets for many potential migrants; in addition, the volume of commuters in the border regions is expected to augment.

Apart from the crowding out on the labor market that enlargement is likely to entail, the migration of generally young and highly motivated labor will have positive effects both on economic growth and the social security systems of the EU countries. Considering that different countries will be affected to varying degrees, experts endeavored to develop an appropriate solution and found one in the flexible transition period of seven years agreed in 2001. This regime enables countries anticipating above-average migration rates to proceed step by step and to implement active labor policy measures. As the enlargement of the EU toward the South showed, however, France did not take full advantage of the restriction it had originally insisted on.

The impact of EU enlargement will vary not only from one EU Member State to another, but also from region to region. This key statement of the next part of the literature survey is based on the experience gained to date with the opening up of Eastern Europe. Regional competitiveness is based not just on geographical proximity or the fact that two countries share a border; the differences between types of regions are also essential determinants of competitiveness. Adjustment is most difficult for the peripheral regions, but quite often, it is no more than simply an acceleration of the structural change required anyway. It comes as no surprise that the regionally different effects of the opening up of Eastern Europe have already been analyzed in depth using Austria as an example: While large urban areas have benefited from the opening, rural border regions have lost their principal locational advantage, namely supplying labor-intensive industries with cheap labor. An issue which has not been settled yet is whether EU enlargement will reinforce or temper regional disparities. Appropriate regional and economic policy measures at the EU and at the national level are particularly crucial to cope with such disparities.

EU and Austrian finances represent the last issue surveyed in this contribution. Enlargement will entail a reshuffling of finances, either in the form of supplying the Structual Funds and the Cohesion Funds with more money, or of redistributing funds from the current recipient countries, above all the cohesion countries Portugal, Spain, Greece and Ireland, to the newly acceding CEECs. This option appears quite viable, considering that the catching-up process in some of the cohesion countries (take Ireland, especially) has progressed very far.

A key issue – retaining the own-resources ceiling – was contested for a long time. Individual studies come to different conclusions based on different assumptions about the actual date of accession, the speed of the cohesion process within in the EU-15, the extension of existing promotion measures to the newly acceding member countries and the type of transition provisions put into effect, if any. The EU Commission has just recently estimated the cost of enlargement to the EU budget on the assumption that ten countries would join in 2004. With total payment commitments of EUR 40.16 billion for the period from 2004 to 2006, EU budget expenditure would run to 1.08% of GNP, thus remaining below the own-resources ceiling of 1.27%. Overall, according to the European Commission's estimates, 0.09% to 0.14% of the enlarged EU's GNP would be earmarked for expenditure for the new Member States.

The next financial forecast for 2007 to 2013 will probably not be fully negotiated before enlargement, which could be under the Finnish Council presidency. The negotiation results of the current enlargement round will determine to what extent a thorough overhaul of the EU budget will be required then. Already today, there are signs that agricultural policy will be restructured and that the means from the Structural Funds will have to be redistributed to the newly developing regions.

The calculation of the effects on the Austrian budget are still at a very rudimentary stage, because the negotiations on numerous essential chapters have not been concluded yet (e.g. agriculture) and because it is uncertain by how much budget receipts will shrink if tobacco tax revenues should decline. First estimates point to a marginally positive net impact on the Austrian budget. If the European Commission's current expenditure proposal is calculated for Austria, Austrian contributions to the EU would rise by a total of EUR 670 million from 2004 to 2006.

Preparations for the accession are currently making swift progress, as the accession negotiations show: Most of the negotiation chapters with the majority of applicant countries have already been provisionally closed. The speed of the preparations for accession also puts the implications of enlargement for EU institutions into the limelight. The work of the Convention on the future of the EU is presently focused on keeping an EU with up to 27 members operational and on changing the structures of EU institutions accordingly. The contribution by Lindner and Olechowski-Hrdlicka, published in Focus on Austria 2/2002, covers this issue, with a special emphasis on the areas related to economic and monetary policy.

2 Growth and Welfare Effects of EU Enlargement to the East

For over 50 years, Western European countries have experienced a period of strong growth (on average) assumed to have been fostered above all by trade liberalization (Frankel and Romer, 1999). In the 1990s this Western European integration was strengthened by the creation of a Single Market in Europe, the EU accession of three EFTA member countries and, last but not least, by the introduction of the single currency.

Crespo-Cuaresma, Dimitz and Ritzberger-Grünwald (2001; in this issue of Focus on Transition) show that formal EU accession has positive effects on the

growth of all EU Member States. The growth effects, however, are not linear: On the one hand, the positive impact of EU membership augments with the duration of the integration period, and on the other hand, countries with a lower per capita income benefit relatively more from integration than more wealthy member countries.

A comparison between Western European countries and the former planned economies in Central and Eastern Europe distinctly shows how much more efficient largely liberalized market economies are. Therefore, it comes as no surprise that the CEECs linked their economic reform with the gradual integration into the EU from the outset. To this end, the EU and the ten applicant countries signed Europe Agreements.

The Eastern enlargement of the EU will trigger the following economic effects (for a detailed presentation, see Fidrmuc and Nowotny, 2000, or Kohler, 2000):

- The traditional trade effects (Viner, 1950) may be positive (trade creation) or negative (trade diversion). The countries bordering on CEE (above all, Austria, Germany, Sweden and Finland) benefit more than the remaining EU Member States.
- Factor migration has different effects on source and on target countries: Immigration boosts growth in the EU whereas production outsourcing (direct investment in CEE) reduces it.
- The dynamic effects (capital accumulation, improved access to new technologies, increased competition and gains due to increased returns to scale) possibly constitute the majority of the long-term effects of economic integration (see Baldwin, 1993, and Baldwin and Venables, 1995). The dynamic effects of integration are asymmetric, with a relatively low impact on today's EU members and a possibly large impact on acceding countries.
- Eastern enlargement of the EU is generally not expected to have significant macroeconomic impacts on the EU-15 (see table 1). However, financial transfers to the new members could severely burden the EU budget by raising contributions for net payers and/or by diminishing transfers from the EU budget to net recipients. Moreover, the short-term adjustment costs caused by migration in addition to foreign trade might be quite substantial in some sectors.

Most of the adjustment cost in the applicant countries arose before accession, having been caused by the adoption of the *acquis,* the EU's body of law (see Inotai, 1999, and the 2001 Regular Reports of the European Commission). For some time, the EU has faced allocation effects caused by the establishment of a free trade area between the EU and the associated countries on account of the implementation of the Europe Agreements.[1])

Considering the wide variety of effects to be expected and the broad range of empirical methods used (above all, macroeconomic forecasting models and Computable General Equilibrium Models, or CGEM), only a few effects were

1 *Section 2 compares the economic effects of the opening up of Eastern Europe and Eastern enlargement of the EU.*

examined in depth. Table 1 lists the available estimates of long-term[1]) effects on the European Union and on Austria; short-term and migration effects are left out of account here. However, the studies presented in this survey are based on differing assumptions about the budgetary framework of EU Eastern enlargement and about the extent of dynamic effects.

On the whole, Eastern enlargement is expected to produce small but positive growth effects on the EU. In the short run, though, Eastern enlargement may well have negative effects, too, above all in the migration target countries and in the countries that face higher transfers to the EU or reduced payments from the EU budget. EU Eastern enlargement is seen to foster growth in the accession countries, a feature generally referred to as a stability export to the adjacent regions.

The first study that reviewed the economic impact of EU enlargement to the East was written by Gasiorek, Smith and Venables (1994) and is based on the authors' earlier papers on the effects of the Single Market (see Smith and Venables, 1988, and an ex-post assessment by Allen, Gasiorek and Smith, 1998). The CGEM covers 13 industrial sectors typified by imperfect competition, the financial sector and the rest of the economy (denominator). Seven EC regions (not including Austria, which only joined in 1995) were modeled individually, while the applicant nations, along with the EFTA members and the rest of the world, formed a separate aggregate. EU enlargement to the East was simply simulated by increasing foreign trade on the basis of estimates by Hamilton and Winters (1992). The model also takes into account dynamic effects and capital reallocation (full capital mobility), however, whereas labor is not taken as mobile, not even within the EU. The emphasis on the dynamic effect within the framework of imperfect competition may explain why the figures come out somewhat higher (0.5 to 0.8 percentage point of GDP) than in later studies.

Baldwin, Francois and Portes (1997) develop two scenarios on the impact of EU enlargement. The first, more conservative enlargement scenario prepared by the authors is currently recognized as the most important reference for the possible effects of EU Eastern enlargement. The authors simulate the effects of enlargement, using seven countries (the associated countries exclusive of the Baltic republics) in a CGEM extending to seven regions (CEE-7, EU-15, EFTA-3, the former USSR, NAFTA, Asia and the Pacific region, North Africa and the Middle East, Africa and the rest of the world) and 13 sectors. Most of industry is characterized by increasing returns to scale and imperfect competition, but for the primary sector and the textile industry, the authors assume constant returns to scale and perfect competition.

Baldwin, Francois and Portes model EU Eastern enlargement chiefly as a 10% decline in bilateral real trade cost. Moreover, upon joining the EU, the new Member States adopt the EU's external customs duties, which will result in marginal effects also on third countries. In addition, investment in the acces-

1 *The long-term effects show the cumulative difference between the basic scenario (no Eastern enlargement) and a possible variety of enlargement scenarios. Usually, a time horizon of ten years is considered sufficient in the macroeconomic forecast and simulation models (analyzing economic developments in the five to seven years following EU Eastern enlargement). The CGEM are used to analyze the differences between the various steady states (i.e. between the long-term growth paths) in both (or in several) scenarios.*

sion countries will mount as a consequence of the drop in the risk premium and (in the alternative enlargement scenario) the risen demand of these countries for capital. The latter assumption barely has an additional effect on the current EU (0.2%), although the impact on the applicant countries in the alternative enlargement scenario is considerably greater (18.8 versus 1.5 percentage points).

The European Commission (2001) chooses an entirely different method to simulate Eastern enlargement, namely the Solow growth model (SGM). While this approach may provide useful insights to explain the growth contribution of the individual production factors in the transition countries, it is unusual to apply this supply-side model to the EU. Unlike earlier studies, the Commission's study sees the effects of enlargement to the East as stemming exclusively from indirect effects, i.e. effects produced by the allocation of labor and capital, and from factor productivity. This prevents the comparison of the individual results across studies, though the overall results of the EU study are not much different from those of other studies. The EU Commission predicts slight positive effects on the order of 0.5% to 0.7% for the EU. Kohler (2000) and Breuss (2001) also found effects of this magnitude, while Lejour, de Mooij and Nahuis (2001) as well as Neck, Haber and McKibbin (2000) calculate a much lower impact.

A comparatively large number of studies detail the economic impact of Eastern enlargement on Austria. This may be explained both by the important status of EU enlargement to the East for Austria's economy and by Austria's tradition of applied economics and quantitative analysis. In addition, suitable methods of empirical research were developed to assess the economic impact of Austria's EU accession (see Breuss, 1992, and Keuschnigg and Kohler, 1996) and could now easily be adapted to EU eastward enlargement.

Breuss and Schebeck (1995 and 1998) simulate EU Eastern enlargement using WIFO's macroeconomic model for medium-term forecasts. Breuss updated these estimates and expanded them to include the EU as a whole, applying Oxford Economic Forecasting's World Macroeconomic Model. By contrast, Keuschnigg and Kohler (1997 and 2000) base their simulations of EU Eastern enlargement on a dynamic CGEM. The model assumptions, though, are broadly the same across all studies. The basic assumption of the enlargement scenarios is a 5% to 10% reduction of real trade costs. Additionally, the studies take into account the budgetary impact of enlargement on Austria. The latest available versions of both simulations include migration, but the partial results were not included in table 1, as they are not comparable to the results of other studies.

Although different models were used, the results of the simulations are very similar, reflecting the homogeneity of assumptions. While the impact of EU enlargement to Eastern Europe is higher for Austria than on the EU average, it is nevertheless fairly small at ¾ percentage point to 1½ percentage points.

If EU enlargement to the East were delayed, the integration gains would be postponed (see Breuss, 2002, and Schneider, 2002). In the short run, the total of foregone integration gains may be quite high. According to estimations presented by Breuss (2001), the important trade effects just for exporters (the effects of reduced real trade costs, that is, among other things resulting from

the elimination of delays at the border) amount to roughly 0.13 percentage point of Austrian GDP a year. While these effects might not appear impressive at first glance, Breuss (2002) underlines that extrapolated over six years (corresponding to a delay in enlargement to 2010) foregone trade simplification would total 0.8 percentage point of Austrian GDP. This result supports the finding that by comparison to other EU members, Austria would stand to lose disproportionately from a postponement of CEEC accession.

Table 1

Long-Term Cumulative Effects of EU Eastern Enlargement on the European Union and on Austria

	Method	*GDP Growth*	*Source*
EC-12	CGEM	0.5–0.8	Gasiorek, Smith and Venables (1994)
EU-15	CGEM	0.2	Baldwin, Francois and Portes (1997)
EU-15	CGEM	0.1	Kohler (2000)
EU-15	CGEM	0.0	Neck, Haber and McKibbin (2000)
EU-15	SGM	0.5–0.7	European Commission (2001)
EU-15	MEM	0.3	Breuss (2001)
EU-15	MEM	0.1	Lejour, de Mooij and Nahuis (2001)
Austria	MEM	1.6[a]–1.7[b]	Breuss and Schebeck (1995)
Austria	MEM	1.3[b]	Breuss and Schebeck (1998)
Austria	CGEM	1.4–1.5[c], 3.6–3.7[d],	Keuschnigg and Kohler (1997)
Austria	CGEM	1.1[a]–1.3[b]	Keuschnigg and Kohler (2000)
Austria	MEM	0.7	Breuss (2001)

Source: OeNB.

Note: CGEM: Computable General Equilibrium Model, MEM: macroeconomic model, SGM: Solow growth model; a: accession of five CEECs, b: accession of ten CEECs, b: basic scenario with different EU budget reform assumptions, d: optimistic scenario with different EU budget reform assumptions.

3 Effects of EU Eastern Enlargement on Trade Relations

Conjectures about the impact of EU enlargement to the East draw heavily on the effect of the opening up of Eastern Europe at the beginning of the 1990s, above all in Austria and in some neighboring countries. During that phase, trade effects were the most predominant effects. Within the first five years after the fall of the Iron Curtain, the share of the EU-15's imports from the associated countries doubled (see table 2). On the EU-15 average, however, imports from the CEECs remained marginal (below 3% in 1994). In Finland, Austria, Germany and Greece, imports from and exports to the CEECs, however, had already expanded substantially by the mid-1990s, with imports from the region containing a fair share of sensitive goods (such as agricultural products, steel, textiles and automobiles)[1]).

These effects were especially strong for Austria as a small, open economy (GDP share of foreign trade) that is situated close to the CEECs. The positive effects of the new export markets clearly outweighed structural problems caused by surging imports. Breuss and Schebeck (1995) estimate the long-term macroeconomic effects of the opening up of Eastern Europe from 1989 to 1994 to a total of 2.4 percentage points of GDP. The majority of these effects (1.3 percentage points) were attributable to trade, and an additional 0.9 per-

1 *Neven (1995) and Fidrmuc, Huber and Michalek (2001) discuss sensitive goods in the context of the Europe Agreements. Grossmann and Helpman (1994) analyze this topic in the theoretical framework.*

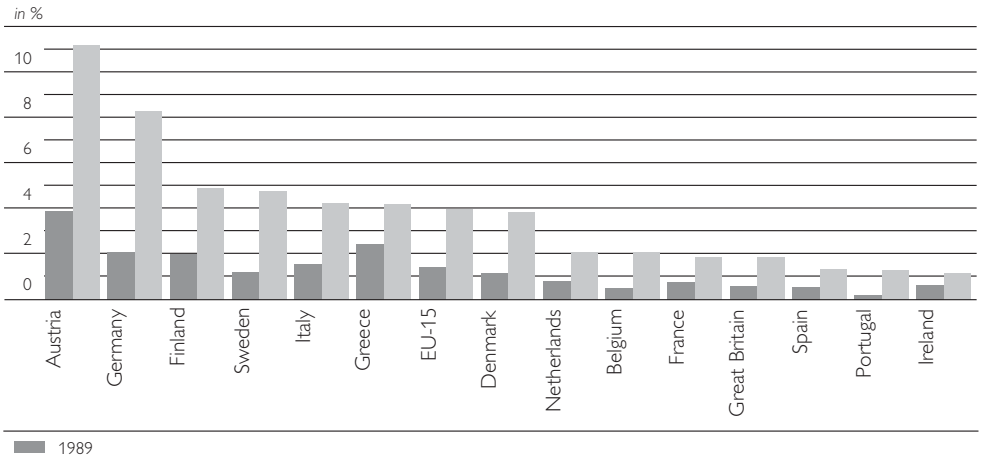
centage point to German reunification and stepped-up migration to Austria (only partly from the CEECs).

In the case of EU Eastern enlargement, the weights of the individual effects are likely to be different. Since 1997 the EU has removed customs duties on imports (except on agricultural products and selected sensitive products). Accordingly, in the wake of the elimination of border controls, Eastern enlargement will entail only a comparatively marginal reduction of real trade costs. According to Breuss (2001), various estimates of these cost reductions have been made, all in a narrow range of between 5% (e.g. Kohler, 2000) and 10% (Baldwin, Francois and Portes, 1997). Even assuming the greatest estimated reduction, the trade effects are small according to Breuss (2001), coming to a cumulative 0.05 percentage point of the EU-15's GDP between 2005 and 2010[1]) and ¼ percentage point of GDP (the highest value within the EU) for Austria. Hence, the trade effects represent just a fraction of the overall macroeconomic impact of EU Eastern enlargement.

The structure of trade between the EU and the associated countries has become much like that of intra-EU trade, which enhances the welfare effects of further trade liberalization. The higher shares of intraindustrial trade – trade between the same industrial sectors – bears witness to this shift in trade structures. Fidrmuc (2001) shows that taking into account the size of the countries and their geographic position, the shares of intraindustrial trade in the EU's trade with the East have already fully adjusted to the values of the Single European Market. This points to relatively low future adjustment costs, although there are still substantial quality differences between the traded goods (see Aturupane, Djankov and Hoekman, 1999).

Chart 1

Share of Imports from the CEE Accession Countries in Total EU Imports

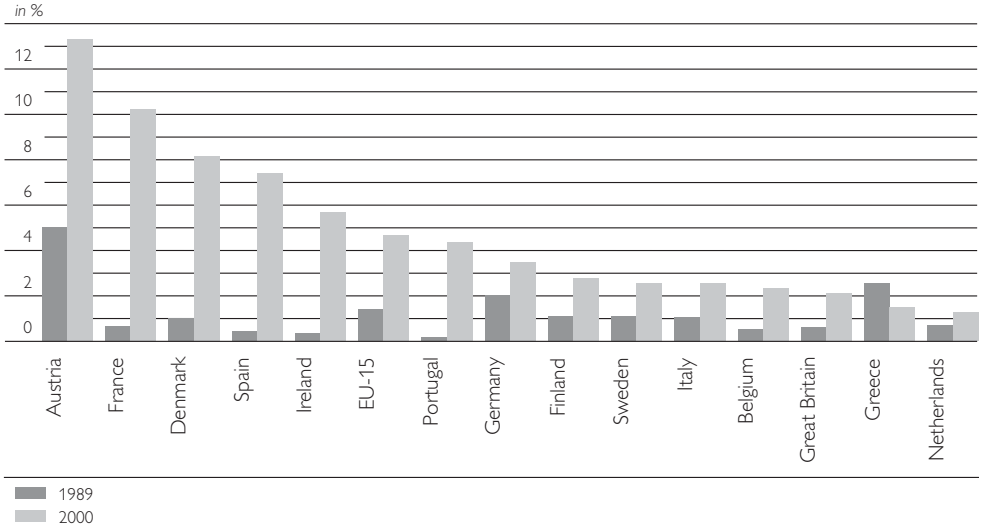


Source: OeNB.

1 *The European Commission (2001) estimates the trade effects of Eastern enlargement at 0.0 to 0.1 percentage point.*

Chart 2

Share of Exports from the CEE Accession Countries in Total EU Exports



Source: OeNB.

4 Liberalization of Capital Transactions, Financial Deregulation and Financial Stability

The adoption of the EU's body of law upon EU entry calls for the liberalization of capital movements and of financial markets in the accession countries as well as the establishment of institutions to secure stable prices and financial markets (Lannoo, 2001), although derogations may be applied in some areas. In the past years the development of accession countries' financial sectors and their legal as well as institutional settings were characterized by gradual progress toward achieving these goals (Tison, 1999, and Ems, 2000)[1]) in the course of the implementation of the Europe Agreements (in the first half of the 1990s).

The empirical literature on the relationship between financial deregulation and financial stability points toward a tradeoff – financial deregulation increases the probability of financial crises while simultaneously boosting economic growth. Demirgüc-Kunt and Detriagache (1998) indicate that countries frequently experience a financial crisis several years after deregulation. An important factor triggering financial crises is the institutional setting, which determines the extent of factors such as corruption, the collectibility of contractual claims and bureaucratic inefficiency. Another important consideration is the reduction of profit margins in banking caused by more intense competition. On the other hand, a more developed financial sector has positive effects on growth.[2]) All in all, the authors conclude that the institutional framework – above all financial system supervision – must be improved before further liberalization steps are taken. Only if the institutional setting is enhanced will the positive effects of deregulation outweigh the negative effects.

1 *DG EcFin (2000) contains a survey of the current state of capital movements liberalization.*

2 *The literature survey in Levine (1997) summarizes the growth effects of financial deregulation.*

According to Edwards (2001), the development state of the financial sector in terms of the GDP ratio of the banking sector's liquid liabilities is also an important benchmark for the impact of the removal of capital controls on economic growth. The elimination of capital controls tends to have a negative impact on less developed countries. Klein and Olivei (1999) come to similar conclusions.

Schröder (2001) emphasizes the positive effect of financial deregulation and capital account liberalization for international investors. He states that including accession country stocks in an internationally diversified portfolio can theoretically produce better return-to-risk ratios (known as Sharpe ratios). In the simulations performed with stock prices from 1994 to 1998, this effect could not be confirmed (on this subject, see also the contribution by Ludwig and Schlagbauer on "The Integration of Eastern Europe – Effects on Stock and Bond Markets" in the OeNB's Focus on Austria 2/2002).

Benoit, Schantl and Weyringer (2001) examine the effect of financial liberalization in the accession countries on Austria. According to the authors, the Vienna-based NEWEX could become an important trade center for CEE stocks (see also Obersteiner, 1999). Until now, however, these hopes have not materialized. The reasons are as follows: Principally, only few CEE companies go public. They privatize mainly via strategic partners or in the form of Global Depositary Receipts (GDR) at the London Stock Exchange. The few listed CEE companies generally prefer their domestic stock exchanges. While some Eastern European stocks are traded on NEWEX, most of them are Russian.

4.1 EU Investment in the Accession Countries

FDI in the accession countries was strong in the 1990s. Buch (1999), for example, compares the saving-to-investment ratio in the accession countries and in the Southeastern European accession countries, showing that the integration of the accession countries in world financial markets is already comparable to that of advanced OECD member countries. Lankes and Stern (1997) establish a positive link between individual CEECs' capital inflows and their progress in the transition to market economies and the degree of macroeconomic stabilization. Garibaldi et al. (1999) determine that the accession countries experienced roughly the same scale of capital inflows as Southeast Asia and Latin America until 1997. Approximately two thirds of the applicant countries' capital imports originated in the EU; nevertheless, the total share of remained relatively low 0.15% EU GDP (DG EcFin, 2001).

The different factor endowments in the two regions are regularly cited as the economic rationale for the west-east capital flows. As assets per employee are lower in the East than in the West, every additional unit of capital invested delivers higher marginal returns in the East than in the West. Capital flows continue until the marginal returns in both regions are in equilibrium. In addition to capital stock convergence, the accession countries also benefit from political, administrative and legal convergence, which reduces the risk of investment by creating a stable institutional setting in the run-up to accession (Eichengreen and Ghironi, 2001; Baldwin, Francois and Portes, 1997; Lankes 1999).

Buch and Piazolo (2000) present empirical evidence of an anticipated acceleration of EU portfolio investment, bank lending and FDI in the applicant countries upon accession. Using foreign investors' behavior in the past years as a benchmark, the authors estimate that claims of individual EU member countries[1]) are between 20% and 50% (with the exception of Austria) of the level expected if investment continues at the current pace for bank loans (figures for 1999) and portfolio investment (figures for 1998) and between 41% and 76% in the case of FDI (figures for 1997). The underrepresentation of the accession countries in the EU's foreign investment (with the exception of Austria) and the perceptible size of the enlargement effect appear to point to high future investment flows. This process may in fact be over for Austria (see also the contribution by Dell'mour in this issue); however, the quality of the model leaves some scope for further research, above all on the statements on FDI and portfolio investment. Sinn and Weichenrieder (1997) make similar statements about a comparatively low stock of FDI by the EU in Eastern Europe. Conversely, Brenton and Di Mauro (1999) do not find significant FDI underinvestment. Their forecast is based on a model estimate that explains FDI largely as contingent on a country's degree of economic freedom. The inclusion of these variables may be responsible for the fact that they do not find a significant EU effect for FDI. Considering that the degree of economic freedom changes upon EU entry, which would in turn lead to an adaptation of FDI stocks, their forecast may be questionable.

The macroeconomic effects on the EU of intensified capital flows to the CEE accession countries are largely summarized in four categories:

– Interest rate effect: Eastern customers' stepped-up demand for savings in the West induces short- and long-term real interest rates in Western Europe to rise. Breuss (2001) pegs the interest rate effect at 5 basis points for short-term and 20 basis points for long-term interest rates over the period from 2003 to 2010, caused by cumulative capital exports of around EUR 30 billion. Neck and Schäfer (1996) reach a similar conclusion. One feature accompanying higher interest rates is a higher real euro exchange rate on account of the international interest rate parity (DG EcFin, 2001; see also the contribution by Moser, Pointner and Backé "Exchange Rate Strategies of the Accession Countries on the Road to EMU: Impact on the Euro Area" in Focus on Austria 2/2002.
– Substitution effect: Investment made in Western Europe without the CEECs acceding would be made because of the better framework conditions there and because of lower labor cost in Eastern Europe. Altzinger (1998) points out that this effect has been limited to industrial enterprises so far, as they outsourced production to take advantage of lower labor cost. However, this motive has applied to only 10.5% of Austria's total FDI in the region. Breuss and Schebek (1994) expect this factor to produce marginal negative effects for Austria.
– Complementary FDI: FDI in Eastern Europe boosts Austria's, and the EU's, exports, e.g. on account of intracompany trade. Empirical evidence presented by Brenton and Di Mauro (1999) suggests that the positive effects

1 *The authors examine investment behavior for Austria, Germany, France, Italy, Belgium and the Netherlands.*

of complementary FDI and the negative effects of substitutional FDI offset each other for most European countries, whereas the complementary (positive) effects predominate for Austria.

– Income effect: Investment in Eastern Europe results in a net positive international investment position (IIP) for the EU. This leads to future interest income and profits, provided the investments develop well (Kohler, 2000; Altzinger, 1998).

5 Effects of EU Eastern Enlargement on the Labor Market

EU Eastern enlargement will trigger a stronger migration of labor to the EU, most likely first and foremost to Germany and Austria. This migration will face the labor markets in the countries concerned with novel challenges, which will be outlined below. After a general survey of the quantitative estimates of the expected migration volume, the expected impact on employment and income developments in Austria will be sketched. Finally, some labor market policy options to cope with the situation will be presented.

5.1 Migration Potential

The gap between incomes in the EU and in the accession countries is expected to intensify migration from the CEECs in the wake of enlargement and the resultant free movement of labor. After Germany, Austria may be the main goal of migration, particularly because these countries and the CEECs share borders. The estimates of the figure of expected immigrants diverge sharply depending on the method used and the assumptions which are met. Some of the studies employ econometric models based on variables such as the real wage differential or the unemployment rate to estimate the number of expected migrants. These studies refer to the findings of Barro and Sala-i-Martin (1995), according to which an annual difference in per capita income of 10% induces the migration of 0.05% to 0.15% of relatively less wealthy persons. Using econometric methods, Walterskirchen and Dietz (1998) estimate a migration flow from the Czech Republic, Slovakia, Slovenia, Hungary and Poland of 42,000 persons a year to Austria for 2005, under the condition that full freedom of movement for workers has been granted by then. Thereafter, migrant numbers should recede as average wages converge. Hofer (1998) estimates annual migration at 23,000 to 46,000 persons. Faßmann and Münz (1996) underline the importance of the variables geographical proximity and income differentials. In a study based on a German immigration data set covering 17 immigrant source countries and the period from 1960 to 1994, Fertig (2001) comes to the conclusion that the anticipated migration flows will not exceed the immigration which occurred after Spain, Portugal and Greece joined the EU.

Brücker and Boeri (2000) estimated a time series model for Germany and applied these results to Austria. In their scenario, the authors assume that the above countries will enter the EU alongside the Baltic republics, Romania and Bulgaria already in 2002. They estimate immigration to the EU to run to about 335,000 persons in 2002. The distribution of these immigrants across the Member States is not even: Germany is anticipated to attract 218,000 persons, Austria 40,000; Spain, Belgium and the Netherlands some 4,000 migrants, while only 79 persons will seek work in Ireland. According to this study, Austria

and Germany alone are expected to absorb 77% of the immigrants from the countries named. While much uncertainty is attached to this study, its results are nevertheless generally considered a benchmark.

As Huber (2001) notes, on account of the long forecast horizon, all of these studies involve enormous uncertainty about the development of incomes in the countries reviewed. Straubhaar (2001) argues along similar lines, pointing out that migration trends are subject to great structural breaks stemming from substantial changes such as EU accession.

Other studies are based on surveys conducted in the CEECs in which respondents talk about immigration intentions after EU entry. Faßmann and Hintermann (1997) find a general interest in emigration in 20% of the total population of the Czech Republic, Hungary, Slovakia and Poland. However, only 8% have taken first steps, such as obtaining information about possible migration target countries. The number of persons who have already applied for official visas and employment permits for EU countries stands at 700,000 or 1% of the population of the countries covered. A fair share of these potential immigrants – 12.2% – have a university degree, and an additional 34.6% are high school graduates. This study, too, identifies Austria and Germany as the main target countries. In a household survey conducted in Hungary only, Sik (1998) researched emigration intentions, concluding that they are much weaker than other studies assume and that they are limited to border regions.

After enlargement, the Austrian labor market will face not only the impact of migrations flows, but also that of commuters. Huber (2001) estimates that 85,000 commuters will come to Austria daily from adjacent CEECs; Walterskirchen and Dietz (1998) peg this figure at 150,000 persons. Unlike migrants, who are distributed more or less evenly throughout Austria, commuters increase the labor supply above all in the eastern border regions and in the urban areas of Vienna, Graz and Linz.

Overall, depending on the method applied, the applicant countries examined and the time horizon selected, estimates of the migration potential diverge sharply across studies. Comparing 24 current studies, Huber (2001) finds that they forecast a range of 41,000 to 680,000 immigrants a year to the EU after enlargement. The large gap between these two figures shows just how important the choice of initial parameters is. While the lower figure results from calculations based on immigration indices, the higher figure derives from a gravity model of the type used by Barro and Sala-i-Martin.

5.2 Effects of Migration on the Austrian Labor Market

The effects of immigration will differ from profession to profession. Age and qualification are not the only determinants of the competition of immigrants with domestic labor. Although some prospective immigrants have a good education, most of them are bound to work in low-paid jobs below their qualification levels. In this connection, Faßmann and Hintermann (1997) speak of "anticipated dequalification," meaning that well-educated immigrants assume that they will only find jobs for which they are overqualified, and adapt their job-seeking activity accordingly. Apart from the structure of the labor market, the number of expected immigrants is key to the adjustment process. As indicated above, the number of immigrants will differ sharply from Member State

to Member State. The possible impact of immigration on the Austrian labor market will be outlined below. Adjusted for the number of expected immigrants and the structure of the respective national labor market, these findings apply to other countries as well.

Basing their study on experience with the opening up of Eastern Europe, Winter-Ebmer and Zweimüller (1996) estimate the impact of immigration on the Austrian labor market. They conclude that a 1% rise in real immigration increases unemployment among male workers by 0.15%. However, they find no significant impact of immigration on white-collar employment and female employment. A similar picture emerges from analyzing the effect on wage levels. The wages of poorly qualified labor decline as migration increases; conversely, highly qualified persons may even expect incomes to climb. Young and seasonal workers will be most affected by wage reductions.

In a simulation model, Huber and Hofer (2001) calculate the impact of an inflow of 35,000 immigrants a year. They come to much the same conclusion about qualification: the better qualified labor market segment benefits from immigration, as it represents a counterweight to the increasing supply of less qualified immigrant labor. The impact on less qualified labor tends to be negative, raising the risk of unemployment and exerting downward pressure on income levels. The impact of immigration on wage levels has also been analyzed (see, e.g., the contribution by Hofer and Huber in Focus on Austria 2/2002). If annual immigration comes to 35,000 persons a year, the wage growth of male workers diminishes by 0.3 percentage point, that of sectorally immobile female labor by 0.5 percentage point. Hence, immigration in the wake of EU Eastern enlargement is likely to cause the wage gap on the Austrian labor market to widen even further.[1]) Immigration will have the greatest impact on foreign labor already working in Austria, though. With the Austrian labor market being strongly segmented, foreigners have only little opportunity for advancement or sectoral mobility, no matter what their origin or how long their stay in Austria is. Additional immigrants from accession countries therefore increase competitive pressure in these areas.

According to Huber and Hofer (2001), the expansion of labor supply caused by migrants will entail two adjustments, namely the creation of new jobs and the reduction of the labor force participation rate. Whether new jobs are created depends on the immigrants' job qualifications: the better their qualifications match the demands of the Austrian labor market, the bigger the chance of generating additional jobs is. An optimal matching of labor supply and demand would require efficient cross-border job procurement tools. The reduction of the labor force participation rate results from the displacement of female labor and older workers, both groups that are already underrepresented in an international comparison.

5.3 Labor Policy Options

Transition periods for labor mobility range among the most frequently cited measures to ease the impact of Eastern enlargement on the labor market. Such provisions are designed to buffer uncertainties about the migration potential.

1 *Keuschnigg and Kohler (2001) also simulate similar effects of Eastern enlargement on Austria.*

One must not forget, however, that from 2012, Austrian labor supply will shrink for demographic reasons (see Biffl and Hanika, 1998). Stepped-up immigration from the CEECs could contribute to securing prosperity in the long run.

In May 2001, the EU Member States agreed on flexible transition periods of up to seven years before introducing full freedom of movement for workers. Within this period, member countries are to have the option to limit the influx of labor from the accession countries. Member States which do not expect immigration to cause difficulties on their labor markets may waive this provision. The applicant countries principally accepted these transitional provisions in their negotiations. However, the additional measures that need to be taken within the transition period to ease the adjustment on the labor market are crucial for the transition provisions to be effective.

More emphasis on selective migration – favoring the influx of specially qualified immigrants needed on the Austrian labor market – is also being discussed. While selective migration may prevent crowding out in certain segments of Austria's labor market, it will not help the labor market absorb more workers. Here is where an active labor market policy could play an important role. Active measures include qualification measures for specific groups of workers, including, e.g., immigrants already resident in Austria and persons with low qualification levels. Qualification measures contribute to strengthening immigrants' horizontal and vertical mobility on the labor market and may thus counteract a rise in unemployment or a reduction of the labor force participation rate stemming from migration.

6 Regional Effects of EU Eastern Enlargement

The EU's enlargement toward the East presents a wealth of opportunities for European regions, but some countries will have to cope with temporary adjustment pressures. These pressures will vary from region to region: the countries which will be most affected are those that share borders with the accession countries, i.e. Austria, Germany and Italy. Issues of regional interest mainly comprise the convergence between the European regions, the situation of different types of regions (above all the regions along the current perimeter of the EU), newly evolving regional specialization patterns, regional competitiveness and the various transmission channels of enlargement effects.

6.1 Effects on European Regions

Only few studies currently analyze the impact of Eastern enlargement on the regions of the current EU Member States (see, e.g., Alecke and Untiedt, 2001; DIW and EPRC, 2001; Mayerhofer and Palme, 2001). There are a number of case studies, though, which review individual regions as well as sectoral studies dealing with regional implications (e.g. RWI and EPCR, 2000). Convergence studies have been drawn up at the national and regional levels (Tondl, 1999). However, these studies only partly focus on EU Eastern enlargement, and their findings are often ambiguous. For instance, the most recent study on cohesion in the EU commissioned by the European Commission (DIW and EPRC, 2001) deals with the possible development of national disparities between the EU and the applicant nations and with the regional disparities between the accession countries, but not with the regional disparities within

the current EU. According to Huber (1998), enlargement will reinforce rather than offset regional disparities.

The enlargement will affect different regions in different ways: The regions at the periphery of the EU will face the most arduous adjustment process. Short-term adjustment problems will arise, above all as a result of structural weaknesses. Still, the structural changes in the border regions merely represent the acceleration of structural changes that are necessary anyway; moreover, the process of restructuring will not take long to complete. In the long run, the gains from a relatively more central position and the possibility of cross-border division of labor should open up new opportunities. In the long-established industrial regions and the predominantly agricultural regions, there will be winners and losers alike. The EU Regional Funds have succeeded in improving conditions for these regions so far. Because of their growing functional specialization, urban agglomerations stand to figure among the winners of Eastern enlargement.

The Eastern enlargement will create new regional specialization patterns, too. The establishment of new regional growth centers is bound to shift the current high-income core regions (the so-called blue banana encompassing London, Paris, Hamburg, Munich and Milan) to the east.

Apart from the change in accessibility, regional competitiveness plays a key role for the future development of the European regions (European Commission, 1999). Alecke and Untiedt (2001) examined how competitive German border regions are in the light of enlargement. The results show that in general, the border regions in eastern Germany and Bavaria do not have a favorable economic structure. Hence, enlargement will tend to aggravate adjustment problems caused by sectoral difficulties. Some regions should benefit, however, as enlargement will expand their demand potential.

The principal channels through which enlargement will impact on regions are trade flows, FDI, cross-border purchase flows, and commuter and migration flows. Moreover, the regional and agricultural policy reforms triggered by enlargement will also provide an important impetus. Enlargement will have a negative impact on the regions which currently receive means from the Structural Funds, but the exact regional effects cannot be assessed yet.

6.2 Effects on Austrian Regions

Recent studies the impact of EU Eastern enlargement on Austria were compiled by Palme (1998), ÖIR (1999), Mayerhofer (1999) and WIFO (1999). The most up-to-date results are those obtained within the framework of the Preparity project completed in 2001 (Mayerhofer and Palme, 2001). The effects vary strongly depending on the type of region. The regions under review are classified as urban areas, agglomerations (centers and suburbs), rural border regions and other regions. The urban areas, e.g. Vienna, Graz and Linz, benefited most from the opening up of Eastern Europe. They are also set to benefit most from the enlargement at the outset. However, these advantages will diminish as time passes. Furthermore, the liberalization of services and the likely concentration of labor market effects in the wake of migration will put growing pressure on large cities.

The opening up of Eastern Europe already deprived the rural border areas of their main locational advantage, namely supplying cheap labor to labor-intensive sectors. Numerous production facilities, especially in the textile industry, were closed down. Retailers and industries in which demand seeks supply have already come under strong crowding-out pressure. Activities providing work and services inherently bound to the location of their demand (e.g. construction) will be subject to massive pressure once Austria's neighbors to the east join the EU. Regional labor markets in the border regions will suffer from commuter flows in the first years following the accession, whereas migration is projected to play a minor role in the border areas.

When Austria's new EU neighbors to the east catch up and the wage differential diminishes, this pressure is supposed to ease off; also, the regional labor markets have only a limited capacity to absorb new labor. The agglomerations are in a more favorable position, above all in the middle of the integration phase, when the advantages of higher returns to scale in the enlarged Single Market and of the vertical division of labor can be utilized.

Enlargement may pose more of a threat to manufacturing in agglomerations than in urban areas, but clearly less of a threat than in rural border regions. In addition, geographical location plays a crucial role: The impact on Austria's eastern and southern provinces is greater than on the western ones. Enlargement is not expected to have any effect on housing development structures in Austria. Thus, the premier challenge of the future is not coping with a change in regional location structures, but rather finding out how to make optimum use of the existing top locations, especially in agglomerations, and how to link up other locations to the development process in the agglomerations.

The authors of the Preparity project contend that no defensive regional policy measures are needed. Much rather, from the perspective of the regions, Eastern enlargement should be complemented by proactive regional and economic policy measures aimed at improving competitiveness. Such measures include specific promotion policies (above all for rural border areas, but also for large cities), the promotion of small and medium-sized enterprises, enhanced networks between the individual regions, cross-border cooperation, infrastructure development and the establishment of the legal prerequisites for regional development.

A number of studies examine individual sectors and regions in Austria (e.g. Mayerhofer, 1996; Huber, 1998; Mayerhofer et al., 1998; Institut für Gewerbe- und Handwerksforschung 1998a, 1998b; Nürnberger, Pflanzelt and Richter, 2000). However, it would exceed the scope of this overview to discuss their results here.

7 The Effects of Eastern Enlargement on the EU's and the Austrian Budgets

EU Eastern enlargement will entail a repositioning of competing demands on the EU budget. There are two types of limits on the current Member States' appeals to obtain large shares of EU funds: First, activities at the European level are limited by the provisions of Article 5 of the Treaty establishing the European Community, which lays down the principle of subsidiarity. Second, limits on the financing of conceivable expenditure programs have been set. The EU has

committed itself to limiting EU spending to an own-resources ceiling of 1.27% of EU GNP until 2006. The enlargement will certainly cause a shift in claims and net burdens both within the EU-15 and among incumbent and new members. However, it will not be possible to determine exact figures for the current financial period running until 2006 until the accession negotiations have been concluded.

7.1 Total Costs

Assuming that ten countries accede in 2004 (and assuming that direct income support for farmers in the new Member States is introduced gradually), the European Commission (2002) projects total expenditures to amount to EUR 40.16 billion in 2004 to 2006. In this scenario, EU expenditure would amount to 1.08% of GNP, which is clearly below the own-resources ceiling of 1.27%. Overall, according to the European Commission's estimates,[1]) 0.09% to 0.14% of the enlarged EU's GNP would be earmarked for expenditure for the new Member States.

On the issue of structural support measures, the European Commission (2002) proposes raising aid granted to the new Member States by the Cohesion Funds to a third of total structural expenditure. As a result, support for the new Member States' structural policy would amount to EUR 10.4 billion in 2006 (EUR 31.2 billion for the EU-25).

Banse et al. (2001), who analyze cost scenarios for the 2007 to 2013 financing period in what is referred to as the DIW paper, conclude that the own-resources ceiling in place today would suffice to cover the cost of enlargement by 12 applicant countries. If incisive agricultural and structural policy reforms were implemented, the EU's operative expenditure (agricultural, structural and internal policy) would sink to 0.57% of EU-27 GNP in 2013 (EU-27 in 2013 without reforms: 0.78% of GNP). Even if the reforms were not implemented, the DIW study claims that the operative expenditure of the EU-27 would be about EUR 10 billion below the appropriation for 2006.

Unlike the DIW, Apholte et al., in an analysis published by Dresdner Bank (2001) consider a fundamental reform of the current system of agricultural and structural aid unlikely, citing the unwillingness of the current recipients of net transfers to negotiate this issue. According to the Dresdner Bank paper, if the system which is now in place is retained and if ten countries join the EU in 2005, the additional cost of enlargement would amount to EUR 44 billion in 2005. This would exceed the EU's own-resources ceiling, causing expenditure to surge to 1.4% of EU GNP.

The results of both studies (DIW and Dresdner Bank) diverge sharply, as Dresdner Bank assumes that all 46 of the EU-15's regions eligible for support will continue to receive aid and that they will be granted generous transitional provisions. However, the authors of the DIW study estimate that the majority of the EU-15 regions will outgrow their recipient status even without reforms. Moreover, by contrast to the Dresdner Bank study, the DIW does not include

1 *Agenda 2000 (see European Council, 1999) had still estimated total expenditure at EUR 42.59 billion and had assumed the accession of six countries in 2002.*

the cost of administrative expenditure, external policy areas and preaccession instruments.

After factoring in the agricutural and structural reforms resulting from the decisions taken at the Berlin Summit (Agenda 2000), Ferrer and Emerson (2000) conclude that the cost of enlargement could be close to EUR 30 billion.

Kohler (1999) reviews various estimates of the cost of enlargement. The "power politics" approach to estimating the budget impact applied by Baldwin, Francois and Portes (1997) comes up with enlargement costs of between 0.111% of EU GDP to 0.211% over a six-year period, depending on the parameters. Following Breuss and Schebeck's (1998) econometric model of the EU's agricultural and structural funds, Kohler adopts their estimate of 0.184% of EU GDP for the same period.

However, after the European Commission's proposals on how to finance the enlargement from the beginning of 2002, a number of the assumptions in the studies mentioned above have become obsolete. Nevertheless, these contributions contain some very interesting points, as they reflect the great uncertainty about EU enlargement that have marked discussions about this issue for a long time. Since the future of agricultural subsidies is still in the dark, and since this area has been labeled an especially problematic issue for enlargement time and again, the reflections of various studies on this topic will be spelled out in more detail below.

7.2 Agricultural Subsidies

According to the impact analysis of Agenda 2000, applying the common agricultural policy (CAP) one to one to the applicant nations would be problematic. Considering the often enormous price differences between the accession countries and the CAP prices, even a stepwise introduction of the CAP would result in a slight overproduction, so that already existing production surpluses would be boosted further. Applying the CAP unrestrictedly would burden the EU budget with some EUR 11 billion a year, nearly two thirds of which would be earmarked for direct payments (compensation) to farmers. However, if the new members were not eligible for equalization payments (which would otherwise account for about two thirds of the additional payments), the agricultural guideline[1]) would probably suffice to finance enlargement-related additional costs if the planned CAP reforms are also taken into account.

The Structural and Cohesion Funds could retain their ability to make full equalization payments after 2006 only by violating the equal treatment principle, which appears to be problematic from the legal perspective. This outlook also creates considerable reform pressure for the EU's agricultural policy (see also the DIW study, 2001).

The European Commission (2002) proposes a step-by-step introduction of CAP direct payments to the future members (staggered in stages of 25% – 20% – 35% until 2006 and 100% in 2013). According to the European Commission, the additional cost for agriculture will run to EUR 3.9 billion in 2006 (EU-25: EUR 45.6 billion).

1 *The agricultural guideline set a cap on annual agricultural expenditure and is determined by the European Commission for every financial year on presentation of the budget draft. Agenda 2000 sets this cap at 74% of the rise in GDP.*

According to the DIW, the additional cost of EU enlargement for the European Agricultural Guidance and Guarantee Fund for agriculture (EAGGF guarantee)[1]) will run to between EUR 10.9 billion (reform passed; EU-27: EUR 48.6 billion) and EUR 15.7 billion (no reform passed; EU-27: EUR 57.6 billion).[2]) Dresdner Bank estimates the additional allocations required for 2005 at EUR 13.7 billion (EU-25: EUR 58.1 billion). Both studies underline the need for reform.

In their assessment of Agenda 2000, Ferrer and Emerson (2000) conclude that in the negotiations on Agenda 2000, the interests of net payers and own national interests were pushed through at the expense of the original ambitions, namely preparing the EU for enlargement and for the next round of WTO negotiations, which ultimately hampered a real reform of the CAP. As a consequence, the conflict about EU budget appropriations – at the heart of which is the CAP – has intensified. Therefore it is indispensable, the authors emphasize, to reform the CAP quickly – before enlargement.

Conversely, Lukas and Pöschl (2000) consider an immediate integration of the accession countries into the CAP viable, as EU Commissioner Franz Fischler proposed in March 2000, because on the one hand, the control mechanisms take effect instantly, and on the other, because the acceding countries must fulfill specified health and environmental conditions before fully liberalizing their markets. These nontariff barriers will make it necessary to introduce transition periods for the applicants. Ultimately, this means that the EU will control agricultural production in, and the outflow of agricultural products from, the new Member States, which means that any price wars would be headed off. The extent of direct payments to the new member countries is the key to a rapid and comparatively smooth adjustment.

7.3 Effects on Austria

The Eastern enlargement of the EU will have various effects on the Austrian budget, some of which cancel each other out. According to Nitsche (2001b), higher exports and stronger economic growth will produce revenues on the order of 0.4% of GDP. At the same time, the liberalization of imports of tobacco products could dampen indirect tax revenues by 0.2% to 0.3% of GDP. The net effect for the Austrian budget would be slightly positive, with additional revenues running to 0.1% of GDP. As the EU plans to raise the minimum tax on tobacco products, the drop in related revenues could be much lower than projected now. In this case, enlargement would have a more clearly positive net impact on Austria's budget.

Austria's net contribution to the EU budget could, however, deteriorate by up to 0.3% of GDP in the medium term, according to a working group of EU finance ministries (Nitsche, 2001a). This estimate is based on the assumption

1 *The EAGGF guarantee consists of market policy (intervention prices, quotas), direct payments and the financing of the CAP's "second pillar" (which comprises expenditure for rural development and accompanying measures, such as early retirement, equalization payments for less-favored areas and the like).*

2 *The total cost of the internal policies amounts to 0.06% of EU-27 GDP (reform passed: EUR 5.6 billion; no reform passed: EUR 6.4 billion).*

that 12 accession countries join the EU and that they are fully integrated into the CAP.

According to the expenditure profile of the European Commission's proposal (2002), the Austrian share (2.2%) of the EU budget (EU-25) would have to expand by an additional EUR 670 million, approximately, for the period from 2004 to 2006 (not including the reduction of the preaccession assistance after entry into the EU). The upper limits set in Agenda 2000 (1999) will not be reached. The Austrian contribution will be EUR 90 million lower in the period from 2004 to 2006 than the amount specified at the Berlin Summit (Agenda 2000: additional Austrian expenditure pegged at EUR 760 million).

Austria's main agricultural interests in the accession talks are to retain national quotas and reference quantities (grain, sugar, milk, beef) under the compulsory land set-aside scheme and the existing intervention mechanisms (grain, milk, beef). It is absolutely necessary that the countries fully adopt EU standards and effective controls in the domains veterinary medicine, hygiene, health protection, product quality, environmental protection and animal welfare.

According to Lukas and Pöschl (2000), complete liberalization in agriculture would entail considerable difficulties for the new entrants, but would be a great boon to the current EU members, above all neighboring countries such as Austria. The enlargement offers enormous opportunities for investment, the transfer of know-how and a greater market presence above all for Austria's food industry and its suppliers.

According to Schneider (2001), imports will expand once markets are opened up to new Member States from Central and Eastern Europe. At the same time, the enlargement will give domestic producers new sales opportunities, which, however, will be of short duration. In the long run, the similar agricultural conditions of the neighboring accession countries will prove to be a disadvantage for Austria.

Unlike the primary production sector, states Schneider, the Austrian food industry can expect the benefits of enlargement to outweigh the disadvantages. Unrestricted access to lower-priced agricultural raw materials and the demand for high-quality processed foods could have a positive impact. However, an asynchronous opening of markets resulting from transition periods could lead to competitive distortions. Schneider concludes that with today's information, the disadvantages and risks of enlargement will outweigh the advantages and opportunities for all Austrian provinces.

To sum it up, all estimates of the budgetary costs of EU enlargement assume that the costs will be lower than ½% of GDP for Austria.

References

Growth and Welfare Effects of EU Enlargement to the East

Allen, Chris, Michael Gasiorek and Alasdair Smith. 1998. European Single Market. How the Programme Has Fostered Competition. Economic Policy (October): 439–486.

Baldwin, Richard E. 1993. On the Measurement of Dynamic Effects of Integration. Empirica 20: 129–145.

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.

Baldwin, Richard E. and Anthony J. Venables. 1995. Regional Economic Integration. In Grossman, Gene M. and Kenneth Rogoff (eds.). Handbook of International Economics, Volume III, Amsterdam, North Holland: 1597–1644.

Breuss, Fritz. 1992. Statistische und Dynamische Effekte der bisherigen Europaintegration Österreichs. Working Paper 50. WIFO. Vienna.

– 2001. Macroeconomic Effects of EU Enlargement for Old and New Members. Working Paper 143. WIFO. Vienna.

– 2002. Kosten der Nicht-Erweiterung der EU für Österreich. WIFO. Vienna.

Breuss, Fritz and Fritz Schebeck. 1995. Ostöffnung und Osterweiterung der EU. WIFO-Monatsberichte 2. Vienna.

– 1998. Kosten und Nutzen der EU-Osterweiterung für Österreich. WIFO-Monatsberichte 11. Vienna.

Crespo-Cuaresma, Jésus, Maria Antoinette Dimitz and Doris Ritzberger-Grünwald. 2001. Growth, Convergence and EU Membership. Mimeo. Oesterreichische Nationalbank. Vienna.

European Commission. 2001. The Economic Impact of Enlargement. Enlargement Paper 4. Directorate General for Economic and Financial Affairs. Brussels.

– 2001. Regular Reports 2001. http://europa.eu.int/comm/enlargement /report2001/index.htm.

Fidrmuc, Jarko and Thomas Nowotny. 2000. The Effects of the EU's Eastern European Enlargement on Austria – Austria's Specific Position. Focus on Transition 1/2000. Oesterreichische Nationalbank. Vienna: 100–131.

Frankel, Jeffrey A. and David Romer. 1999. Does Trade Cause Growth? American Economic Review 89 (3) (June): 379–399.

Michael Gasiorek, Alasdair Smith and Anthony J. Venables. 1994. Modelling the Effect of Central and East European Trade on the European Community. European Economy 6: 519–38.

Hamilton, Carl B. and Alan L. Winters. 1992. Opening up International Trade with Eastern Europe. Economic Policy (April): 78–115.

Inotai, András. 1999. Die beitrittswilligen Staaten auf dem Weg in die Europäische Union Ungarn auf dem Vormarsch. In Bundesministerium für wirtschaftliche Angelegenheiten. Österreichs Außenwirtschaft, Jahrbuch 1998/1999. Vienna: 205–216.

Keuschnigg, Christian. 1996. Ausbildung, Strukturwandel und Handel mit Osteuropa. In Holzmann, Robert and Reinhard Neck, eds. Ostöffnung: Wirtschaftliche Folgen für Österreich. Manzsche Verlags- und Universitätsbuchhandlung. Vienna: 237–281.

Keuschnigg, Christian and Wilhelm Kohler. 1996. Austria in the European Union: Dynamic Gains from Integration and Distributional Implications. Economic Policy 22: 155–211.

Keuschnigg, Christian and Wilhelm Kohler. 1997. Eastern Enlargement of the EU: How Much Is It for Austria? Working Paper 9723. Johannes Kepler Universität Linz, Institut für Volkswirtschaftslehre.

– 2000. An Incumbent View on Eastern Enlargement of the EU. Part II: The Austrian Case. Empirica 28: 159–185.

Kohler, Wilhelm. 2000. "Wer Gewinnt, wer verliert durch die Osterweiterung." In L. Hoffmann (ed.), Jahrestagung 1999: Erweiterung der EU, Schriften des Vereins für Sozialpolitik, 2000: 27–77.

Lejour, Arjan M., Ruud A. de Mooij and Richard Nahuis. 2001. EU Enlargement: Economic Implications for Countries and Industries, Working Paper 585, CESifo Munich.

Schneider, Friedrich. 2002. Die bevorstehende EU-Osterweiterung: positive und negative Integrationseffekte für (Ober-) Österreich aus volkswirtschaftlicher Sicht, Johannes Kepler Universität, Linz.

Smith, Alasdair and Anthony Venables. 1988. Completing the Internal Market in the European Community. European Economic Review 32: 1501–1525.

Viner, Jacob. 1950. The Customs union Issue. Carnegie Endowment for International Peace. New York.

Effects of EU Eastern Enlargement on Trade Relations

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., 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.

Breuss, Fritz. 2001. Macroeconomic Effects of EU Enlargement for Old and New Members. Working Paper 143. Vienna: WIFO.

European Commission. 2001. The Economic Impact of Enlargement, Enlargement Paper 4, Directorate General for Economic and Financial Affairs. Brussels.

Fidrmuc, Jarko. 2001. Intraindustry Trade between the EU and the CEECs: The Evidence of the First Decade of Transition. Focus on Transition 1, Oesterreichische Nationalbank, Vienna: 65–78.

Fidrmuc, Jarko, Peter Huber and Jan Jakub Michalek. 2001. Poland's Accession to the European Union, Demand for Protection of Selected Sensitive Products. MOCT/MOST 11 (1): 47–70.

Grossmann, Gene M. and Elhanan Helpman. 1994. Protection for Sale. American Economic Review 84 (4): 833–850.

Breuss, Fritz und Fritz Schebeck. 1995. Ostöffnung und Osterweiterung der EU. Monatsberichte 2. Vienna: WIFO.

Kohler, Wilhelm. 2000. Wer Gewinnt, wer verliert durch die Osterweiterung. In L. Hoffmann (ed.) Jahrestagung 1999, Schriften des Vereins für Sozialpolitik 274: 27–77.

Neven, Damien J. 1995. Trade Liberalisation with Eastern Nations: Some Distribution Issues. European Economic Review 39: 622–632.

Liberalization of Capital Transactions, Financial Deregulation and Financial Stability

Altzinger, Wilfried and Bellak, Christian. 2000. The Impact of Direct and Indirect FDI in Eastern Europe on Austrian Trade and Employment. In R. Narula: Essays in Macroeconomics and Trade, Festschrift for Peter Gray, forthcoming.

Altzinger, Wilfried. 1998. The Impact of Austria's Foreign Direct Investment in Central and Eastern Europe on the Domestic Economy. In K. Pichelmann: The Economic Consequences of Eastern Enlargement of the European Union, Vienna: IHS.

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 24: 127–176.

Bartolini, Leonardo and Steven Symansky. 1995. Macroeconomoic Effects on Western Europe of the Opening Up of Eastern Europe: Some Empirical Results. In P. de Fontenay, G. Gomel, E. Hochreiter (eds.) Western Europe in Transition: The Impact of the Opening Up of Eastern Europe and the former Soviet Union. Banca d'Italia, IMF, Oesterreichische Nationalbank. Washington: 15–47.

Benoit, Anne, Christoph Schantl and Johannes Weyringer. 2001. Competition between Western and Eastern European Equity Markets. In M. Schröder (ed.). The New Capital Markets in Central and Eastern Europe. Berlin: Springer Verlag: 483–501.

Brenton Paul, Francesca Di Mauro. 1999. Economic Integration and FDI. Empirica 26.

Breuss, Fritz, and Fritz Schebeck. 1994. WIFO Monatsberichte, Special Issue (May).

Buch, Claudia 1999. Capital Mobility and EU Enlargement. Weltwirtschaftliches Archiv 135 (4).

Buch, Claudia und Daniel Piazolo. 2000. Capital and Trade Flows in Europe and the Impact of Enlargement. Kiel Working Paper 1001.

Buch, Claudia, Ralph P. Heinrich and Christian Pierzidoch. 1999. Foreign Capital and the Transformation Process – Risk and Benefits of Free Capital Flows. Kiel Study 295.

Demirgüc-Kunt, Asli und Enrica Detriagache. 1998. Financial Liberalization and Financial Fragility. IMF Working Paper 83.

DG EcFin. 2000. Arrangements Applicable to Capital Movements in the Accession Countries. DgEcFin Working Document, Ecfin 696.

– 2001. The Economic Impact of Enlargement. Enlargement Papers. European Communities.

Eichengreen, Barry und Fabio Ghironi. 2001. EMU and Enlargement. Paper prepared for Conference on Economic and Monetary Union, Brussels, March 21 to 22, DGEcFin.

Edwards, Sebastian. 2001. Capital Mobility and Economic Performance: Are Emerging Economies Different? NBER Working Paper 8076.

Ems, Emil. 2000. Capital Controls in View of Accession. Mimeo, DgEcFin.

Garibaldi, Pietro, Nada Mora, Ratna Sahay and Jeromin Zettelmeyer. 1999. What Moves Capital to Transition Economies. Mimeo. Washington. IMF.

Klein, Michael and Giovanni Olivei. 1999. Capital Account Liberalization, Financial Depth, and Economic Growth. NBER Working Paper 7384.

Kohler, Wilhelm. 1999. Die Osterweiterung der EU aus Sicht bestehender Mitgliedsländer. Perspektiven der Wirtschaftspolitik 1 (2).

Lankes, Hans Peter. 1999. Obstacles on the Way to Accession: The Investment Challenge. In L. Hoffmann, Erweiterung der EU. Schriften des Vereins für Socialpolitik 274. Berlin: Duncker & Humbolt: 103–128.

Lankes, Hans Peter und Nicholas Stern. 1997. Capital Flows to Eastern Europe and the former Soviet Union. EBRD Working Paper 27.

Lipschitz, Leslie J., Timothy D. Lane and Alexandros T. Mourmouras. 2001. Capital Flows to Transition Economies: Servant or Master. IMF WP 11.

Lannoo, Karel. 2001. Financial Sector Regulation in CEEC and EU Accession. In R. Caesar and F. Heinemann. EU-Osterweiterung und Finanzmärkte. ZEW Wirtschaftsanalysen 57: 163–182.

Levine, Ross. 1997. Financial Development and Economic Growth: Views and Agenda. Journal of Economic Literature 35 (2).

Neck, Reinhard and Guido Schäfer. 1996. Gesamtwirtschaftliche Auswirkungen westlicher Kredite an die Reformländer. In R. Holzmann and R. Neck (eds.). Ostöffnung:Wirtschaftliche Folgen für Österreich. Manz: 155–192.

Obersteiner, Erich. 1999. Neue Herausforderungen auf Finanzmärkten: Die strategische Positionierung der Wiener Börse in einer Ära des Umbruchs. In E. Fraunwallner and H. Handler. Der Unternehmer und die Banken. Neue Herausforderungen auf Finanzmärkten. BMWA, Sektion Wirtschaftspolitik.

Schröder, Michael. 2001. Zustand und Perspektiven osteuropäischer Aktienmärkte. In R. Caesar and F. Heinemann. EU-Osterweiterung und Finanzmärkte. ZEW Wirtschaftsanalysen 57: 255–270.

Sinn, Hans-Werner and Alfons J. Weichenrieder. 1997. Foreign Direct Investment, Political Resentment and the Privatization Process in Eastern Europe. CES Working Paper Series 129. Center for Economic Studies. Munich.

Tison, Michael. 1999. Harmonisation and Legal Transplantation of EU Banking Supervisory Rules to Transitional Economies. A Legal Approach. Financial Law Institute, University of Gent. Working Paper 12.

Effects of EU Eastern Enlargement on the Labor Market

Alecke, Björn, Peter Huber and Gerhard Untiedt. 2000 What a Difference a Constant Makes – How Predictable are International Migration Flows. In Migration Policies and EU Enlargement, OECD.

Barro, Robert J. and Xavier Sala-i-Martin. 1995. Economic Growth. New York: McGraw-Hill.

Biffl, Gudrun and Alexander Hanika. 1998. Langfristige Prognose des Arbeitskräfteangebotes. WIFO Monatsberichte 6.

Brücker, Herbert and Tito Boeri. 2000. The Impact of Eastern Enlargment on Employment and Wages in the EU Member States. Berlin and Milan: European Integration Consortium.

Faßmann, Heinz and Christiane Hintermann. 1997. Migrationspotential Ostmitteleuropa. ISR Forschungsbericht 15. Vienna.

Faßmann, Heinz and Rainer Münz. 1996. Die Neue Ost-West Wanderung als Folge der Ostöffnung.

Fertig, Michael. 2001. The Economic Impact of EU Enlargement: Assessing the Migration Potential. Empirical Economics. Springer.

Hofer, Helmut. 1998. The Impact of Emigration on Host Country's Wage and Unemployment. In The Economic Consequences of Eastern Enlargement of the European Union. Vienna: IHS.

Huber, Peter and Helmut Hofer. 2001. Auswirkungen der EU-Erweiterung auf den österreichischen Arbeitsmarkt. Partial Project 9 within the framework of the Preparity Project. Vienna: WIFO and IHS.

Holzmann, Robert and Reinhard Neck. 1996. Ostöffnung. Wirtschaftliche Folgen für Österreich. Vienna: Manz.

Huber, Peter. 2001. Migration und Pendeln infolge der EU-Erweiterung. Partial Project 10 within the framework of the Preparity Project. Vienna: WIFO.

Keuschnigg, Christian and Wilhelm Kohler. 2001. An Incumbent View on Eastern Enlargement of the EU. Part II: The Austrian Case. Empirica 28: 159–185.

OECD. 2000. Migration Policies and EU Enlargement. The Case of Central and Eastern Europe. Paris.

Sik, Endre. 1998. The Social, Economic and Legal Effects of Migration in Contemporary Hungary in Relation to the Accession to the European Union. Centre for Migration and Refugee Studies. Hungarian Academy of Science. Budapest.

Straubhaar, Thomas. 2001. Ost-West-Migrationspotential: Wie gross ist es? HWWA Discussion Paper 137. Hamburg.

Walterskirchen, Ewald and Raimund Dietz. 1998. Auswirkungen der EU-Osterweiterung auf den österreichischen Arbeitsmarkt. WIFO. Vienna.

Winter-Ebmer, Rudolf and Josef Zweimüller. 1996. Die Auswirkungen der Ausländerbeschäftigung auf den österreichischen Arbeitsmarkt 1988 bis 1991. In in R. Holzmann and R. Neck (eds.). Ostöffnung: Wirtschaftliche Folgen für Österreich. Manz.

Regional Effects of EU Eastern Enlargement

Alecke, Björn und Untiedt, Gerhard. 2001. Regionale und sektorale Wettbewerbsfähigkeit der deutschen Grenzregionen an der EU-Außengrenze. Partial Project D-3 of the Preparity Project (Strukturpolitik und Raumplanung in den Regionen an der mitteleuropäischen EU-Außengrenze zur Vorbereitung auf die EU-Osterweiterung).

Bröcker, Johannes (1998): How Would an EU-membership of Visegrád-Countries affect Europe's Economic Geography. The Annals of Regional Science 32 (1): 91–114.

DIW and EPRC (2001): The Impact of EU Enlargement on Cohesion. Preparation of the Second Report on Economic and Social Cohesion, Study by the German Institute for Economic Research and the European Policies Research Centre for the European Commision DG Region (Tender No. Po/00-1/RegioA4). Berlin and Glasgow (March).

European Commission. 1999: ESDP – European Spatial Development Perspective. Towards Balanced and Sustainable Development of the Territory of the European Union. Agreed at the Informal Council of Ministers responsible for Spatial Planning in Potsdam, May 1999.

Fidrmuc, Jarko, Peter Huber and Andreas Wörgötter. 1998: Die österreichischen Regionen: Zwischen Ostöffnung und Osterweiterung. In Bundesministerium für wirtschaftliche Angelegenheiten (ed.), Österreichs Außenwirtschaft, Vienna: BMwA: 196–202.

Huber, Peter. 1998: Regional Impact of EU Enlargement on Austria. In K. Pichelmann. (ed.) The Economic Consequences of Eastern Enlargement of the European Union – The Austrian View. Research Report Commissioned by the Bruno-Kreisky-Forum. Vienna: IHS: 223–269.

Institut für Gewerbe- und Handwerksforschung. 1998a: Das burgenländische Gewerbe und Handwerk – Szenario 2005. Auswirkungen der EU-Osterweiterung. Vienna.

– 1998b. Das steirische Gewerbe und Handwerk – Szenario 2005. Auswirkungen der EU-Osterweiterung. Vienna.

Mayerhofer, Peter. 1996: Wirtschaftliche Effekte einer Osterweiterung der EU auf den Raum Wien. Vienna: WIFO.

– 1999: Regionaler Strukturwandel durch die EU-Osterweiterung – einige erste Erkenntnisse. Mitteilungen der Österreichischen Geographischen Gesellschaft, 141 annual volume: 91–112.

Mayerhofer, Peter and Gerhard Palme. 2001. Sector- and Economic Space-Related Effects of EU Enlargement. In Preparity – Ready to enlarge. Hauptergebnisse des transnationalen Projekts Preparity. Stadt Wien / MA 27. ISBN 3–9500576–9–2. Available at: http://www.preparity.wsr.ac.at/.

Mayerhofer, Peter, Norbert Geldner, Gerhard Palme and Matthias Schneider. 1998: Ökonomische Wirkungen einer EU-Osterweiterung auf die Niederösterreichische Wirtschaft. Vienna: WIFO.

Nürnberger, Evelyn, Pflanzelt, Harald und Richter, Wolfgang (2000): Kaufkraftstromanalyse 1999/2000. Import von Kaufkraft aus Ungarn, Tschechien und der Slowakei sowie aus Polen. Vienna: RegioPlan Consulting.

ÖIR. 1999: Regionale Auswirkungen der EU-Integration der Mittel- und Osteuropäischen Länder – volume II. ÖROK serives 146/II. Vienna.

Palme, Gerhard. 1998: Regionale Problemlagen infolge der EU-Integration der MOEL. WIFO Monatsbericht 11: 795–803.

RWI and EPCR. 2000. Impact of the Enlargement of the European Union on Small and Medium-sized Enterprises in the Union. Rheinisch-Westfälisches Institut für Wirtschaftsforschung in Cooperation with European Policies Research Centre, University of Strathclyde Glasgow: Final Report to the European Commission – DG Enterprise. Essen and Glasgow (November).

Schremmer, Christof and Cornelia Krajasits. 1992. Szenarien zur Ost-Grenzöffnung und deren Auswirkungen auf die österreichischen Ost-Grenzregionen. Study by Österreichische Institut für Raumplanung commissioned by the Austrian Federal Chancellery (Dept. IV/4).

Tondl, Gabriele. 1999. The Changing Pattern of Regional Convergence in Europe. Jahrbuch für Regionalwissenschaft 19 (1): 1–33.

WIFO. 1999. Regionale Auswirkungen der EU-Integration der Mittel- und Osteuropäischen Länder – volume I. ÖROK series 146/I. Vienna.

The Effects of Eastern Enlargement on the EU's and the Austrian Budgets

Apholte, Alfred, Frank Bulthaupt, Daniela Etschberger, Michaela Grimm, Claudia Henke, Werner Hess, Harald Jörg, Christiane Lieneke, Jörg Möller, Rainer Schäfer and Sabine Schmax. 2001. Herausforderung EU-Erweiterung. Dresdner Bank. Trends Spezial (May).

EU Commission. 2001. Agenda 2000 – Band II: Zweiter Bericht über den wirtschaftlichen und sozialen Zusammenhalt; Auswirkungen einer EU-Erweiterung (Wirkungsanalyse) (January).

– 2002. Informationsvermerk der Kommission: Gemeinsamer Finanzrahmen 2004 – 2006 für die Beitrittsverhandlungen (January).

European Council. 1999. Agenda 2000. Berlin.

Ferrer, Jorge Núnez and Michael Emerson. 2000. Good Bye, Agenda 2000 – Hello, Agenda 2003; CEPS Working Document 140 (February).

Kohler, Wilhelm. 1999. Wer gewinnt, wer verliert durch die Osterweiterung der EU? Working Paper 9920 of the Institut für Volkswirtschaftslehre of the University of Linz.

Lukas, Zdenek and Josef Pöschl. 2000. Die Konkurrenzfähigkeit der CEFTA-Landwirtschaft und Auswirkungen auf Österreich. WIIW Research Reports 272 (October).

Nitsche, Wolfgang. 2001a. Österreich im neuen Europa – Überblick über die Argumente zur EU-Erweiterung. Austrian Federal Ministry of Finance (May).

– 2001b. EU-Erweiterung: Budgetäre Auswirkungen wirtschaftlicher Anpassungsszenarien. BMF (June).

Schneider, Matthias. 2001. Landwirtschaft und Ernährungswirtschaft: Ausgangslagen, Folgen der Erweiterung und mögliche Strategien; Partial Project 6/2 of the Preparity Project (Strukturpolitik und Raumplanung in den Regionen and der mitteleuropäischen EU-Außengrenze zur Vorbereitung auf die EU-Osterweiterung) (July).

Schreyer, Michaele. 2001. Financing Enlargement of the European Union. Speech/01/71 London School of Economics (February).

Weise, Christian, Barbara Lippert, Wolfgang Bode, Martin Banse, Ferdinand Nölle and Stefan Tangermann. 2001. Reformbedarf bei den EU-Politiken im Zuge der Osterweiterung der EU. DIW (May).

Austria's Direct Investment and EU Enlargement

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1 Introduction

In historical perspective, direct investment by Austrian enterprises is a very recent phenomenon. While some of the current cross-ownership between firms dates to the 19th century, it was a byproduct of the disintegration of the Austro-Hungarian monarchy rather than the outcome of an intentional internationalization strategy. An analysis of the periods for which fairly reliable and comparable data are available indicates that net foreign direct investment (FDI) came to only a few hundreths of a percentage point of GDP in the 1960s, roughly 0.1 percentage point in the 1970s and never exceeded 0.4 percentage point a year until 1988. As a result of this hesitant expansion of direct investment, in 1980, when worldwide stocks of strategic cross-border equity holdings already amounted to about 5.5% to 6% of total world GNP, Austrian companies' holdings abroad totaled just 0.7% of Austria's GDP.[1])

Not until the mid-1970s did the Oesterreichische Nationalbank (OeNB) start to keep statistics on stocks of Austrian outward direct investment, which demonstrates how long it took for the awareness of strategic outward FDI to grow. There are several reasons for Austria's internationalization lag around 1980: In the period following World War II, Austria's economic structure had to be rebuilt, making the country a capital importer. After the end of the reconstruction, Austria's economy displayed two main types of companies: a predominant group of small and medium-sized companies, and a handful of large or, by international standards, mid-sized enterprises. These large companies were for the most part (directly or indirectly) nationalized, and most of their business was domestic. What is more, economic policymakers saw no grounds to promote Austrian firms' investment abroad, giving precedence to the creation of value added in Austria. Finally, over time Austria's position bordering on the Iron Curtain proved to be a handicap for smaller companies, for whom geographical proximity does appear to play much more of a role than for large multinational groups that operate at the global level.

The opening up of Eastern Europe in 1989 marked a complete change of scenery: By 1989 net direct investment flows had already augmented to 0.67% of GDP, and since 1990, outward FDI has averaged just under 1% of GDP. At the same time, a worldwide trend toward cross-border takeovers, crossholdings of shares and restructuring had repercussions on Austria as well. Austria's nationalized industry, too, had already started to acquire equity stakes abroad in the 1980s, and the OeNB removed the last capital controls in November 1991.

Table 1 demonstrates the role Central and Eastern European countries (the CEECs) and Southeastern Europe (SEE) played in the internationalization of Austria's economy.

As a result of stepped-up investment abroad, Austria was able to participate in the globalization boom of the 1990s. At the end of 1999, the value of Austrian outward FDI stocks exceeded EUR 19 million or 9% of GDP. This still puts Austria some 7 percentage points behind the current worldwide average, but the gap has narrowed at least in relative terms.[2])

1 *UNCTAD (2001, annex table B5).*

2 *UNCTAD (2001).*

Table 1

Austrian Outward Direct Investment Flows

in Percent of GDP from 1992 to 2001

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	%									
Total	0.89	0.64	0.63	0.48	0.84	0.97	1.30	1.58	1.77	1.40
CEEC-19	*0.25*	*0.26*	*0.22*	*0.23*	*0.23*	*0.52*	*0.41*	*0.53*	*1.17*	*1.13*
Rest of the world	*0.64*	*0.38*	*0.41*	*0.25*	*0.60*	*0.45*	*0.89*	*1.05*	*0.60*	*0.27*

Source: OeNB.

In Central and Eastern Europe, Austria has become a prominent investor even measured in absolute figures.

According to data provided by The Vienna Institute for International Economic Studies (WIIW),[1]) Austria is close to the top of the list of direct investors in some CEECs. In Slovenia and Croatia, for example, Austria owns some 45% and 30%, respectively, of the FDI capital stock, making it the largest foreign investor by far. In Hungary, the Czech Republic and Slovakia, Austria holds about 10% to 20% of FDI, thus ranging third behind Germany and the Netherlands.

Another set of data bears witness to how immensely important the CEE region is for Austrian enterprises' equity investment abroad and thus how great Austria's interest is in the economic development of the applicant nations. According to the UNCTAD report mentioned above, this region has garnered only slightly over 2% of the world investment volume. By contrast, this region accounted for roughly 30% of Austria's outward FDI at the end of 1999. Considering that FDI expanded by more than EUR 4 billion in 2000 and 2001,[2]) the share in fact climbs to nearly 40% at the turn of the year 2001/2002. Austria's share of outward FDI in the CEE region is very high even by comparison to that of other (Western European) countries with a similar geographic position. This region accounts for 6% of Denmark's and 5% of Germany's outward direct investment.[3]) Finnish and Swedish investment in the region comes to about 3% and 2% of their FDI, respectively, and less that 2% of Switzerland's FDI assets are in the CEECs, even though many multinational corporations have their registered office in Switzerland. A negligible ½ percent of U.S. groups' investment is located in the CEE region.

Hence more and more Austrian companies depend on the economic development of the accession countries, not only because of their foreign trade links, but also because of their ties as owners of equity stakes in foreign-based manufacturing facilities. A more detailed portrait of direct investment enterprises in the CEECs will help to better assess the possible effects of a future EU entry of the accession countries on Austrian direct investment enterprises, and its indirect effect on Austrian direct investors.

1 *WIIW-WIFO data base of February 2002.*

2 *Hence, total FDI in 2000 and 2001 in fact surpassed investment in the entire period from 1993 to 1999. This renewed surge in investment is likely to reflect investors' expectation that this area will soon be integrated into the European Union.*

3 *Eurostat (New Cronos, data of February 4, 2002).*

2 Features of Austrian Direct Investment Enterprises

At year-end 1999, Austria had 1,019 direct investments[1]) in the accession countries; total equity capital investment amounted to EUR 5.3 billion, and the number of employees working in these enterprises (weighted by the direct investor's percentage ownership of the enterprise's nominal capital) amounted to more than 199,000. Thus these 13 countries account for nearly half of Austria's outward FDI, well over a quarter of the invested capital and 60% of the employees working abroad. Four of the six principal target countries for Austrian direct investment are accession countries: Hungary tops the list with 404 direct investments (ahead of Germany, with 325 direct investment stakes), followed by the Czech Republic with 257 direct investments (ahead of Switzerland, with 137 direct investments), Poland (105 direct investments) and Slovakia (101 direct investments). Three of these four main targets for Austrian direct investment are frontrunners for accession and became investment targets for Austrian equity at a very early point in time. Austrian investors' interest concentrated on these four countries, which accounted for 85% of direct investment, 78% of direct investment capital and 91% of employees within the group of accession countries.

Moreover, Austrian direct investors held 65 direct investments in Slovenia and 43 direct investments in Romania. By the end of 1999, there were only 10 direct investment holdings in Bulgaria, like in the Baltics. Austrian investors own 22 direct investments in the three accession countries that do not count among the transition economies (thereof 12 in Malta) with only 217 employees but high equity investment totaling EUR 278 million.

Table 2

FDI Stocks at End-1999:

Number, Total Equity and Employees by Regions

Target Country	Number of Direct Investments	Direct Investment Capital	Employees, Weighted	Employees/ Direct Investment	Direct Investment Capital/ Direct Investment	Direct Investment Capital/ Employee
		EUR million			*EUR million*	*EUR thousand*
Hungary	404	1,673	49,288	122	4.1	34
Czech Republic	257	1,291	32,934	128	5.0	39
Poland	105	560	14,487	138	5.3	39
Slovak Republic	101	573	11,774	117	5.7	49
Slovenia	67	558	4,086	61	8.3	137
Romania	43	174	4,797	112	4.0	36
Bulgaria	10	113	1,245	124	11.3	91
Baltic republics	10	22	370	37	2.2	60
Other accession countries[1])	22	278	217	10	12.6	1282
Other CEECs	101	531	9,127	90	5.3	58
EU-15	664	8,463	50,360	76	12.7	168
Other European countries	145	1,195	2,614	18	8.2	457
Rest of the world	243	3,607	17,866	74	14.8	02
Total outward FDI	2,172	19,039	199,164	92	8.8	96
Accession countries	1,019	5,242	119,197	117	5.1	44
Other countries	1,153	13,797	79,966	69	12.0	173

Source: OeNB.
[1]) Malta, Cyprus, Turkey.

1 *Direct investment is recorded above a threshold value of roughly EUR 72,000 per nominal capital holding. Experience with the use of the threshold value has shown that the number of direct investment stakes would be 50% higher if the threshold value were disregarded; however, the threshold value has only a negligible effect on the value and on the employment figure (less than 5%).*

This first overview already illustrates how important the accession countries are for Austria's active internationalization efforts. The number of direct investments in Hungary and the Czech Republic alone is just about equal to the number of Austria's direct investments in the entire EU, and as many employees work in Austria's Hungarian direct investment enterprises alone as in Austrian subsidiaries in the entire EU. However, the weights of the value of the invested capital are completely different. Typically, FDI in the accession countries has a comparatively low capital intensity and – at least in relative terms – a high number of employees.

This pattern also applies to direct investment in Eastern European countries outside the group of accession countries, comprising 101 direct investment holdings that break down as follows: 60 in Croatia, 17 in Ukraine, 14 in Russia and the remainder in the successor states to Yugoslavia and in Albania.

Austria's FDI in European countries outside the EU are located mainly in Switzerland (and additionally in Norway, Jersey and Guernsey). A comparison of the Austrian share of FDI targets outside Europe (number, employees: 10%; total capital: 20%) with that of EU investors in general[1]) clearly shows that geographical distance is an important consideration for typically medium-sized Austrian direct investors – and that the Austrian business landscape lacks bellwether companies with a worldwide scope.[2])

The importance of distance for Austrian FDI is apparent not just in an international comparison, it may also be demonstrated at the Austrian regional level using the relationship between the Austrian province in which the direct investor is located with the target country (table 3). A comparison of the target country structure by province with the average for Austria as a whole reveals a decided preference for investment in the immediately adjacent countries. Thus investors located in Burgenland have most of their equity stakes in Hungary, Lower Austrian investors in the Czech Republic and in Slovakia, and Carinthian investors have the highest concentration of FDI in Slovenia and the remaining CEECs (primarily Croatia). Of course, Vienna with its 931 direct investments strongly influences the average, but a marked tendency toward FDI in the East remains. With the exception of Slovenia, all accession countries are somewhat overrepresented, whereas Western Europe – and surprisingly FDI targets outside Europe – are underrepresented.

Tyrol and Vorarlberg have the most pronounced orientation toward FDI in Western Europe, with Tyrol occupying the top position in the orientation toward the EU (54%, with FDI focused above all on Italy and Germany), whereas Vorarlberg exhibits a strong orientation toward FDI in Switzerland. Upper Austria also displays strong FDI links to EU Member States (above all to Germany); at the same time it has more investment stakes in the Czech Republic than the other provinces do. Styria's FDI in Slovenia and Croatia (other CEECs) is somewhat above average, whereas direct investors from Salzburg exhibit no clear regional preference. Although 83 of 243 Austrian FDI stakes outside of Europe as per December 31, 1999, were held by direct investors located in Vienna, in relative terms FDI stemming from Vorarlberg, Tyrol

1 *EU Member States have invested more than 40% of their FDI capital outside of Europe. Eurostat (2000, p. 98f.).*

2 *See Clement (2001).*

Table 3

Outward FDI by Austrian Province and by Target Country in 1999

Target Country	Vienna	Styria	Upper Austria	Salzburg	Tyrol	Carinthia	Vorarlberg	Burgen-land	Lower Austria	Provinces Total
	%									
Hungary	20	17	12	19	8	30	12	73	18	19
Czech Republic	13	6	14	9	4	13	3	3	16	12
Poland	6	3	5	3	5	2	2	10	5	5
Slovak Republic	6	2	2	7	0	4	1	3	7	5
Slovenia	3	7	2	4	0	9	0	3	2	3
Bulgaria, Romania	3	3	2	1	0	2	1	3	2	2
Baltic republics	1	0	1	0	0	0	0	0	0	0
Other accession countries[1])	2	1	1	1	0	0	0	0	1	1
Other CEECs	5	8	2	3	0	10	6	0	4	5
EU-15	27	31	40	34	54	23	35	3	28	31
Other European countries	5	4	7	10	12	4	21	0	5	7
Rest of the world	9	17	14	10	16	3	19	0	12	11
Number = 100%	931	186	321	135	74	94	117	30	284	2,172

Source: OeNB.
[1]) Malta, Cyprus, Turkey.

and Styria covers the broadest dimension. Investment outside of Europe refers mainly to investment in the U.S.A., Canada and Australia.

Distance seems to have a third influence as well, namely on the type of business activity. If corporations are classified by whether they are mainly vertically structured (as defined by Helpman), with FDI triggered chiefly by different factor endowments and hence varying costs of primary inputs, or whether they are horizontally integrated corporations (as defined by Markusen and Venables), with FDI in countries with similar factor endowments based on different transport and transaction costs,[1]) horizontal integration appears to play a surprisingly large role for the branch structure of Austrian outward FDI in the accession countries considering the different wage levels.

Table 4 compares total Austrian outward FDI with that of the EU (columns 1 and 2) and shows the structure of Austrian direct investment in the 13 accession countries compared to the remaining total of Austrian FDI (columns 4 and 5). FDI is broken down by the sector to which the direct investment enterprise belongs (NACE, the General Industry Classification of Economic Activities within the European Communities),[2]) and the capital invested is shown.

In primary production, direct investment in agriculture and forestry is nearly nonexistent, which comes as no surprise considering that stringent laws restrict purchases of agricultural land in many countries. However, in general direct investment in mining is significant, though not for Austrian investors, which is a first sign that Austrian direct investors do not conform to the perception of multinational enterprises with an internationally fragmented production process covering all stages from the extraction of raw materials to the sale of the final product. Direct investment in energy, gas and water supply is just as low; the Austrian direct investment statistics combine this sector and mining. There is little FDI in this area, most likely because the enterprises in this sector are predominantly publicly owned, which, apart from FDI in jointly operated

1 *Egger and Pfaffermayer (2000).*

2 *Unfortunately, the Eurostat and the NACE breakdowns (columns 2 and 6) are not fully identical despite providing the same totals; explanations are provided in the analysis of the sectoral breakdown.*

Table 4

Sectoral Breakdown of Austrian Direct Investment Enterprises

Abroad in Terms of Invested Capital at End-1999

Sector of the Direct Investment Enterprise	Active DI		NACE Section or Subsection	Comment	Active DI Austria		
	EU-15	Austria			Accession countries	Rest of the world	Total
	1	2			4	5	6
	%				%		
Agriculture and fishing	0.1	0.0	A+B		0.0	0.0	0.0
Mining and quarrying	6.8	1.3	C	+E	1.4	2.3	2.1
Manufacturing	35.1	25.4	D		35.3	21.7	25.4
Food products	4.5	2.0	DA		5.9	0.5	2.0
Textiles and wearing apparel			DB	+DC	1.2	0.3	0.5
Wood			DD		0.6	1.5	1.3
Publishing and printing	2.7	3.9	DE		3.1	1.7	2.1
Total petroleum, chemicals and rubber	11.8	4.2	DF–DH		7.4	3.0	4.2
Metal products			DJ		2.8	4.3	3.9
Mechanical products	4.6	5.4	DK		1.1	1.7	1.6
Total office machinery and radio	3.9[2])	1.9[2])	DL[2])		2.1[1])	3.8[1])	3.3[1])
Motor vehicles	2.9	0.4	DM		0.8	0.3	0.5
Residual item:			DC+DL[1])				
Nonmetallic mineral products			DI		9.6	4.2	5.7
Manufacturing n.e.c.	4.6	7.6	DN		0.8	0.2	0.4
Electricity, gas and water	4.0	0.7	E	ad C	×	×	×
Construction	0.6	2.1	F		3.8	1.5	2.1
Trade and repairs	6.7	13.4	G		17.8	11.8	13.5
Hotels and restaurants	0.6	0.7	H		1.9	0.1	0.6
Transport, communications	7.8	0.36	I		0.5	0.3	0.34
Financial intermediation	20.0	21.8	J		29.0	19.0	21.8
Real estate and business activities	16.1	33.6	K		9.6	42.7	33.6
Other services	1.8	0.7	L–Q		0.8	0.6	0.6
	EUR billion				*EUR billion*		
Total EUR billion	2,380.0	19.04			5.24	13.80	19.04

Source: OeNB, Eurostat.
[1]) Including NACE divisions 31 and 33.
[2]) Excluding NACE divisions 31 and 33.

hydroelectric power plants located on border rivers, has prevented inward and outward direct investment. In fact, these two sectors play an even less important role for FDI in the CEECs than for FDI in all other countries.

Only 25% of Austrian FDI is in secondary production, 10 percentage points less than the EU-15's investment in manufacturing. The largest gap is in FDI in chemicals. Austria has an edge only in technologically seemingly less sophisticated branches, such as the manufacture of textiles, wood and paper, of metals and of a very heterogeneous residual category joining leather manufacturing, construction materials manufacturing, parts of the NACE subsection manufacture of electrical and optical equipment (the category manufacture of electrical

machinery and apparatus and the manufacture of medical, precision and optical intruments, watches and clocks), and the NACE subsection DN (manufacturing n.e.c.). Austrian FDI is below average in the manufacture of transport equipment, the manufacture of electrical and optical equipment (office machinery, manufacture of radio, television and communication equipment and apparatus), as well as in the food industry. To a certain extent, the structure of the direct investment enterprises mirrors the production structure in Austria: There is no real office machinery industry, and no fully fledged domestic transport equipment industry, which shows that the activity of the parent company and its direct investment enterprise is highly correlated.[1])

An analysis of the share of FDI in manufacturing shows that the 35% weight of Austrian enterprises' FDI in manufacturing enterprises in the accession countries (columns 4 and 5) is much closer to the international standard than the weight of Austrian companies' manufacturing investment primarily in the West. Moreover, the investment share is clearly above the EU average in a few areas, e.g. the food industry (sugar, starch, meat and beer production), the paper industry (including packaging material) and the construction material industry (cement, bricks, glass). In these product groups, the transport cost burden in international trade is relatively high. In the main, these direct investments reflect horizontal integration: regionally limited markets are supplied with local products, and the FDI allows centrally incurred overheads (e.g. for developing new processes or products) to be distributed across larger markets. It is surprising that unlike in the case of German investment in this area, horizontal integration prevails between Austrian direct investors and their direct investment enterprises in the transition countries despite very dissimilar factor endowment.[2]) One reason may be that the Austrian enterprises are simply not large enough to permit active vertical structuring. Austrian companies are likely to be integrated in such worldwide manufacturing processes mainly as passive participants, e.g. as suppliers and parts producers in the automotive industry.

The construction industry is generally overrepresented in Austrian outward direct investment, above all in Eastern Europe; construction companies' activities there do not compete with Austrian domestic manufacturers' business.

Of course, most services also require geographical proximity to markets. Austria's strengths vis-à-vis the EU are in the tertiary sector – above all in trade, real estate, renting and business activities, whereas FDI in transport, storage and communication was negligible at the end of 1999. It should be noted that real estate, renting and business activities include numerous holding companies, which may hamper the interpretation of the figures pertaining to FDI in the West to a certain extent. In the context of FDI in the accession countries, however, holding companies play only a minor role. Real estate development, leasing companies and more traditional services such as advertisement, market research, consulting, cleaning and the like are more important. By contrast, trade and financial intermediation activities are a key area of Austria's FDI in

1 *In nearly half the cases, the parent company and the direct investment enterprise belong to the same production sector; in addition, manufacturing direct investors frequently invest in trade companies abroad (see Dell'mour, 2000, p. 72).*

2 *See Altzinger (2000, p. 24).*

the East. Trade companies account for 18% of the capital invested in the accession countries, and financial intermediators for nearly 30%. The rationale behind FDI in trade companies is the expansion of Western European retailer networks and the establishment of wholesalers which mainly sell direct investors' goods. As the figures this study contains for financial intermediation predate the large investments by Erste Bank der oesterreichischen Sparkassen AG in the Czech and Slovak Republics as well as Bank Austria AG's merger with Hypo- und Vereinsbank AG of Bavaria, the reinforced CEE focus of these investments has not yet been taken into account. Considering the saturation of the domestic market and fierce competition in Western Europe, regional expansion into CEE was probably the only viable growth prospect for Austrian banks and insurance companies. In its Financial Stability Report,[1]) the OeNB reports that Austrian commercial banks' activities in CEE had expanded to 38 banks with more than 2,000 offices and 43,000 employees by mid-2001. According to the Financial Stability Report, total assets had already run to EUR 45 billion, and Austrian banks' subsidiaries in Slovenia had market shares of between 5% in Slovenia and 40% in Slovakia at the time.

The answers to the question of the motivation for direct investment clearly signal the enormous role gaining market share and market access plays for investment in Eastern Europe: Direct investors cite market access as the predominant motive for cross-border equity investment (see table 5). More than 70% of all direct investment stems from this consideration, which naturally applies to accession country investment as well.

Table 5

Motive for Outward Direct Investment (1999 Statistics)

	Labor Cost	Tax Considerations	Market Access (Securing Sales)	Securing Supply (Raw Materials)	Other Reasons/ Several Reasons	Number of Direct Investments
	%					
Accession countries	6.1	0.4	72.4	3.2	17.9	1,019
EU-15	0.6	2.4	70.0	2.0	25.0	664
Rest of the world	1.4	3.5	73.4	3.3	18.4	489
Total	3.4	1.7	71.9	2.9	20.2	2,172

Source: OeNB.

This table also indicates that factor endowments may have represented a key consideration for FDI decisions in a number of cases. 6% of direct investors name labor costs – a less frequently and less willingly cited motive – as their prime impulse for investment in the accession countries. Thus 62 of 73 FDI holdings made to benefit from low labor costs are located in the accession countries. These 62 enterprises, most of which are from the electronics and textiles sectors, employ 25,000 persons (weighted by the direct investor's percentage ownership of the direct investment enterprise's nominal capital share). With an average of 400 employees, these companies are also four times as large as the average direct investment enterprise.

The disproportionately frequent citation of labor costs as a motive for FDI and the complete dismissal of tax grounds are the chief reasons why the differ-

1 *OeNB (2/2001, p. 48ff.).*

ences have such a high significance (chi square = 78.5 at eight degrees of freedom).[1])

The fact that labor costs would probably play a role even if they had not been explicitly given as a motive is evident in table 6, which shows Austrian outward FDI by size.

Statistical outliers are not the reason for the different capital and employment levels in the direct enterprises. Both a Mann-Whitney rank sum test[2]) with raw data and the simple chi square test of the classified data point to (highly) significant differences between the size of direct investment enterprises in the accession countries and elsewhere.

Table 6

Number of Direct Investments by Staff Size and Target Country in 1999

Target Country	0 to1	2 to 10	11 to 100	101 to 1,000	over 1,000	N = 100%
	%					
Hungary	17.3	18.8	39.6	22.0	2.2	404
Czech Republic	14.8	14.0	44.7	24.5	1.9	257
Poland	8.6	13.3	51.4	25.7	1.0	105
Slovak Republic	6.9	20.8	37.6	33.7	1.0	101
Slovenia	19.4	31.3	28.4	20.9	0.0	67
Bulgaria, Romania	5.7	9.4	54.7	30.2	0.0	53
Baltic republics	10.0	10.0	70.0	10.0	0.0	10
Other accession countries[1])	45.5	31.8	22.7	0.0	0.0	22
Other CEECs	6.9	26.7	42.6	22.8	1.0	101
EU-15	23.5	19.4	42.2	14.3	0.6	664
Other European countries	42.8	21.4	31.7	4.1	0.0	145
Rest of the world	25.9	21.0	39.9	12.3	0.8	243
Total	20.2	19.3	41.1	18.3	1.1	2,172

Source: OeNB.
[1]) Malta, Cyprus, Turkey.

Nearly every fifth Austrian direct investment enterprise has more than 100 employees. In the transition countries, more than 25% of the enterprises are large investment, whereas less than 15% of the direct investments in the EU and in the rest of the world fall into this category. 16 of the very large investments (more than 1,000 employees) are also located in the accession countries. In turn, small direct investments with 0 to 1 employee[3]) are underrepresented in the accession countries. The breakdown of employment in the Mediterranean accession countries and the "other CEECs" follows a pattern atypical of the other countries in the respective groups: the former exhibit a pattern much like that of FDI in Western countries, whereas FDI in nonaccession CEECs is quite similar to that in the CEECs.

1 *The chi square test examines the distribution between binomial variables against the null hypothesis of independence. The test variable chi square is x-square distributed with (n-1)*(m-1) degrees of freedom.*

2 *A parameter-free test to test the hypothesis whether two independent random samples stem from populations with identical distribution.*

3 *Direct investments with a maximum of one employee account for a fifth of all outward FDIs. Frequently, these investments are holding companies.*

2.1 Direct Investment Income

Direct investment may make sense theoretically if it helps boost the direct investor's earnings even if the direct investment enterprise itself makes a loss,[1]) but as a rule, the direct investment enterprise is expected to make a profit. As the foundation of an enterprise is frequently associated with startup losses, the age of the direct investment enterprise provides valuable information.

Only 7% of the outward FDI holdings recorded at the end of 1999 had been established before the opening up of Eastern Europe in 1989. Most of these direct investments were located in Western Europe, some were overseas. It may come as a surprise that there were direct investments in the former Eastern Bloc even before the fall of the Iron Curtain. In the 1980s direct investors found opportunities for outward investment above all in Hungary, with construction, hotel projects and banks counting among the pioneer projects that have survived to the present day.

Table 7

Outward FDI in 1999 by Period/Year of Establishment

	Hungary	Czech Republic	Other Accession Countries	Total Accession Countries	Other CEECs	EU-15	Other European Countries	Rest of the World	Total
until 1970	0	1	1	2	0	20	6	7	35
until 1980	0	0	1	1	0	40	13	19	73
until 1988	12	2	2	16	2	81	16	32	147
1989	21	3	2	26	0	42	5	9	82
1990	57	7	14	78	2	52	20	10	162
1991	62	26	25	113	2	50	6	9	180
1992	54	58	23	135	1	47	10	14	207
1993	38	44	48	130	6	51	6	8	201
1994	40	26	42	108	10	39	5	14	176
1995	34	21	41	96	7	47	11	22	183
1996	20	17	38	75	19	38	16	24	172
1997	22	18	46	86	18	47	10	20	181
1998	21	18	49	88	17	58	9	23	195
1999	23	16	26	65	17	52	12	32	178
Total	404	257	358	1,019	101	664	145	243	2,172

Source: OeNB.

The opening up of Eastern Europe kicked off investment, first in Hungary, above all from 1990 to 1992, followed by a flurry of new investment in the Czech Republic and Slovakia from 1991 to 1994.[2]) This also applies to the non-accession transition countries, such as Ukraine or Russia. Direct investment enterprises began to be established only very recently in the successor states to Yugoslavia[3]) (Slovenia, where direct investment dates to 1991, represents an exception). The drop in the number of new investments in the accession countries only partly contradicts the steady high stream of investment and the record investment made in this region in 2000 and 2001, as the amounts invested are larger because the risk has become easier to gauge, not least

1 *Options are, e.g., the use of nonmarket transfer prices in intragroup trade or a hidden transfer of profit generated by license or management fees.*

2 *Investment in the ČSSR and the ČSFR were classified by the respective successor countries.*

3 *The establishment periods are naturally closely linked to the creation of suitable framework conditions in the individual transition countries, but the lack of direct investment in Poland and the Baltic republics, which were open to direct investment quite early, may be seen as a further argument supporting the claim that distance matters.*

because of the prospect of EU accession in the near future. Moreover, considerable investment or reinvestment goes toward expanding existing direct investment enterprises in the target regions.

Austrian investment in the EU and the remaining Western European countries is fairly evenly distributed over the years, whereas investment outside Europe gained momentum in the second half of the 1990s. As most of the FDI both within and outside the enlargement region was made by 1993, a comparison of the profitability of both regions should no longer be substantially influenced by the lower age of many direct investment enterprises in the accession regions.

Most of Austrian investment in the accession countries consists of takeovers or holdings in existing companies. While this is generally true of all Austrian outward FDI – only 40% of all direct investment go into establishing a new company abroad – the share of greenfield investment in the accession countries is clearly lower at one third of all investment.[1]) The reason for this low investment figure is that numerous investments were made within the framework of programs to privatize formerly nationalized firms. The reorganization measures required for such investments, however, may be nearly as extensive as the establishment of a new enterprise.

By 1999, Austrian FDI in the accession countries had become very profitable (table 8). This applies to all accession countries with the exception of Bulgaria, Romania and the Baltic republics. Total annual profit (excluding profits and losses carried forward) ran to about EUR 440 million. More than half of the profit was reaped from direct investments in Hungary, but direct investments in the Czech Republic, Poland, Slovenia and Slovakia each contributed from EUR 40 million to EUR 60 million to total profits. The annual profits translate into an average return on equity of 10.4%. 703 – or nearly 70% – of a total of 1,019 direct investment enterprises in the accession countries posted no losses.[2])

Consequently the profitability of direct investments in the accession countries was even above average in 1999. By way of comparison, the share of profitable investments outside the accession countries was 2 percentage points lower. While at EUR 690 million the total profit made outside the accession countries was higher, the return on equity was only half as high at 5.7% because the equity capital was considerably higher.

The profitability of direct investments was not always substantial in the accession countries, however. Table 8 shows the development of profitability since the fall of the Iron Curtain. At first, return on equity and the share of profitable direct investments was high because investors opted exclusively for projects with a guaranteed high return in the uncertain period following 1989. After 1991, when a wave of investment in the accession countries began, profitability tumbled, even resulting in net losses between 1993 and 1995.

1 *The difference is statistically highly significant (chi square = 31.76 at 2 degrees of freedom). Most of Austria's greenfield investment is located in Germany, Switzerland and Italy.*

2 *The difference between this figure and the number of profitable enterprises in the direct investment report in the supplement to the OeNB's Focus on Austria 2/2001 results from the fact that in the supplement the classification is based on annual profits plus profits or losses carried forward from the years before.*

During that phase, the percentage of lossmaking operations rose to 45%. In the second half of the 1990s, profitability gained a second wind and has since improved to levels above those measured in Western European and overseas direct investment enterprises. Profitability was boosted, among other things, on the back of the rise in labor productivity (sales per employee) in the primary and secondary sectors from roughly EUR 40,000 to around EUR 70,000.[1])

Table 8

Profitability of Austrian Outward Direct Investment

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	Number										
Direct investments											
Total	895	1189	1,239	1,340	1,562	1,698	1,796	1,897	2,020	2,078	2,172
thereof accession countries	*120*	*262*	*397*	*496*	*660*	*801*	*847*	*889*	*962*	*977*	*1,019*
other countries	*775*	*927*	*842*	*844*	*902*	*897*	*949*	*1,008*	*1,058*	*1,101*	*1,153*
Thereof with an annual profit[1])											
Total	656	809	799	827	942	1,018	1,093	1,266	1,365	1,346	1,477
thereof accession countries	*105*	*210*	*266*	*316*	*380*	*441*	*458*	*573*	*638*	*603*	*703*
other countries	*551*	*599*	*533*	*511*	*562*	*577*	*635*	*693*	*727*	*743*	*774*
	EUR million										
Total profit[2])											
Total	156	193	-28	-229	−119	189	95	486	644	580	1,125
thereof accession countries	*7*	*20*	*20*	*9*	*− 20*	*4*	*− 18*	*155*	*288*	*330*	*437*
other countries	*149*	*173*	*−49*	*−239*	*− 99*	*185*	*114*	*331*	*356*	*250*	*688*
Return on equity in %[3])											
Total in %	8.3	6.7	−0.8	−5.0	− 2.1	3.1	1.4	5.9	6.1	4.6	6.9
thereof accession countries	8.7	6.0	2.8	0.9	− 1.3	0.2	− 0.9	6.3	9.4	9.8	10.4
other countries	8.3	6.8	−1.6	−6.8	− 2.4	4.3	2.4	5.8	4.7	2.7	5.7

Source: OeNB.
[1]) Including zero profit.
[2]) Profit or loss for the year excluding profit or loss carried forward.
[3]) Profit or loss for the year divided by (equity minus profit or loss for the year).

Measured as a sum total across all countries, Austrian direct investments posted losses from 1991 to 1993. Apart from the cyclical slump in 1992–93, a few very large losses in the EU and overseas accounted for this result. Only in four countries were Austrian direct investment enterprises able to record unbroken profits in the decade from 1989 to 1999 – Switzerland and Luxembourg, and the two accession countries Malta and Hungary.

3 A Breakdown of Direct Investors

Austria's 2,172 outward direct investments were held by 902 domestic direct investors. To explore whether there are any differences between investors, they are broken down by the target region of their direct investment – the accession countries, other countries, or both regions.

347 of 902 Austrian direct investors have direct investments only in the accession countries, 380 have direct investments only outside the applicant countries, and 175 investors are represented in both regions with 461 direct investments in and 466 outside the enlargement region. By definition, direct investors who seek to invest in more than one region must have more than

1 The comparative value for other direct investment in the West exceeds EUR 150,000.

Table 9

Direct Investors and Direct Investments

by Target Regions at End-1999

Direct Investors with Direct Investments	Direct Investors	Direct Investments	Direct Investments Direct Investor	Staff Direct Investor	Staff Direct Investor
Only in the accession countries	347	558	1.61	71,914	207.2
Only outside of the accession countries	380	687	1.81	99,519	261.9
In both regions	175	927	5.30	86,825	496.1
Total	902	2,172	2.41	258,258	286.3

Source: OeNB.

one direct investment. In fact, approximately two thirds of the investors concentrated on a single region have only a single direct investment abroad; only a fraction of these investors holds more than three investments (7% in the accession countries region, 10% in the rest of the world). By contrast, 56% of the direct investors represented in both regions have four or more direct investments. These direct investors tend to be large companies, as confirmed by the size of their staff; direct investors with several stakes average more than twice as many employees (nearly 500 against 210 and 260).

A special feature of Austrian direct investment is that a considerable portion of outward FDI stems from companies that are direct investment enterprises in Austria themselves. According to the most recent available figures of 1999, 194 Austrian direct investors with FDI in 489 direct investment enterprises were themselves partly or wholly controlled by nonresidents.[1]) Especially just after 1989, Austria's and specifically Vienna's potential role as a gateway for business activities in the transition countries played an important role in economic policy discussions.[2]) Austria continues to play the role of a gateway to the East, as the 1999 data show (table 10).

Whereas nearly 23% of all Austrian outward FDI and 32% of the employees abroad are partly or wholly foreign-controlled,[3]) the share in the accession countries is significantly higher (chi square = 13.4 at 2 degrees of freedom; significance < 0.1%). In terms of the number of direct investments, Austrian FDI in the accession countries is 3 percentage points higher than the total average, in terms of employees 7 percentage points higher.[4]) Conversely, the degree

1 *As explained in the supplement to Focus on Austria 2/2001, table 25 (Austrian Outward and Inward Direct Investment at the end of 1999), "partly controlled" means that a direct investor holds a capital share of at least 10% of the nominal capital of the direct investment enterprise. If "foreign-controlled" is defined to mean a share of at least 50% of the nominal capital, the number of direct investors falls to 153, that of foreign-controlled direct investment enterprises declines to 370. Both cases represent lower-limit cases, as the current statistical system is not suited to capturing control exercised through several linked Austrian companies.*

2 *See Stankovsky (1996).*

3 *Altzinger (2000, p. 38) calls such direct investment enterprises "indirect direct investments," an expression we avoid to prevent misunderstandings where first-tier direct investment enterprises themselves invest in second-tier direct investment enterprises and where inward direct investment enterprises themselves own second-tier direct investment enterprises in Austria (see tables 11, 12, 17 and 18 in the supplement to Focus on Austria 1/2001). Generally, such second-tier enterprises are called "indirectly owned direct investment enterprises."*

4 *The merger between Bank Austria AG and Bayerische Hypo- und Vereinsbank took place in 2000, after the data on which this analysis is based were collected. These transactions raise the number of employees by an additional 15,000 in partly or wholly foreign-controlled direct investment enterprises.*

Table 10

Share and Type of Foreign Ownership of Austrian Direct Investment Enterprises at End-1999

	Direct Investments	Partly Controlled by Non-residents[2])	Wholly Controlled by Non-residents[3])	Number of Employees Weighted	Partly Controlled by Non-residents[2])	Wholly Controlled by Non-residents[3])
	Number (= 100)	*in %*		*Number (= 100)*	*in %*	
Hungary	404	25	19	49,288	41	33
Czech Republic	257	27	21	32,934	38	31
Poland	105	30	28	14,487	37	36
Slovak Republic	101	28	18	11,774	38	30
Slovenia	67	22	13	4,086	34	29
Bulgaria, Romania	53	34	30	6,041	32	30
Baltic republics	10	40	30	370	27	25
Other accession countries[1])	22	14	9	217	19	19
Other CEECs	101	25	18	9,127	33	23
EU-15	664	18	14	50,360	18	15
Other European countries	145	19	14	2,614	16	6
Rest of the world	243	24	17	17,866	32	30
Total outward FDI	2,172	23	17	199,164	32	27
Accession countries	1,019	26	20	119,197	39	32
Other countries	1,153	20	15	79,966	23	19

Source: OeNB.
[1]) Malta, Cyprus, Turkey.
[2]) The direct investment in the Austrian direct investor is higher than 10%.
[3]) The Austrian investor is more than 50% owned by a nonresident direct investor.

of foreign control on direct investment in the EU and the remainder of Europe is very low at 18% to 19% of the investments and only 16% to 18% of the employees; using Austria as a springboard for market entry in Eastern Europe appears to make more sense than for market entry e.g. in the EU. Investment ouside of Europe lies close to the average within both extremes. Here it becomes apparent again that direct investment in non-Eastern European applicant countries follows a pattern more like that of existing investment in the EU rather than investment in Eastern Europe. By contrast, foreign control of direct investment in nonaccession transition countries (other CEECs) is also high, so that a classification by Eastern and Western European investment would provide good discriminatory power of Austria's use as a launching pad for investment.

4 The Potential Impact of Enlargement

As Austria has substantial holdings in Eastern Europe, the prospective enlargement of the EU is of particular interest for Austria.[1]) It would be very difficult to quantify the impact of enlargement for Austrian investors and their enterprises in the accession countries, however. Generally speaking, investor risk declines in countries that join the EU. Hence, investment is likely to gain momentum. The current record investment of the years 2000 and 2001 may thus be considered a taste of things to come. Eastern Europe expert Fritz Breuss has presented model-based calculations according to which stepped-up demand for capital to invest in the accession countries will hike interest rates in the euro

1 *In fact, Austria's position might best be characterized as that of an important financial services provider at the center of Europe combined with that of a gateway for multinational groups seeking to gain a foothold in the transition region.*

area by 0.05 to 0.2 percentage point, which could crowd out – albeit to a small extent – investment in EU Member States. Enlargement might also simply cause Austrian outward FDI to be redirected from the rest of the world to Eastern Europe. Wilfried Altzinger, too, expects only small effects, pointing out that the privatization process of the 1990s was a one-off development that had already been concluded in most of the accession countries.

Theoretically, the integration of the accession countries and the removal of tariff and nontariff trade barriers should raise the welfare of all parties on the back of trade generated by the accession. The expected macroeconomic utility will not be evenly distributed among all economic agents; there are bound to be some losers among the accession country enterprises. Companies that stand to suffer are noncompetitive domestic companies[1]) and companies founded solely to circumvent import restrictions. Such companies lose their locational advantage when accession countries join the EU. However, spurious motives are not likely to have played a role for accession country investment, not just by Austrian direct investors, as most of the countries lifted trade restrictions very soon to prepare for EU membership. Once the companies in the accession countries feel the pressure of heightened competition on accession, firms that can draw on the know-how and the capital reserves of parent companies in the West will have an edge on other firms.

The CEECs' membership in the EU might also have an effect on Austria's gateway role for international groups. Transnational groups might opt to bypass Austria and invest directly, establishing locations as regional head offices farther east in the new Member States. These challenges to Austria as a business location are of course not new, and Austria's well-known advantages – from basic features such as political stability, a good communications and transport infrastructure, cultural proximity to the markets, a readily available qualified labor force and favorable tax conditions, to general life quality aspects such as culture and entertainment, or a healthy environment – will continue to provide a solid foundation for success in competition as a business location in the future. In any event, no large-scale shifts of investment away from Austria have taken place yet. If Austria is to remain a preferred gateway for direct investment, it will have to alter framework conditions steadily to keep abreast of developments.

By way of conclusion, Austrian companies had still displayed a large lag in outward FDI in 1988, but then benefited rapidly and intensely from the opening of Eastern Europe for direct investment. Even small and medium-sized companies received a chance to invest relatively close by. With the development of new markets representing companies' decisive motive for direct investment, no export subtitution occurred, nor did any production shifts cause perceptible job losses. Most of the investments were made in the form of acquisitions in the course of the privatization process, and after overcoming some startup problems, the direct investment firms in the accession countries have become more profitable than the average. The prospective accession of the applicant countries to the EU will trigger a wave of further investment, though limited, and above all, it will give the existing direct investment enterprises an additional boost.

1 *"Domestic" refers to non-foreign-owned companies located in the accession countries.*

References

Altzinger, Wilfried, Peter Egger, Peter Huber, Kurt Kratena, Michael Pfaffermayr and Michael Wüger. 2000. Transnationale Direktinvestitionen und Kooperationen. Preparity Subproject 5. Vienna.

Breuss, Fritz. 2001. Makroökonomische Auswirkungen der EU-Erweiterung auf alte und neue Mitglieder. WIFO Monthly Reports 11.

Clement, Werner. 2001. Handlungsfelder für die Zukunft der österreichischen Industrie. Vienna.

Dell'mour, René. 2000. Direktinvestitionen Österreichs – Ergebnisse der Befragung 1998. OeNB Focus on Austria 4/2000.

Egger, Peter and Michael Pfaffermayr. 2000. Trade, Multinational Sales, and FDI in a Three-Factors Model. Working paper, Linz.

Eurostat. Several years. European Union Direct Investment Yearbook. New Cronos database.

Neudorfer, Peter. 1997. The Opening of Central and Eastern Europe: The Case of Austrian Foreign Direct Investment. OeNB Focus on Transition 2/1997.

Oesterreichische Nationalbank. 2001. Financial Stability Report 2/2001. Vienna.

Stankovsky, Jan and Yvonne Wolfmayr-Schnitzer. 1996. Österreich als Standort für Ostzentralen. WIFO. Vienna.

UNCTAD. 2001. World Investment Report. Geneva.

WIIW – WIFO data base. 2002. Foreign Direct Investment in Central and Eastern European Countries and the Former Soviet Union. Vienna.

Growth Effects of European Integration: Implications for EU Enlargement

Jesús Crespo-Cuaresma,[1]) Maria Antoinette Dimitz and Doris Ritzberger-Grünwald[2])[3])

1 Introduction

For the last 50 years there has been widespread discussion about the economic consequences of European integration. The basic questions are: Is economic integration growth enhancing? Are the rich getting richer and the poor getting poorer, or will the income levels of the EC/EU member countries converge as a consequence of integration? Furthermore, which countries will profit most from intensified trade among the members?

The theoretical literature on economic growth has gone through several phases, and the answers to the above questions depend on the specification of the respective growth model.

From the late 1950s to the mid-1980s the simple Solow-Swan "exogenous growth model" dominated the literature (Solow, 1956). According to the neoclassical theory, the economy converges towards a steady state due to diminishing returns to investment in physical capital. Assuming a constant population, the long-run growth rate is solely determined by the rate of technological change, which is assumed to be exogenous. As the growth rate is therefore independent of any economic behavior, economic policy changes will only have a temporary effect on economic activity.

The same is true for economic integration. Technological change is considered a public good common to all countries, so that they all share the same long-run growth rate determined by technological progress only. Therefore the integrated economy will expand along this unchanged steady state growth path in the long run, and the reallocation of resources will only temporarily have an influence on the growth rate. Hence according to the neoclassical view of growth, European integration should not have a lasting effect on growth rates. However, the income levels should converge perfectly.

In the mid-1980s the so-called "endogenous growth theory" revolutionized the literature on economic growth (Romer, 1990). Technology that was formerly considered a public good and exogenous now became endogenous and subject to decision-making processes at individual firms. According to this concept, enterprises have an incentive to invest in research, as the development of new technologies assures them of the possession of temporary monopoly power. But the absorption of monopoly rents is limited, as knowledge is only partially excludable. Patent protection is limited in time, and inventions can be used as input to further research and new technological innovations. These knowledge spillovers prevent the firms from collecting the full monopoly rent for their new inventions.

The aspect of the new growth theory according to which technological progress depends on the research activities of individual firms which seek to collect monopoly rents opens a new view on the issue of economic growth in an integrated region: now an increased scale of the economy will have a lasting

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positive effect on growth. On the one hand, knowledge spillovers imply increasing returns to scale to capital accumulation. On the other hand, the monopoly rent increases with the number of consumers while the costs for research and development are independent of the size of the economy. The prospect of higher profits increases the incentive for further research and hence spurs economic growth. These two factors together imply that the long-run growth rate increases with the size of the economy.[1])

To sum it up, the consequences of European integration are fundamentally different within the framework of endogenous growth. The more countries join the European Union and hence the larger the scale of the integrated economy is, the higher the incentive for research and development is and, accordingly, the higher the growth rate is. Enhanced growth is now not only a transitory, but a permanent phenomenon from which all countries profit in the long run.

Most empirical papers on economic growth aim at detecting the main determinants of long-run growth without referring explicitly to regional integration (for European regions see, for example, Sala-i-Martin, 1996). The first papers dealing with the question of a possible growth bonus associated with European integration were all cross-country studies. Basically, they compare EU members with other countries that have not joined the European Union, mostly countries at a similar stage of development. The basic question is whether there exists a global growth benefit from being a EU member. Most of the studies do not find any such growth bonus (see for example De Melo et al., 1992 or Landau, 1995).

However, panel data regression techniques opened up a new way to deal with the question of possible growth benefits associated with EU membership. This makes it possible to focus exclusively on the current EU Member States. The basic question then can be whether in retrospect the current EU members profited from regional integration.

There are two studies which ask questions similar to the ones discussed in our paper, although they look at a wider set of countries and do not exclusively focus on EU members.

Vanhoudt (1999) tests the validity of the neoclassical implication that regional integration has no impact on long-term growth against the alternative model based on endogenous growth theory. He carries out panel data regressions on 23 OECD countries to check whether EU membership had a positive impact on growth compared to developed countries which have not joined the European Union. He does not find evidence of a significant long-run growth bonus associated either with EU membership or with membership length. Also, the results do not support the hypothesis of a scale effect on growth. The author concludes that the neoclassical hypothesis cannot be rejected by the data.

Henrekson et al. (1997), who focus on EC as well as on EFTA member countries, find the opposite result: EC/EFTA membership may increase growth rates significantly, by around 0.6 to 0.8 percentage point per year. However,

1 *A countervailing effect of integration which could work in the direction opposite to the one described in the text refers to the fact that, in a larger market, competition is more intense and monopoly rents are smaller and more short-lived. However, empirical research on the effect of trade integration on growth suggests a dominant role of the growth-enhancing effect. See below for some references.*

apparently it does not matter whether a country is an EC or an EFTA member. Their results support the hypothesis that regional integration in Europe can have significant growth effects and suggest that further regional integration may be growth enhancing in the long run. However, the results of the paper are not completely robust with respect to changes in the model specification.

Both these studies and the present paper deal with the question of whether European integration had a positive impact on long-term growth in the member countries. Our study, however, deviates from the other two in that it exclusively focuses on the current EU Member States[1]) and in that it deals with the issue of convergence within the integrated European economy. Our questions are: Have per capita income levels in European countries converged towards each other since the 1960s? And if EU membership had a favorable impact on growth in these countries, can we detect subsets of countries that profited more than average from EU membership? Can we conclude from these asymmetric gains in growth that convergence was also a consequence of intensified economic involvement due to European integration?

2 Convergence and Growth in the EU – Concepts and First Results

The term *β-convergence* was coined by Barro and Sala-i-Martin (1992) and refers to the negative correlation between initial levels of real GDP per capita and its average yearly growth rate either after conditioning for certain control variables *(conditional β-convergence)* or without conditioning *(unconditional β-convergence)*. For a complete survey on the empirical literature dealing with evidence on β-convergence, see, e.g., Durlauf and Quah (1998).[2]) Together with the concept of β-convergence, Barro and Sala-i-Martin (1992) introduce the complementary concept of *σ-convergence,* which refers to the decrease of the dispersion of real GDP per capita across economic units through time. It should be noted that β-convergence is a necessary but not sufficient condition for σ-convergence.

Chart 1 shows the evolution of real GDP per capita between 1960 and 1998 in the 15 current EU Member States to provide a first visual approach to the study of convergence in the EU. Evidence of β-convergence is difficult to extract from the graph, but becomes clearer when we use a scatter plot relating initial levels of real GDP per capita to average growth. Chart 2 shows a scatter plot aimed at checking for (unconditional) β-convergence in the European Union for the period 1960–98: on the x axis, the (log) level of real GDP per capita is represented, while the y axis shows the average yearly growth of real GDP per capita in the period 1960–98. A visual inspection shows a negative relationship between both variables.

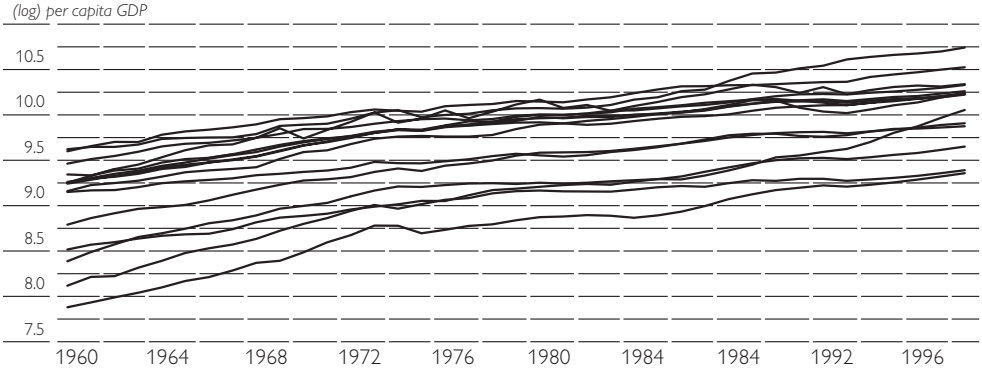
1 *Another recent contribution to this branch of literature, Badinger (2001), focuses exclusively on European countries using a somehow different approach and again finding no evidence for a growth bonus of EU membership.*

2 *Notice that this approach is not free from criticism. For a critical view and alternative concepts of convergence based on the time series properties of real GDP per capita, see for example Bernard and Durlauf (1996).*

Chart 1

Real GDP per Capita

EU-15 from 1960 to 1998

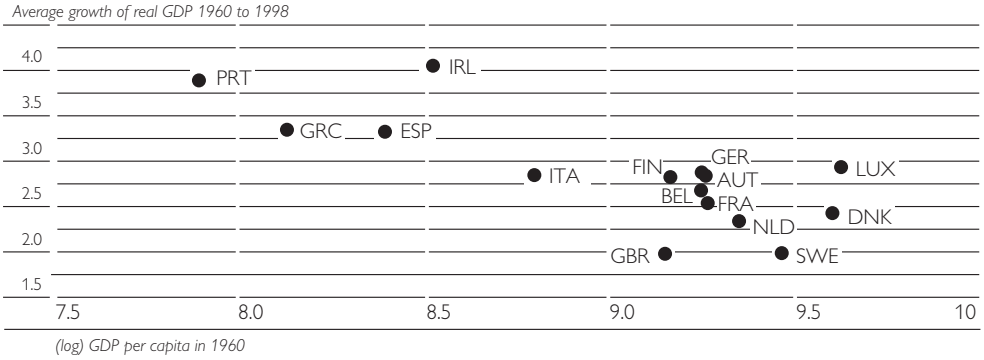


Source: World Bank.

Chart 2

GDP per Capita in 1960 Versus Growth

EU-15 from 1960 to 1998



Source: World Bank.

This first indication of convergence is confirmed by dividing the data into four subperiods (1961–70, 1971–80, 1981–90, 1991–98)[1]) and estimating the β parameter in the panel regression

$$[ln(y_{Tt,i}) - ln(y_{0t,i})]/n_t = \alpha + \beta ln(y_{0t,i}) + u_{t,i}, \qquad (1)$$

where $y_{Tt,i}$

where $y_{Tt,i}$ refers to the real GDP per capita in the last year of period t (t = 1,2,3,4 stands for each of the subperiods described above) for country i, $y_{0t,i}$ refers to the value of real GDP per capita in the initial year of period t and

1 *A minimum amount of eight years seems reasonable for studying long-term growth features, because thus business cycle fluctuations are eliminated.*

n_t is the number of years in period t. Equation (1) has been estimated based on different assumptions for the error term, and the results are presented in table 1.[1])

Table 1

Unconditional β-Convergence in the EU

	Common Intercept	Fixed Effects (one way)	Fixed Effects (two way)
β	−1.91*** (0.20)	−3.02*** (0.37)	−4.88*** (1.41)
Observations	56	56	56
R^2_{adj}	51.3%	62.3%	62.4%

Source: OeNB.
*Note: ***(**)[*] stands for 1% (5%) [10%] significant.*

The first column shows the result for the assumption that the error term is independent of the cross-sectional units (countries) and iid normal (that is, the panel is estimated as if it were a cross-country regression). The second column shows the results for the assumption of fixed country effects, that is,

$$u_{t,i} = \mu_i + \epsilon_t, \tag{2}$$

where μ_i is a country-specific constant and ϵ_t is white noise. Finally, the third column shows the estimated β under the assumption of fixed country and time effects, that is,

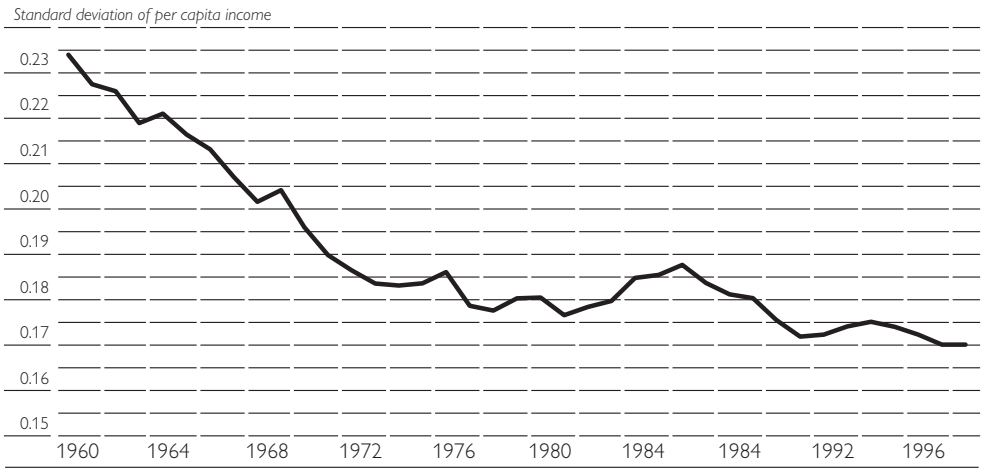
$$u_{t,i} = \mu_i + \lambda_t + \epsilon_t, \tag{3}$$

where μ_i and ϵ_t are defined as above, and λ_t is an exclusively time-dependent constant effect.

Chart 3

Real GDP per Capita Dispersion

EU-15 1960 to 1998



Source: World Bank.

1 *Throughout the study, Luxembourg was excluded from the estimations for two reasons: It is typically considered an outlier, and no data on average education years are available for this country in Barro and Lee (2001).*

All specifications reported in table 1 point toward the existence of very significant unconditional β-convergence across the current EU members for the period 1960–98.

Chart 3 shows the evolution of the cross-country coefficient of variation of per capita GDP for the period 1960–98. By visual inspection the trend is clearly decreasing, indicating σ-convergence. Whether the standard deviation in the final period is significantly different from that of the first period can be investigated using the test developed by Carree and Klomp (1997). The result indicates σ-convergence.

3 Growth and EU Membership

3.1 The Basic Model and Some Extensions

In order to study explicitly the determinants of long-term growth in Europe in the last four decades, equation (1) will be extended by including an augmented set of explanatory variables. The obvious candidates to form part of the group are those variables which are explicitly implied by economic theory and which have been used in virtually every empirical study on economic growth: the initial (log) level of per capita GDP (evaluated in our case at the first year of each subperiod), the investment rate (subperiod average) and some proxy for human capital (average years of education of population over 25, evaluated in the first year of the subperiod).[1])

Together with these basic variables others which are considered to be relevant to economic growth have been included in the econometric specification. The specification in which all the estimated models presented in table 2 are nested is:

$$\begin{aligned}[ln(y_{Tt,i}) - ln(y_{0t,i})]/n_t = \beta_1 ln(y_{0t,i}) + \beta_2 INV_{t,i} + \beta_3 ED_{t,i} + \\ \beta_4 INF_{t,1} + \beta_5 GOV_{t,i} + \beta_6 OP_{t,i} + \beta_7 YEA_{t,i} + u_{t,i},\end{aligned} \tag{4}$$

where $ln(y_{0t,i})$ is the (log) initial GDP per capita of country i in subperiod t, $INV_{t,i}$ is the investment rate, $ED_{t,i}$ refers to the years of education, $INF_{t,i}$ is the subperiod-average inflation rate, $GOV_{t,i}$ is government consumption over GDP, $OP_{t,i}$ is openness of the economy defined as trade over GDP, and $YEA_{t,i}$ is the average length of EU membership (in years) for country i in subperiod t.[2]) The error term $u_{t,i}$ is assumed to be composed by a constant country-specific effect and a common constant time effect, although in the estimation the latter will only be included if found significant.

1 *Empirical studies dealing with a more heterogeneous set of countries tend to include population growth as an explanatory variable. In our case, the variable appeared insignificant in every specification in which it was included and was therefore not added to the set of explanatory variables. The same occurred when a sociodemographic variable like female participation in the labor market was used. A possible explanation of the lack of significance of labor participation would be the high correlation between this variable and initial GDP.*

2 *For Germany we use data for West Germany until 1991, and for the unified Germany from 1991 onwards. Initially, an additional dummy variable was included in order to account for the German unification, but it appeared insignificant in all specifications.*

Table 2

Growth Panel Data Regressions

Model	1		2		3		4	
Initial GDP	−5.60***	(1.44)	−3.80***	(0.53)	−4.73***	(0.73)	−4.74***	(0.76)
Investment Rate	0.13**	(0.05)	0.13***	(0.04)	0.17***	(0.04)	0.18***	(0.04)
Years of Education	0.12	(0.10)	0.22	(0.16)	0.34**	(0.16)	0.35**	(0.16)
Inflation Rate			−0.12***	(0.02)	−0.11***	(0.02)	−0.11**	(0.03)
Government Consumption			−0.06	(0.08)	−0.01	(0.10)		–
Openness			0.06**	(0.03)	0.06**	(0.03)	0.06**	(0.03)
Years in the EU					0.04*	(0.02)	0.04**	(0.01)
Observations	56		56		56		56	
R^2_{adj}	63.8%		76.3%		77.1%		77.7%	

Source: OeNB.
*Note: All EU countries except Luxembourg included (data for West Germany until 1991, unified Germany afterwards), with data ranging from 1960 to 1998, divided into four periods: 1960-1970,1971-1980, 1981-1990 and 1991-1998. White heteroskedasticity/serial correlation-corrected standard errors in parenthesis. Fixed effects estimation with period-specific time dummies included if jointly significant. ***(**)[*] stands for 1% (5%) [10%] significant.*

Table 2 shows the results of the estimation of the different specifications of our growth model.

In a first step, growth is regressed on initial GDP, the investment rate and the years of education. All coefficients in the first column have the expected signs. Growth depends negatively on initial GDP, indicating β-convergence. The investment rate enters positively (see for example Barro, 1991; Levine and Renelt, 1992). Turning to education, most authors find that the overall level of education is growth enhancing (see for example Barro, 1991).[1]) Our positive coefficient for the average years of education seems to support this result, although it is not significant at the 10% level. A similar result is found, for example, by Levine and Renelt (1992).

In a second step, the inflation rate, government consumption over GDP and openness of the economy are added to the model as variables. The inclusion of these three variables does not change the signs of the first three factors, as can be seen in the second column. Inflation enters the equation with a negative sign, indicating the growth-hampering effect of high increases in the price level (for a detailed study on this relationship, see Barro, 1995). The minus sign of the coefficient for the government consumption ratio implies a negative relationship between government expenditure and growth. Other empirical studies, for example Barro (1991) and Barro (1997), also found this result. The intuition is that government spending has only a temporary influence on growth while in the long run, the growth-hampering impact of high debt levels as a consequence of excessive government spending as well as possible allocative inefficiencies predominate. In our case, however, the coefficient is not significant (a result also found by Levine and Renelt, 1992). Finally, the coefficient for the openness of the economy is significant and shows the expected positive sign, supporting the view that trade stimulates growth. This result is also found by Harrison (1995) and Sachs and Warner (1995).

In the final step, the model is modified by inclusion of the subperiod-average number of years since a country's accession to the European Union. Notice that the trade variable already controls for openness, so the EU membership variable

1 *There is, however, some indication that primary education has a negative impact on growth; see, for example, Barro (1997).*

will reflect growth effects of regional integration different from those directly related to trade.[1]) The positive and significant coefficient in column 3 indicates that the longer a country has been a member of the EU, the more it profits from membership. The inclusion of this new variable leaves the signs of the other coefficients unchanged. The coefficient for education is still positive, but it is now significant at the 5% level. This extended model explains 78% of the variation in growth.

To check for robustness, the model is also estimated without government consumption, as the coefficient proved insignificant in models 2 and 3. However, the other coefficients remain practically unchanged, some of them becoming even more significant. This strengthens the robustness of our previous results.

The effect represented by the coefficient of the variable $YEA_{t,i}$ affects only countries that have been members of the EU for at least one year in a given subperiod. It could be the case, however, that a larger, regionally integrated space has an effect also on the growth rates of countries that do not form part of it yet. In order to check for this possibility and to shed a light on whether membership is actually required for gaining growth benefits from regional integration, the model was reestimated by replacing $YEA_{t,i}$ with a scale variable common to all countries but variable in time, which captures the size of the regionally integrated unit. We used three different specifications of the scale variable (aggregate population, aggregate GDP and aggregate labor force), and the coefficient always appeared positive, but insignificant. Therefore, the growth benefits associated with regional integration seem to be due to formal participation in the EU.

Another objection to our conclusion could be that it is not EU membership itself that enhances growth, but that the accompanying stability measures for nominal macroeconomic variables had a positive impact on growth performance. Partly this was already accounted for by including the inflation rate as an explanatory variable. To check in addition for the impact of a potential decrease in the exchange rate volatility caused by EU membership, the standard deviation of the exchange rate against the U.S. dollar for each country was included as an additional independent variable. However, its coefficient appeared insignificant in all specifications. This indicates that exchange rate policy does not explain the existence of a growth bonus associated with EU membership.

To sum it up, our model so far explains a considerable part of the variation in growth, and the results strongly support the hypothesis of (conditional) β-convergence: poorer countries have caught up with the richer ones since the 1960s, and the rate of convergence is found to be between approximately 3.5 and 5.5%, depending on the specification used.[2]) Furthermore, the coeffi-

1 *The fact that our openness variable is defined as trade over GDP implies that trade-related technology absorption is already partly captured by the positive coefficient for* $OP_{t,i}$. *This is expected to actually reduce our coefficient for the impact of the EU membership variable and reinforces the importance of technological spillovers as a driving force for growth.*

2 *The rate of convergence has been computed as* $\lambda = -[1 - \exp(\beta T)] / T$, *where* β *is the coefficient corresponding to initial GDP per capita, and T is the subperiod length. The expression for* λ *results from the log linearization around the steady state in the classical Solow model.*

cients support the hypothesis of a positive impact of investment, education and openness on growth, as well as a negative impact of high inflation rates. Finally, the results not only point toward a growth-enhancing effect of EU membership, but they also show that this effect gained importance over the duration of membership.

3.2 Who Profits Most from EU Membership?

One interesting extension to the basic models is to look in more detail at the finding that EU membership is growth enhancing and furthermore becomes even more so the longer a country belongs to the grouping. A particularly interesting question is whether a subgroup of countries profited more from EU membership than other countries. The idea is to divide the sample of countries into subsets with respect to one of the other variables and to investigate whether the coefficient for the years of membership differs significantly across subgroups.

One basic way to do that would be to split the sample according to rules defined a priori. For example one could define poor, medium and rich countries by setting the borderline income levels. The threshold panel data technique, however, offers a more neutral approach. It allows to test whether such subgroups can be found at all and how many subsets are appropriate. Furthermore, it estimates explicitly the borderline income levels. The main advantage of this approach is that it avoids ad hoc definitions of subgroups, but tests the hypothesis of the existence of subsets against the alternative of no division of the sample.

In our extension of the basic model we test whether countries with a lower initial per capita income level profited more or less from EU membership than more developed countries. If subsamples according to initial income levels can be identified and the coefficient for the years of EU membership is significantly higher for initially poorer countries, this would be an indication of increased economic convergence as a consequence of European integration. If, however, we get the opposite result, this would indicate that the initially richer countries are also the ones which profit most from intensified economic involvement.

Table 3 gives the results of the threshold estimation, and table 4 presents the parameter estimates of the threshold model.[1]) The estimation procedure identifies exactly one threshold at a level of (log) initial GDP per capita equal to 9.8 (approximately USD 18,000). A 95% confidence interval around

Table 3

Testing for Linearity

	Single Threshold	Double Threshold		
	$\hat{\gamma}$	$\hat{\gamma}_1$	$\hat{\gamma}_2$	
Initial GDP per-capita (logged)	9.80	9.25		9.80
Bootstrap p-value	0.027		0.169	

Source: OeNB.
Note: Bootstrap p-values based on 1,000 replications. Threshold values found by grid search in the central 50% of the distribution of the threshold value.

1 *For literature on the threshold panel data estimation, see for example Baltagi (1995), Hansen (1996), Hansen (1999) and Andrews and Ploberger (1994).*

Table 4

Threshold Panel Data Regressions

Model	1 T	2 T
Initial GDP	−4.09*** (0.68)	−4.47*** (0.65)
Investment Rate	0.14*** (0.04)	0.16*** (0.03)
Years of Education	0.17 (0.14)	0.20 (0.13)
Inflation Rate	−0.13** (0.03)	−0.13*** (0.03)
Government Consumption	−0.05 (0.09)	–
Openness	0.05** (0.02)	0.05** (0.02)
Years in the EU × $I(y_{0t} \leq \hat{\gamma})$	0.09*** (0.02)	0.09*** (0.02)
Years in the EU × $I(y_{0t} \geq \hat{\gamma})$	0.04*** (0.01)	0.04*** (0.01)
Observations	56	56
R^2_{adj}	83.2%	83.4%

Source: OeNB.

the threshold estimate computed using the empirical likelihood function is [9.70, 9.81]. The test for linearity rejects the null of no threshold effect at a 5% significance level, and the null of one threshold cannot be rejected when tested against the alternative of two thresholds.

Looking at the original data set, we see that at the beginning of our sample, that is in 1960, all countries had an initial income level below the threshold. In 1970 Denmark and Sweden had broken through the threshold. Ten years later, six more countries had followed and only the incomes of Greece, Ireland, Italy, Portugal, Spain and the United Kingdom remained below the threshold. In 1991, finally, the income levels in Italy and the UK exceeded the threshold income level, so that the subgroup of less developed countries was now limited to the classical catching-up countries Greece, Ireland, Portugal and Spain. Towards the very end of our data set, the income level of Ireland, which recently experienced two-digit growth rates, exceeded the threshold level.

The next step is to divide the sample in each period according to this threshold and rerun the panel regressions. The results are shown in table 4, where we now have a separate coefficient for the length of EU membership for each subgroup. The coefficient for the years of EU membership is positive and significant for both subgroups. Furthermore, we find that the coefficient differs significantly across groups and is significantly higher for the countries with lower initial income levels. All the other coefficients show the expected signs. The new model, which splits the countries into two subgroups according to their initial income levels, explains around 83% of the variation in growth.[1])

Hence, while countries with a higher level of development grew faster the longer they were members of the EU, this effect is even more pronounced for the subgroup of less advanced countries.[2]) This finding can be interpreted as another indication for a catching-up process of poorer towards richer countries in Europe in the sense that with two countries entering the EU at the same point

1 *To check for robustness the model was reestimated using Switzerland as an external control country. The coefficients remained similar in terms of sign, range and significance. The goodness of fit, furthermore, improved considerably. The results are not reported in the tables and are available upon request from the authors.*

2 *The exercise was repeated using the relative level of GDP per capita with respect to the average of current Member States as a threshold variable. However, the test for linearity could not reject the null of linearity at any reasonable significance level. This suggests that it is the absolute level of development of the country that determines the asymmetric effect of EU membership on long-term growth.*

in time the growth bonus is larger for the less advanced country.[1]) Not only do our results show that countries with lower initial incomes grew faster than the more advanced countries (β-convergence), the estimates also imply that countries that exhibit per capita income levels below the threshold profit more from long-term EU membership than richer countries.[2])

4 Conclusions and Prospects for Further Research

The empirical study performed in this paper shows that EU membership has had a positive and asymmetric effect on long-term economic growth. As the model specification uses openness as a control variable, the growth effect picked up by the regional integration variable differs from that resulting from intensified trade and would relate to the improvements in the transmission of technological knowledge among the EU Member States. The results may be seen as constituting new empirical support for the endogenous growth theory and would imply that it is the relatively less developed countries that profit most from access to the broader technological framework offered by the regionally integrated unit.

However, one could argue that technology is not the only factor explaining the growth bonus associated with EU membership. One argument that may also be used to interpret the results relies upon the assumption that financial help from the EU to relatively poorer members actually does have an effect on long-term growth. In fact the EU budget generated major net financial transfers to the four cohesion countries – Greece, Portugal, Ireland and Spain.[3]) In 2000, these net transfers accounted for 3.6% of Greek GNP, 1.9% of Portuguese GNP, 1.8% of Irish GNP and 0.9% of Spanish GNP. To a lesser extent, Finland, Denmark and Italy also showed positive net balances (see European Commission, 2001).

Are these transfers successful? To answer this question, the European Commission runs several macroeconomic models (for an overview see the 6th Periodic Report of the European Commission 1999). The Beutel model, for instance, is used to investigate how much of the economic growth in the Member States covered can be attributed to EU cofunded programs and EU grants. According to the model, EU transfers during the two programming periods (1989 to 1993 and 1994 to 1999) are found to have increased GDP growth in the four cohesion countries by an average of 0.5 percentage point in the first period and 0.7 percentage point in the second period.

As a result, income disparities have been reduced, and the gap in GDP per capita between the four cohesion countries and the rest of the European Union

1 *This, however, does not imply that this growth bonus has actually led to absolute convergence of the EU Member States. The different entry dates and the cumulative nature of the growth bonus has led to several more advanced economies profiting relatively more from integration.*

2 *In order to check whether the effect – or absence of the effect – of government consumption on growth differs depending on the absolute level of government consumption in a country, we checked the results for the inclusion of an extra threshold effect on the parameter of government consumption, with the level of government consumption itself as a threshold variable. The test, however, was not able to reject the null of linearity at any sensible significance level.*

3 *The Cohesion Fund was established in 1993, after the Mediterranean countries Greece (1981) and Spain and Portugal (1986) had joined the European Union. Cohesion countries are EU member countries whose GDP per capita is lower than 90% of the EU average.*

has narrowed (the average GDP per capita in the four cohesion countries went up from 65% of the EU average in 1986 to 78% in 1999). The overall result of a number of macroeconomic models is that one third of the reduction in disparities is due to the Structural Funds (Moucque, 2000). Therefore EU transfers should be taken into account when analyzing the process of convergence. However, the nonavailability of proper time series has prevented an implementation of such a variable into our model so far.

Fölster and Henrekson (2001) find a robust and negative relationship between government size and economic growth. This could provide another possible explanation for our result that EU membership had a positive impact on growth, as due to liberalization measures inherent to the integration process the size of the government in EU Member States has decreased rapidly in the last decades. Possible other sources of the growth bonus could be the stabilization of expectations in the context of the European Exchange Rate Mechanism or the preparations for monetary union. The dollar exchange rate, which was implemented into our model without any significant result, can be seen as only a first step to cover this exchange rate effect.

Another possible source of the growth bonus are the changes in the institutional framework due to European integration. Whereas the completion of the internal market or, in other words, the openness of the countries is covered more or less by the trade variable, there are other developments which could also play a role. Examples are the legal and the institutional framework of the financial sector, the scale and the nature of foreign direct investment, transport infrastructure and the efficiency of public administration.

To sum it up, the uncertainty surrounding the nature of the underlying driving factors only allows for a rejection of the basic neoclassical growth model. Further research would have to be done, however, to test the empirical validity of the endogenous growth model, as the fact that technological spillovers do indeed drive our result cannot be extracted directly from our study.

One interesting question would be whether our results allow implications about the EU enlargement process. In terms of pure GDP per capita levels, some countries (Slovenia, the Czech Republic, Hungary and Slovakia) have already reached a GDP per capita level (in percent of the EU-15) which is similar to or even above the one Greece showed at its EU entry in 1981. But as our study is based on historical data for the current EU Member States, we cannot directly apply the findings to the potential accession countries. The structural and institutional differences in these economies as compared to the current Member States are sometimes huge, and even the fact that the income levels of all candidate countries currently lie below our estimated threshold does not allow for the conclusion that these countries will indeed profit more than average from EU membership. Additionally, one should take into consideration that these economies not only undergo an accession, but also a transformation process. This also limits the applicability of our results.

Finally, let us draw some policy conclusions. There seems to be a growth bonus associated with formal EU membership. Our model indicates the presence of knowledge spillovers, so it is not only trade that matters. This growth bonus gains importance over time, underpinning the fact that European integration is a long-term concept and, even more importantly, that the growth

bonus in the EU is still working. Additionally, we have found an asymmetric effect on long-term growth, so obviously European integration drives convergence. The results fit into the picture that nominal and real convergence stand next to each other as equal goals of the EU and are being successfully pursued.

References

Andrews, Donald W. K. and Werner Ploberger. 1994. Optimal Tests when a Nuisance Parameter is Present only under the Alternative. Econometrica 62: 1383–1414.

Badinger, Harald. 2001. Growth Effects of Economic Integration – The Case of the EU Member States (1950–2000), Research Institute for European Affairs Working Paper 40. University of Economics and Business Administration Vienna.

Baltagi, Badi H. 1995. Econometric Analysis of Panel Data. John Wiley & Sons, Chichester.

Barro, Robert J. 1991. Economic Growth in a Cross Section of Countries. Quarterly Journal of Economics 106 (2): 407–443.

– 1995. Inflation and Economic Growth. NBER Working Paper Series 5326.

– 1997. Determinants of Economic Growth: A Cross-Country Empirical Study. Harvard Institute for International Development Discussion Papers 579.

Barro, Robert J. and Jong-Wha Lee. 2001. International Data on Educational Attainment: Updates and Implications. Oxford Economic Papers 53: 541–563.

Barro, Robert J. and Xavier Sala-i-Martin. 1992. Convergence. Journal of Political Economy 100 (2): 223–251.

Carree, Martin and Luuk Klomp. 1997. Testing the Convergence Hypothesis: A Comment. The Review of Economics and Statistics 79 (4): 683–686.

De Melo, Jaime, Claudio Montenegro and Arvind Panagariya. 1993. L'integration regionale hier et aujourd'hui. Revue d'Economie du Developpement 0 (2): 7–49.

Durlauf, Steven N. and Danny T. Quah. 1999. The new empirics of economic growth. In Taylor, John B. and Michael Woodford, eds. Handbook of Macroeconomics Volume 1A. Amsterdam: North-Holland: 235–308.

European Commission. 1999. The European regions: sixth periodic report on the socio-economic situation in the regions of the European Union. Official Publication Office, Luxembourg.

– 2001. Allocation of 2000 EU operating exenditure by member states. European Commission, Budget, Own Resources, evaluation and financial programming.

Fölster, Stefan and Magnus Henrekson. 2001. Growth Effects of Government Expenditure and Taxation in Rich Countries. European Economic Review 45: 1501–1520.

Hansen, Bruce E. 1996. Inference when a Nuisance Parameter Is Not Identified under the Null Hypothesis. Econometrica 64: 413–430.

– 1999. Threshold Effects in Non-Dynamic Panels: Estimation, Testing, and Inference. Journal of Econometrics 93: 345–368.

Harrison, Ann. 1995. Openness and growth: A time series, cross-country analysis for developing countries, NBER Working Paper Series 5221.

Henrekson, Magnus, Johan Torstensson and Rasha Torstensson. 1997. Growth Effects of European Integration, European Economic Review 41 (8): 1537–1557.

Landau, Daniel. 1995. The Contribution of the European Common Market to the Growth of its Member Countries: An Empirical Test. Review of World Economics 131 (4): 774–782.

Levine, Ross and David Renelt. 1992. A Sensitivity Analysis of Cross-Country Growth Regressions. American Economic Review 82 (4): 942–963.

Moucque, Daniel. 2000. A Survey of Socio-Economic Disparities between the Regions of the EU. In Regional Convergence in Europe: Theory and empirical evidence. EIB Papers 5 (2): 13–24.

Romer, Paul Michael. 1990. Endogenous Technological Change. Journal of Political Economy 98: S71–S102.

Sachs, Jeffrey D. and Andrew M. Warner. 1995. Economic Reform and the Process of Global Integration. Brookings Papers on Economic Activity (1): 1–118.

Sala-i-Martin, Xavier. 1996. Regional Cohesion: Evidence and Theories of Regional Growth and Convergence. European Economic Review 40: 1325–1352.

Solow, Robert M. 1956. A Contribution to the Theory of Economic Growth. Quarterly Journal of Economics 70: 65–94.

Vanhoudt, Patrick. 1999. Did the European Unification Induce Economic Growth? In Search of Scale Effects and Persistent Changes. Review of World Economics 135 (2): 193–220.

Selected Aspects of Monetary Integration

Iikka Korhonen[1])

1 Introduction

In this paper I estimate monetary conditions indices (MCIs) for three fairly large EU accession countries: the Czech Republic, Poland and Slovakia. The purpose is to assess the relative importance of interest rates and of the exchange rate in the transmission mechanism of monetary policy. This question is particularly pertinent for countries wishing to join the euro area relatively soon. If the exchange rate is an important determinant of monetary conditions, joining Economic and Monetary Union may entail major adjustments in the economy. It is possible that the structural changes brought about by joining Monetary Union change the way monetary transmission works. The economy would adjust over time to the new situation in which the exchange rate cannot be used as a monetary policy instrument. Monetary policy would no longer need to react to sudden exchange rate movements, which may increase stability (if the common interest rate policy is otherwise suitable for the country in question).

The MCIs derived for the accession countries can be used at least in two ways. They can be compared with those of the euro area countries before they joined Monetary Union. If the relative importance of interest rates and exchange rates is similar in the present accession countries to what it was in the present euro area countries before their entry into Monetary Union, the required changes in the economy may not be very big. Also, since the accession countries will not be able to join Monetary Union immediately, it is of interest to assess the relative importance of interest rates and of the exchange rate in the monetary transmission mechanism.

It is found that the MCIs determined for the three accession countries are roughly comparable to those calculated for the present euro area countries. MCI ratios for the Czech Republic and Slovakia indicate that their economies are perhaps not as open (and hence not as dependent on exchange rates) as could have been expected. For Poland, the calculated MCI ratio implies a large degree of openness and a greater importance of the exchange rate in the transmission of monetary policy. Obviously, these results may depend on the exchange rate regimes implemented in the respective countries.

The paper is structured as follows: In the second section I briefly review the concept behind the monetary conditions index. Next I examine the available data and calculate the MCIs for the three countries under review. Then I briefly compare the obtained results with previous research on MCIs in the euro area countries. The fifth section provides some concluding remarks.

2 Monetary Conditions Indices

Monetary policy affects the level of economic activity through a variety of channels. Usually four channels are identified: transmission through interest rates, effects stemming from changes in exchange rates, effects on other financial assets, and the so-called credit channel (Mishkin, 1995). Higher interest rates lead to a decline in capital accumulation (both of enterprises and households), which in turn translates into lower total output. It is generally assumed that higher interest rates ceteris paribus appreciate the domestic exchange rate. An appreciated exchange rate hurts the competitiveness of domestically

1 *BOFIT, Bank of Finland Institute for Economies in Transition.*

produced goods and as a consequence, net exports decline. Again, this leads to lower total output. Interest rate changes can affect the prices of many financial assets, which, in turn, may have an impact on investment spending, for example. Changes in asset prices can also alter households' wealth, which then affects their spending decisions. The credit channel of monetary policy becomes effective through banks. First, if monetary policy is contractive, banks' reserves fall and they will reduce their lending activities. Second, higher interest rates tend to lower the net value of companies. Therefore enterprises can pledge less as collateral to lenders (banks or other institutions), which will result in reduced borrowing, especially if moral hazard is a problem. As companies' borrowing decreases, so does their investment activity.

The effects of monetary policy decisions on economic activity and inflation are of obvious interest to central banks. If a central bank can exert at least some influence on both (short-term) interest rates and the exchange rate, the question of their relative effects on the economy becomes pertinent. It would be interesting to know, for example, by how much the exchange rate would appreciate if interest rates were 1 percentage point higher, for example. The effect of the exchange rate is obviously more important the smaller and more open an economy is. The monetary authority must also decide how to react to changes in the exchange rate if the interest rate is its main instrument.[1]) One way to measure the stance of monetary policy is the so-called monetary conditions index (MCI). Usually the MCI measures how changes in interest rates and in the exchange rate (even if the monetary authority does not control or manage the exchange rate) affect output and/or inflation. Following Mayes and Virén (1998), we can define the MCI as

$$MCI_t = \sum_s w_s(P_{st} - P_{s0}).$$

Here, P_s are variables related to the respective monetary policy instrument (usually only the interest rate and the exchange rate) affecting economic activity. Therefore, output can be written as a function of P_s (and other relevant variables X), $Y = f(P_{1t,}..., P_{st}, X)$. Weights w_s of the MCI will be computed from partial derivatives of f with respect to the instrument in question, taking into account the dynamic structure of the model.

The level of the MCI itself is of course quite unimportant, as it is completely arbitrary. More important are the relative effects of the exchange rate and interest rates on economic activity, e.g. the ratio of impact through the exchange rates and impact through the interest rates. This ratio is commonly known as the MCI ratio. A ratio of – for example – 3 implies that a 3% change in the exchange rate corresponds to a 100 basis point change in the interest rate. Therefore, a high value of the MCI ratio implies that the exchange rate has relatively less impact on the economy. Consequently, one would expect to find larger values of the MCI ratio in larger, less open economies. Mayes and Virén (1998) summarize a number of studies on MCI ratios and find that in smaller and more open economies the ratio is often between 2 and 4, whereas in the

1 *A central bank may also have other instruments, and their relative importance could be assessed in the same way. In practice, other potential instruments are usually ignored in analysis.*

U.S.A. and Japan it is closer to 10. Interestingly for our case, in their own study they find MCI ratios of around 1 to 5 in most EU countries prior to Monetary Union, using the real exchange rate of the Deutsche mark. However, their (and others') MCI estimates are quite sensitive to the exact specification of the model used, which cautions us against making any firm conclusions based only on one set of results.

Several central banks have used the MCI as an indicator of the monetary stance (Gerlach and Smets, 2000). Among these are the Bank of Canada, the Reserve Bank of New Zealand[1]) and also the Bank of Finland, which have all made use of the MCI as a monetary policy indicator.

3 Data Description

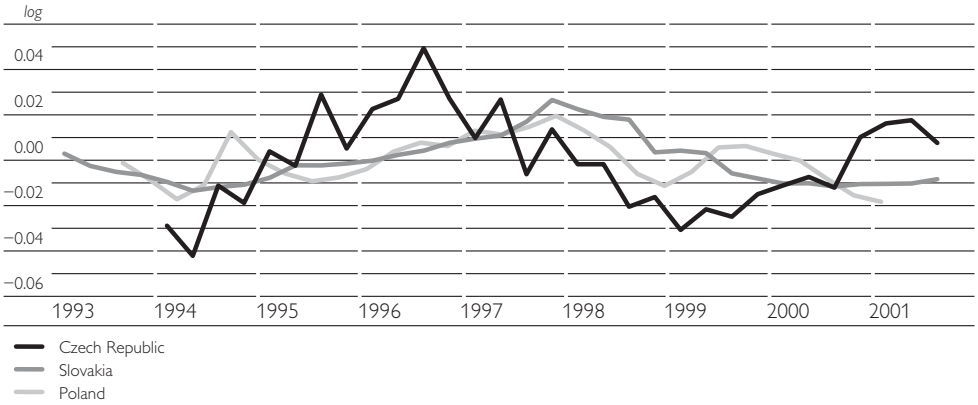
I use quarterly data for this estimation, starting from the first quarter of 1994 (earlier for some variables) and running until mid-2001. Basically, the estimation proceeds as in Mayes and Virén (1998), i.e. I estimate an IS curve for these countries. Using the same procedure allows a direct comparison with their estimates of the MCIs for the euro area countries before Monetary Union was established.

Quarterly GDP data were collected from national statistical authorities. The dependent variable in the empirical estimations is the output gap. Trend output is calculated by applying the Hodrick-Prescott filter to the logarithm of seasonally adjusted GDP series. The output gap is then calculated as the difference between actual output and trend output, i.e. a positive value means that the output is above its trend level. Other variables are taken from the IFS data base. Inflation is measured by the change in the logarithm of the consumer price index, and the measure used for interest rates is the central bank's key interest rate. The real effective exchange rate is taken directly from the IFS data base and it is defined so that an upward movement means an appreciation. The IFS data base reports the real effective exchange rate as an index where the average value of 1995 is taken to be 100. I use the natural logarithm of this index in the empirical specification. The real interest rate is defined as the ex post realized real interest rate, as we have no data on inflation expectations and consequently no way of measuring the ex ante expected real interest rate, which would obviously be more correct from a theoretical point of view.

1 *For an exposition of MCI in New Zealand, see Nadal-De Simone et al. (1996).*

Chart 1

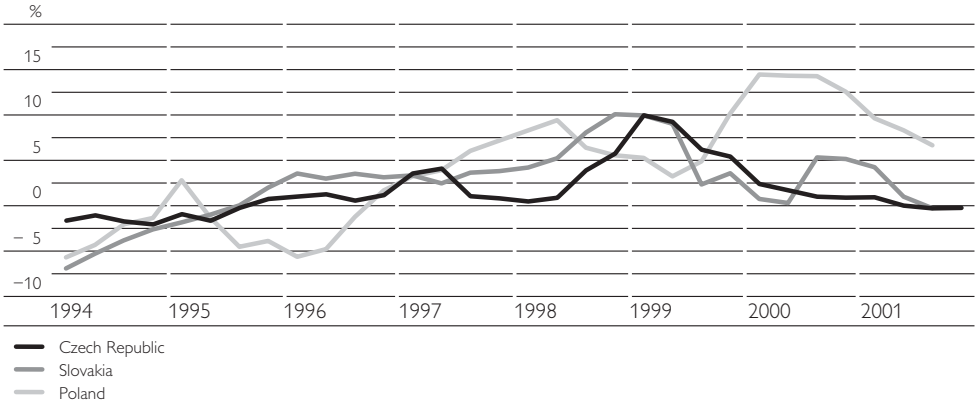
Output Gap



Source: Bank of Finland.

Chart 2

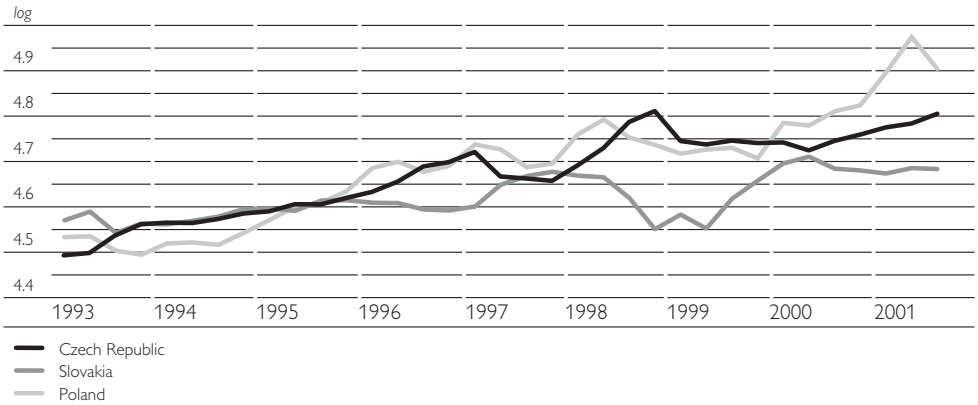
Real Interest Rates



Source: IMF, Bank of Finland.

Chart 3

Real Effective Exchange Rates



Source: IMF, Bank of Finland.

Charts 1 to 3 show the output gap, the real effective exchange rate and real interest rates. It is obvious that the output gap is by construction stationary, and there is no reason to suppose that real interest rates would follow a random walk, either. However, in all three countries the real effective exchange rate has clearly appreciated during the period under review. Statistical tests reveal that the zero hypothesis of a unit root cannot be rejected. Therefore the series would have to be differenced once to be rendered stationary. Alternatively, if one assumes that the observed trend appreciation of the real effective exchange rate is an equilibrium phenomenon, deviations from trend could be used as the exchange rate variable. In practice, experiments with both first differences and deviations from trend yielded no sensible results, and consequently these specifications were dropped, although using the nonstationary variable in the regression is not satisfactory from a theoretical point of view. On the other hand, using the level of the real exchange rate is consistent with other studies calculating MCI ratios.

4 Calculated Monetary Conditions Indices

MCIs and MCI ratios are calculated with the help of estimated IS curves. Real variables are used for the estimation, with the output gap being used as the dependent variable. The output gap is constructed for each country with the help of the Hodrick-Prescott filter, with the bandwidth parameter set to 1600, as is customary with quarterly time series. The output gap in turn is explained by its own lags and the lags of real interest rates and the real exchange rate. I also tried to add the output gap for EU Member States, but either it did not come out as significant or it was the only statistically significant variable, rendering the whole exercise pointless. Therefore I report only regressions without the EU output gap.

Table 1 reports estimations for the IS curves and calculated MCI ratios, including the level of the real effective exchange rate. In practice, estimations were started with four lags of all variables. The lag length of the individual variables was reduced one by one until the longest retained lag length was statistically significant, at a level of 10%, but in a way that at least one lag per specification was retained. One or two lags of interest rates and exchange rates were usually significant. In general, diagnostic tests for the regressions indicated no problems, despite the nonstationarity of the exchange rate variable.

Results for the Czech Republic are well in line with similar studies for other small, open economies. Both the exchange rate and interest rates are relevant for output. The Czech Republic's MCI ratio is quite low (2.7), implying that the relative effect of the exchange rate on output is quite high. On the other hand, the exchange rate for Slovakia seems to be clearly less important than domestic interest rates. However, since our sample period is so short, results could be driven by a small number of observations. For example, the real effective exchange rate of Slovakia depreciated markedly after the final quarter of 1998, as the currency was allowed to float. This step was preceded by a short period of strong appreciation, which was associated with a strong economic boom in Slovakia.

In Poland, the results are also somewhat perplexing. The MCI ratio comes to only 0.3, implying a very small economy where the exchange rate has large

effects on output. Again, there are several possible explanations for this result. Poland had some sort of an exchange rate peg for almost the entire sample period, which may have made the domestic economy more responsive to exchange rate changes. Also, the widespread use of other currencies in the domestic economy may produce similar results.

When comparing my results for three accession countries with those of Mayes and Virén (1998), I notice that in their estimations MCI ratios also differed widely across countries. The MCI ratios calculated for the Czech Republic and even for Slovakia are comparable to Mayes and Virén's estimates for the present euro area countries. Therefore, giving up their own currencies and joining Monetary Union would presumably not be any more difficult than it was for the current participating Member States. For Poland, the situation might be different if the exchange rate is truly as important for the Polish economy as my MCI ratio suggests. However, since I present only first estimates of MCI ratios and since the data sample is by necessity limited, these calculaotions must be taken very cautiously.

Table 1

Estimated IS Curves

Country (lags)	Y_{t-1}	Y_{t-2}	rr_{t-k}	re_{t-k}	R^2	MCI ratio
Czech Republic (1,2)	0.188 (1.080)	0.425 (2.550)	−0.175	−0.065	0.72	2.7
Slovakia (1,2)	0.985 (11.000)	–	−0.490	−0.002	0.88	23.1
Poland (1,1)	0.679 (4.900)	–	−0.008	−0.025	0.72	0.3

Source: Bank of Finland.
Notes: Y_t stands for the output gap, rr_t for the real interest rate, and re_t for the real effective exchange rate. For rr and re, the reported coefficients are calculated as the sum of all lags of the variable. The numbers in parentheses below the country name refer to the lag length of rr and re, respectively. Longer lags than two for the output gap itself are not reported.

5 Concluding Remarks

In this paper, I present a first attempt to calculate monetary conditions indices for three EU accession countries: the Czech Republic, Poland and Slovakia. It was found that for the Czech Republic, our calculations are well in line with related research on small OECD countries. More specifically, results do not differ from those obtained earlier for the present euro area countries. For Poland, the results indicate a surprisingly large influence of the exchange rate on output developments, which may be due to the exchange rate policy pursued during the 1990s. Also, the use of foreign currencies in domestic transactions may have increased the exchange rate's relative importance.

However, because of the limited time series I have at my disposal, my results must be treated with extreme caution. Obviously, further work on the issue will have to be conducted.

References

Gerlach, Stefan and Frank Smets. 2000. MCIs and Monetary Policy. European Economic Review 44 (9): 1677–1700.

Mayes, David and Matti Virén. 1998. The Exchange Rate and Monetary Conditions in the Euro Area. Bank of Finland Discussion Paper 27/98.

Mishkin, Frederic M. 1995. Symposium on the Monetary Transmission Mechanism. Journal of Economic Perspectives 9 (4): 3–10.

Nadal-De Simone, Francisco, Richard Dennis and Peter Redward. 1996. A Monetary Conditions Index for New Zealand. Reserve Bank of New Zealand Discussion Paper 96/2.

An Early Warning Model for Currency Crises in Central and Eastern Europe[1])

Franz Schardax[2])

1 Introduction

The large number of financial crises that erupted in the course of the 1990s has ignited great interest in the development of early warning models. At the same time, advances in economic theory suggest that the development of reliable early warning systems for financial crises is likely to meet with considerable difficulties. While empirical studies for broad samples of emerging markets are relatively abundant, rather few investigations have been made for geographically constrained samples. This is particularly true for the Central and Eastern European transition countries (CEECs), where the scarcity of available data imposes additional limitations on empirical research. On the other hand, the ongoing difficult processes of liberalization of capital flows and convergence toward the present EU Member States are likely to pose considerable challenges for the macroeconomic stability of these countries. As a result, tools for the detection of vulnerabilities in these countries could provide an important contribution to the stable macroeconomic development in the region and the smooth integration of candidate countries into the European Union and – finally – into the euro area.

The focus of this study lies on one particular type of disturbances to macroeconomic stability, namely currency crises. In the course of this paper the terms "currency crisis" and "balance of payments crisis" will be used synonymously. As will be outlined in more detail below, the definition of crises used in this paper focuses on discrete events rather than on continuous processes of downward pressure on a currency.

The first section of this paper contains a brief overview of the relevant theoretical literature on this subject and a categorization and discussion of existing empirical studies. Next, the so-called "signal approach," which is strongly associated with the work of Kaminsky, Lizondo and Reinhart (1998), will be applied to a sample of quarterly data from 12 Central and Eastern European transition economies. In this section the aim is to identify the empirical relevance of individual economic indicators for the prediction of currency crises. The selection of these indicators is based mainly on the results of Berg and Pattillo (1998). In a further step the appropriateness of the functional form implicitly embedded in the signal approach will be investigated. On the basis of this analysis, the aim of the subsequent part of this paper is to develop a multivariate probit model incorporating all relevant economic variables simultaneously, with a dummy crisis variable as the regressand. Finally, the predictive power of such a model will be evaluated by a number of statistical tests which provide the basis for the conclusions presented in the final section of the paper.

2 Literature Review

2.1 Theory

Although this paper has an empirical focus, I should like to review very briefly some key insights from the theory of currency crises, as this theory makes some

1 *I am particularly indebted to Alois Geyer and Jesús Crespo-Cuaresma for valuable methodological suggestions. I also would like to thank Andreas Nader for statistical support and Susanne Steinacher for excellent language advice. The views expressed in this paper are those of the author and do not represent the position of the Oesterreichische Nationalbank.*

2 *Oesterreichische Nationalbank, Foreign Research Division.*

important predictions regarding the ability of empirical models to correctly forecast such crises.

The so-called first-generation crisis models, pioneered by Krugman (1979), strongly emphasize economic fundamentals in their explanation of balance of payments/currency crises. According to Krugman (1979), currency crises are the consequence of inconsistencies in economic fundamentals with governmental attempts to maintain a fixed exchange rate peg. In Krugman's model, the root of currency turbulences lies in an excessive expansion of domestic credit used to finance fiscal deficits or to support a weak banking system. A critical assumption is the government's inability to fulfill its financing needs by tapping capital markets, which results in a monetization of deficits. The expansion of money supply leads to downward pressure on domestic interest rates, capital outflows and losses of official reserves. As a result, the currency becomes more vulnerable to speculative attacks. There are a number of extensions to Krugman's (1979) initial model,[1]) but a common feature is that these models explain currency crises by the inconsistency of a fixed peg with domestic policies. Therefore, according to these models, currency crises are predictable.

The difficulties of first-generation models in explaining contagion effects and the occurrence of balance of payments crises in countries with relatively sound fundamentals has led to the development of second-generation models. In this approach, features of speculative attacks are explicitly incorporated. Second-generation models regard currency crises as shifts between different monetary policy equilibria in response to self-fulfilling speculative attacks.

According to Kaminsky, Lizondo and Reinhart (1998), a crucial assumption of these models is that economic policies are not predetermined, but respond instead to changes in the economy and that economic agents take this relationship into account when forming their expectations. At the same time, the economic agents' expectations and actions affect some variables to which economic agents respond. This circularity creates the possibility for multiple equilibria; the economy may move from one equilibrium to another without a change in fundamentals. Thus, it may initially be in an equilibrium consistent with a fixed exchange rate, but a sudden worsening of expectations may lead to policy changes that result in a collapse of the exchange rate regime, thereby validating economic agents' expectations. For instance, Obstfeld (1994, 1996) presents models in which a loss in confidence increases the costs of maintaining a fixed peg for the government. In the first model, expectations of a currency crash drive up wages, which negatively affects output. In the second model, higher interest rates increase the government's debt servicing costs. In both models, the government decides to abandon the peg as the cost of maintaining the peg exceeds the cost of abandoning it.

Because of the much more important role of unpredictable changes in market sentiment in this approach, these models suggest that currency crises are very difficult to predict. Nevertheless, economic fundamentals do still play a role.

1 *See e.g. Flood and Garber (1984) and Connolly and Taylor (1984).*

2.2 Empirical Studies

As a result of the great interest in early warning models for financial crises, literature on this subject has become abundant. Vlaar (2000), who provides an excellent methodological comparison of currency crises models, distinguishes three main types of such models: The first type comprises case studies concentrating on specific episodes of financial turmoil. While these models are less geared towards predicting the exact timing of financial crises, they rather aim at explaining their severity. Papers by Blanco and Garber (1986), Sachs, Tornell and Velasco (1996) or Bussière and Mulder (1999) are notable examples for this kind of model class.

A second category of studies, which may be summarized under the label "signal approach," is strongly associated with the work of Kaminsky, Lizondo and Reinhart (1998), Kaminsky (1998), as well as Kaminsky and Reinhart (1999). In their papers, the levels of individual variables, such as the real exchange rate or the export growth rate during a specified period before the outbreak of a crisis, are compared with tranquil periods. A variable is deemed to issue a signal if it exceeds a certain threshold. The threshold is set such that the noise-to-signal ratio (defined as the share of wrong signals that are preceded by tranquil periods divided by the share of correct signals that are followed by crises) is minimized.

The third type of model consists of limited dependent (probit or logit) regression models. In these models, the currency crisis indicator is modeled as a zero-one variable, as in the signal approach. However, unlike in the signal approach, the explanatory variables do not take the functional form of a dummy variable, but enter the model mostly in a linear fashion. Moreover, the significance of all variables is analyzed simultaneously, while the signal approach investigates the relationship between dependent and explanatory variables in a bivariate way. Frankel and Rose (1996), Berg and Pattillo (1998) and Kumar, Moorthy and Perraudin (2002) may be cited as examples of this genre. Vlaar (2000) presents a model which combines elements of the severity of crises and the limited dependent regression approach.

There are a number of advantages and disadvantages that are associated with each methodological approach: While the case study-based papers are able to avoid the need to define crises as discrete events, they focus on crisis times only. As a consequence, they neither incorporate information from tranquil times, nor are they well suited for predicting the timing of a crisis.

The signal approach uses information from crisis and noncrisis times and explicitly takes the timing of crises into account. A major advantage of this method is the evaluation of each indicator's predictive power on an individual basis, which facilitates the establishment of indicator rankings. Moreover, this method is useful for designing policy responses, as the economic variables which issue warning signals can be immediately identified. However, owing to the bivariate character of this approach, the interaction among indicators is not taken into account. A related drawback is the fact that these models do not directly produce a composite early warning indicator that incorporates all available information from individual indicators. Kaminsky (1998) offers a solution to this problem by proposing a single composite early warning indicator that is calculated as a weighted sum of the individual indicators.

In her paper, each indicator is weighted according to the inverse of its noise-to-signal ratio.

Another, possibly problematic aspect of this approach is the implicit assumption of a very specific functional relationship between explanatory and dependent variables. The probability of crises is modeled as a step function of the value of the indicator, taking on a value of zero when the indicator variable is below the threshold and a value of one if the opposite is true. Thus, for instance, these models do not distinguish whether the indicator variable just exceeds the threshold or whether it does so by a wide margin. Finally, the signal approach does not easily allow the application of some standard statistical evaluation methods, such as the testing of hypotheses.

Most of the disadvantages associated with the signal approach are resolved in limited dependent regression models: Results are easily interpreted as probabilities for the outbreak of a crisis, and standard statistical tests are immediately available. Moreover, these models capture the effect of all explanatory variables simultaneously and they are flexible enough to deal with different functional forms for the relationship between dependent and explanatory variables, inclusive of dummy variables. A problem for these models is the fact that the number of crises in the underlying sample is usually very small in comparison with the number of tranquil periods. As a result, the statistical properties of limited dependent regressions are often rather poor.

Most empirical studies dealing with currency crises use a broadly based sample of emerging markets. In some cases industrial countries are included, too, while studies that focus exclusively on a particular region are relatively scarce. A recent example for a regionally focused study is provided by Wu, Yen and Chen (2000), who estimate a logit model for Southeast Asian countries.

Studies which are based on samples with a large number of countries have the advantage of being able to produce very strong results, as they cannot be criticized for using too small or biased samples. However, such studies could produce less reliable warning signals for a specific region that is characterized by common structural features. According to Weller and Morzuch's (2000) results, it seems plausible to assume that the Central and Eastern European transition economies bear some common structural features that affect their proneness to financial crises and differentiate them from other emerging economies. Therefore, an early warning model based entirely on a sample of Central and Eastern European countries could be capable of producing results with a predictive power superior to that of a horizontally diversified sample.

Empirical studies dealing with early warning models for currency crises in Central and Eastern Europe are scarce, mainly for the obvious reason of the shortness of time series. Notable examples include Brüggemann and Linne (1999, 2001) and Krkoska (2001). Brüggemann and Linne (1999, 2001) basically apply the Kaminsky-Lizondo-Reinhart (1998) framework with a few extensions to 13 CEECs and three Mediterranean countries (Cyprus, Malta and Turkey). Krkoska (2001) estimates a VAR model for four countries (Czech Republic, Hungary, Poland, Slovak Republic) with an index of speculative pressure (comprising changes in exchange rates, international reserves and interest rates) as a dependent variable measuring downward pressure on the exchange rate (in a linear fashion).

3 An Early Warning Model for Currency Crises in Central and Eastern Europe

The approach employed in this paper draws greatly from the work of Berg and Pattillo (1998). For a 23-country sample with monthly data covering the time period from 1970 to April 1995, they identify (1) the deviation of the real exchange rate from a trend, (2) the current account, (3) the growth of reserves, (4) the growth of exports, (5) the ratio of M2 to reserves and (6) the growth of the M2-to-reserves ratio as statistically significant variables for explaining currency crises. The budget balance-to-GDP ratio is used as an additional variable in this paper.

In a first step, I analyze the predictive power of these variables according to the signal approach. Next, I run probit regressions on the dummy crisis variable separately for each explanatory variable, but with different functional specifications in order to check whether the dummy variable specification employed in the signal approach or alternative specifications seem more appropriate. Finally, I will present a probit model using the variables mentioned above.

3.1 Data and Definitions

This study uses all available quarterly data from 12 transition countries from the beginning of 1989 up to the end of 2001. Data sources include The Vienna Institute for International Economic Studies' database, the IMF's international financial statistics and the BIS database. However, not all variables and country data exist for the full 1989–2001 period. Mostly, time series start in the first quarter of 1992 and end in the third quarter of 2001. The sample comprises Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, the Slovak Republic and Slovenia. All explanatory variables are measured in percentiles of the country-specific distribution of the respective variable.

In my definition of currency crises, I focus on the following events identified by Brüggemann and Linne (1999) as the beginning of currency crises:

- Bulgaria, January 1997: Hyperinflation and massive depreciation of the lev. Later, currency stability is reestablished by means of a currency board.
- Czech Republic, May 1997: After ten days of heavy pressure on the koruna, the fixed exchange rate regime is abandoned and the koruna is left to float.
- Hungary, December 1994: The government acknowledges the necessity of launching an austerity package in order to correct substantial external and fiscal imbalances after the current account deficit exceeds 9%. Actual measures, which comprise inter alia a 9% one-off devaluation of the forint and the introduction of a crawling peg regime, take effect in March 1995.
- Romania, January 1997: The leu devalues by 20% within one week.
- Russia, August 1998: Forced devaluation of the ruble, switch to a flexible exchange rate regime, moratorium on debt payments.

In addition to these events, the following episodes were defined as currency crises:[1])

- Poland,[2]) February 1992: Having a crawling peg exchange rate regime in place, Poland has to undertake an extra devaluation of the zloty by 10.7%.
- Russia, first quarter of 1994: Following an episode of hyperinflation, the ruble begins to fall sharply against the U.S. dollar: In the course of the first quarter of 1994 the ruble's depreciation amounts to more than 40% relative to the end of the preceding quarter.
- Slovak Republic, October 1998: Abandonment of the fixed exchange rate regime after prolonged downward pressure on the koruna.

There are a few other episodes of sharp falls in Central and Eastern European currencies. However, these events occurred in the early 1990s, a time for which hardly any data are available, and are thus not represented in the sample. Given the crisis definitions listed above, in the following sections the dependent variable always equals one if there is a crisis and zero otherwise. In the regression equations reported below, not only the periods marking the beginning of a crisis were set equal to zero, but also the eight periods preceding the crisis. This procedure, which was successfully applied by Berg and Pattillo (1998), has some important advantages: Provided the signals of a crisis are indeed visible two years before the actual event, this method identifies the optimal model that is able to issue warnings two years in advance. Taking account of the time lag until data are published, the signaling horizon is long enough to take action in response to the predictions of the model. Obviously this also obviates the need to work with lagged variables. From the statistical point of view this procedure strongly increases the number of ones in the sample, which is beneficial for the statistical properties of the model.

3.2 Using the Signal Approach

In the signal approach, an indicator is understood to issue a signal if the level of the indicator exceeds a certain threshold. The threshold, in turn, is defined relative to the percentiles of the country-specific distribution of the indicator. For instance, if the threshold for the current account is set at the 80th percentile, all values of the current account that exceed the 80th percentile in country A would constitute a signal. Obviously, the time horizon between the signal's time of issuance and the outbreak of the crisis needs to be set appropriately: Signals that are sent too early to credibly have any relationship with subsequent crises should be avoided, as should signals that are sent too late to prompt action. In this paper, I opted for a signaling horizon of eight quarters for the evaluation of indicators. An indicator is considered to send a "good signal" if the indicator variable exceeds the threshold and a crisis occurs within the limits of the signaling horizon. Correspondingly, a signal is deemed "bad" if the indicator emits a signal, but no crisis follows during the signaling horizon.

The performance of each indicator can be evaluated according to the following matrix, as proposed by Kaminsky, Lizondo and Reinhart (1998):

1 *A few other episodes of sharp currency depreciations occurred during the sample period, but no data are available for the economic variables.*

2 *This crisis episode was used in some, but not all investigations, as most, but not all data are available for this time period.*

	Crisis (within 8 quarters)	No crisis (within 8 quarters)
Signal was issued	A	B
No signal was issued	C	D

In this matrix, A means the number of months in which a good signal was sent, B is the number of bad signals, C is the number of months in which the indicator failed to issue a signal (which would have been a good signal) and D is the number of months in which the indicator rightly refrained from emitting a signal, as it was not followed by a crisis over the signaling horizon. Using the input from the matrix, the noise-to-signal (NtS) ratio for an indicator can be computed according to the following formula:

$$NtS = [B/(B+D)]/[A/(A+C)] \tag{1}$$

The signaling threshold is to be set such that NtS reaches a minimum. Ideally, one would want an NtS that comes as close as possible to zero. In the literature,[1]) a distinction is often made between indicators providing useful information that is reflected in an NtS ratio below one and indicators that have an NtS ratio above one. Results for each indicator are reported in table 1.

Most of the variables identified as relevant indicators by Berg and Pattillo (1998) exhibit noise-to-signal ratios below one in our sample. However, NtS ratios are generally lower than in Brüggemann and Linne (1999). A possible explanation could be the relatively small number of observations per country, which results in rather crude country-specific distributions. Among the indicators, the budget balance as a percentage of GDP seems to be relatively less important than in Brüggemann and Linne (1999), where this indicator was identified as the second-most important.

Table 1

Performance of Indicators According to the Signal Approach

	Number of Observations Used in Calculation	Good Signals, % of Possible Good Signals	Bad Signals, % of Possible Bad Signals	Noise-to-Signal Ratio
		A/(A+C)	B/(B+D)	NtS
Real effective exchange rate, deviation from HP trend	480	5	2	0.47
M2 / gross official reserves	465	73	44	0.61
Percentage change in M2 / gross official reserves, year on year	425	68	44	0.64
Percentage change in exports in USD, year on year	389	15	10	0.64
Gross official reserves	478	68	64	0.94
Budget balance, % of GDP	358	95	91	0.96
Percentage change in gross official reserves, year on year	449	95	97	1.02
Current account, % of GDP	399	92	97	1.05

1 *For instance, Berg and Pattillo (1998).*

3.3 Is There a Case for an Alternative Functional Specification?

Having confirmed the empirical relevance of a number of variables as early warning indicators according to the signal approach methodology, I will deal next with the question of whether the implicitly embedded functional relationship between the (0,1) crisis variable and individual indicators is justified. According to Vlaar (2000), the transformation of the indicator variable into a dummy variable, based on the criterion whether its value is above or below the threshold, can be expected to yield the best results if there is a clear distinction between crisis periods and periods of tranquillity. Presumably this condition is best fulfilled if only the most severe crises are above the threshold or if the crisis definition is related to a currency peg.

Although the crisis definition employed in this study is probably largely in line with this condition, the results reported in table 1 suggest that other functional specifications than the step function relationship between the crisis variable and the indicators could be more appropriate for some variables. In particular, this seems to be the case for the real effective exchange rate variable, the budget balance, the change in gross reserves and the current account. For these variables, the optimal thresholds are very close or equal to the ends of the distributions. Moreover, for these variables, both the percentage of good signals and bad signals is either very low or very high. Nevertheless, some of these variables have rather high noise-to-signal ratios, which could mean that the probability of a currency cisis is a linear function of the indicator rather than rising sharply when the indicator exceeds a certain threshold.

In order to investigate this question in more detail, I run probit regressions on the crisis variable for the pooled panel with different functional specifications for one particular explanantory variable, as suggested by Berg and Pattillo (1998). For each indicator, I estimate equations which assume the following format:

$$Prob\ (c8 = 1) = f(\alpha_0 + \alpha_1 p(x) + \alpha_2 I + \alpha_3 I(p(x) - T)) \qquad (2)$$

where $c8 = 1$ if a crisis occurs during the next eight quarters, $p(x)$ is the percentile of the variable x and $I = 1$ if the percentile is above some threshold T and zero otherwise. For the thresholds T the results from the signal approach calculations are used. Thus, if the threshold concept provides an appropriate functional specification, only the coefficient α_2 should be statistically significantly different from zero. Significant coefficients α_1 and α_3 would point to a linear functional relationship between crisis variable and indicator and a different (higher) slope coefficient when the indicator is above the threshold, respectively. Table 2 summarizes the results of these regressions.

For a few indicators the closeness of thresholds to one end of the distribution produced meaningless estimation results, which is indicated by the empty cells. In these cases the equation was estimated again without the variable causing the problems. Although the jump coefficients (α_2) are statistically significant in a number of cases, the results reported in table 2 provide empirical support for more general specifications, too. This hypothesis gains further support by Berg and Pattillo's (1998) observation that the procedure applied above produces a bias in favor of finding significant jump coefficients. As the data themselves were used to identify the biggest jumps (through the signals method), the subsequent tests will tend to find that the jumps identified in

the preceding section are unusually large. Thus, the t-tests performed on these regressions overestimate the statistical significance of the dummy variable coefficient α_2.

Generally, the variables specified as changes seem to be better captured by the linear specifications. Considering the nature of the variables, this is a very plausible result, as it seems difficult to imagine for instance that there is a threshold for the growth rate of exports that is associated with a jump in a country's proneness to financial crisis. On the contrary, it seems very possible that the probability of a currency crisis decreases with every unit of an increasing export growth rate. However, even for some level variables, e.g. the balances of the budget and the current account, the linear specifications seem to make more sense than the dummy variable specification.

Table 2

Bivariate Probit Regressions for Individual Indicators

Variable	Coefficients for Alternative Specifications, (t-statistics in brackets)			Number of Observations Used
	Percentile (α_1)	Dummy (α_2)	Dummy (percentile threshold) (α_3)	
Real effective exchange rate, deviation from HP trend	0.239976 (0.953674)	0.311680 (0.743470)	n/a	474
M2/gross official reserves	1.619717 (1.960928)	0.714314 (2.490426)	−3.600123 (−3.354582)	465
Percentage changes in M2/gross official reserves, year on year	−0.029976 (−0.039055)	0.024003 (0.072518)	1.898985 (1.755177)	416
Percentage change in exports in USD, year on year	−0.786224 (−2.376715)	0.860930 (1.890679)	−3.548700 (−0.578218)	395
Gross official reserves	−1.756886 (−1.438976)	1.162194 (3.623216)	−0.856122 (−0.641924)	478
Budget balance, % of GDP	−1.223752 (−3.452239)	0.621120 (1.458146)	n/a	346
Percentage change in gross official reserves, year on year	−0.884787 (−1.560063)	0.264278 (0.831190)	−0.045537 (−0.039305)	481
Current account, % of GDP	−1.400776 (−4.701965)	n/a	n/a	396

3.4 A Multivariate Probit-Based Extension

As the results established above are favorable for using other specifications than the dummy variable specification implicitly embedded in the signal approach, a multivariate probit model seems to be the natural extension of the analysis presented in the previous section. In particular, it is the most natural way to incorporate the information provided in different indicators at the same time. Table 3 shows the results of the multivariate probit model which simultaneously includes all variables from table 2. The functional form of variables was specified according to the results of table 2, i.e. in general the variables were specified according to the specification with the highest t-ratio. The level of reserves constitutes an exception: the linear specification proved to be highly significant in the multivariate model and was therefore included.

Table 3

Multivariate Probit Regression Including All Variables

Included observations: 262
Excluded observations: 300 after adjusting endpoints
Convergence achieved after 6 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Standard Error	z−Statistic	Probability
C	−0.266517	0.718184	−0.371099	0.7106
P_CA	−1.233594	0.481794	−2.560420	0.0105
P_CH_EXPORT	−0.372483	0.416767	−0.893742	0.3715
P_M2RES	0.687352	0.996256	0.689935	0.4902
D_P_M2RES	0.471483	0.444917	1.059710	0.2893
P_REERDEV	0.785438	0.418551	1.876565	0.0606
P_CH_RES	−0.370678	0.485321	−0.763779	0.4450
P_RES	−2.497891	0.771178	−3.239061	0.0012
D_P_RES	1.077219	0.468423	2.299672	0.0215
P_BUDGET	−0.819837	0.414696	−1.976959	0.0480

Mean dependent variable	0.141221	S. D. dependent variable	0.348916
S. E. of regression	0.292128	Akaike info criterion	0.659318
Sum squared residuals	21.50531	Schwarz criterion	0.795514
Log likelihood	−76.37060	Hannan−Quinn criterion	0.714058
Restricted log likelihood	−106.6797	Average log likelihood	−0.291491
LR statistic (9 df)	60.61822	McFadden R−squared	0.284113
Probability (LR stat)	1.02E−09		

Observations with Dep=0	225	Total observations	262
Observations with Dep=1	37		

Table 4

Multivariate Probit Regression #1 — Most Parsimonious Representation of Data

Included observations: 354
Excluded observations: 269 after adjusting endpoints
Convergence achieved after 5 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Standard Error	z−Statistic	Probability
C	−0.846737	0.441764	−1.916718	0.0553
P_CA	−1.004523	0.374160	−2.684739	0.0073
D_P_M2RES	0.610379	0.207656	2.939374	0.0033
P_REERDEV	0.907585	0.359478	2.524732	0.0116
P_CH_RES	−0.768816	0.365516	−2.103370	0.0354
P_RES	−2.114569	0.635018	−3.329936	0.0009
D_P_RES	1.088051	0.358065	3.038701	0.0024

Mean dependent variable	0.135593	S. D. dependent variable	0.342841
S.E. of regression	0.296244	Akaike info criterion	0.647159
Sum squared residuals	30.45291	Schwarz criterion	0.723671
Log likelihood	−107.5472	Hannan−Quinn criterion	0.677601
Restricted log likelihood	−140.4964	Average log likelihood	−0.303806
LR statistic (6 df)	65.89848	McFadden R−squared	0.234520
Probability (LR stat)	2.83E−12		

Observations with Dep=0	306	Total observations	354
Observations with Dep=1	48		

All variables reported in table 4 (except the dummy variable specification for the level of reserves) have the right sign and are highly significant. The positive sign for the dummy variable specification for the level of reserves is somewhat counterintuitive, but probably has to do with the interaction of other variables with a similar information content, in particular the linear specification for the level of reserves and the dummy variable specification for the M2-to-reserves ratio.

The alternative specification shown in table 5 includes the budget deficit as an additional significant explanatory variable. However, the change in reserves and the deviation of the real effective exchange rate are no longer significant under this specification. Multicollinearity between the budget variable and the two variables that have been dropped is probably not a big issue, as their correlations are not very high: The budget balance and the change in reserves have a correlation of 0.16, while the correlation for the budget balance and the deviation of the real effective exchange rate only amounts to –0.05. I would attribute these changes rather to the change in the sample, which has become smaller because of the shortness of the budget balance time series. In general, the statistical features of specification #2 seem to be slightly worse than those of specification #1, if one uses the Akaike and Schwarz criteria and the McFadden R-squared variable as additional evaluation criteria.

Table 5

Multivariate Probit Regression #2 —

Most Parsimonious Representation of Data

Included observations: 289
Excluded observations: 281 after adjusting endpoints
Convergence achieved after 5 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Standard Error	z−Statistic	Probability
C	−0.517739	0.450745	−1.148628	0.2507
P_CA	−1.111560	0.394930	−2.814574	0.0049
D_P_M2RES	0.716800	0.227578	3.149693	0.0016
P_RES	−2.534221	0.679518	−3.729436	0.0002
D_P_RES	1.699705	0.428086	3.970474	0.0001
P_BUDGET	−0.878152	0.386886	−2.269795	0.0232

Mean dependent variable	0.138408	S.D. dependent variable	0.345927
S.E. of regression	0.307746	Akaike info criterion	0.660393
Sum squared residuals	26.80223	Schwarz criterion	0.736512
Log likelihood	−89.42672	Hannan-Quinn criterion	0.690893
Restricted log likelihood	−116.1964	Average log likelihood	−0.309435
LR statistic (5 df)	53.53928	McFadden R-squared	0.230383
Probability (LR stat)	2.61E−10		

Observations with Dep=0	249	Total observations	289
Observations with Dep=1	40		

4 Results

4.1 Expectation/Prediction Tables

For a probit model serving as an early warning device, clearly the most important criterion to evaluate its performance is its predictive power. The standard evaluation method of a probit model is a comparison of its estimated crisis probabilities against realized results. For this purpose, a cutoff level for crisis probabilities has to be defined: If the crisis probability exceeds the cutoff level, the model is considered to send a signal and vice versa. Using a cutoff level for a crisis probability of 50%, the model issues hardly any wrong signals, but it is only able to correctly predict 27% of all the crises in the sample. As shown in tables 6 and 7, lowering the cutoff level to 25% leads to a strong improvement in the model's ability to recognize crises in advance, while the number of wrong signals rises only moderately.

Table 6

Expectation/Prediction Table for Specification #1

Dependent variable: CRISIS
Method: ML - binary probit (quadratic hill climbing)
Included observations: 354
Excluded observations: 269 after adjusting endpoints
Prediction evaluation (success cutoff C = 0.25)

	Estimated Equation			Constant Probability		
	Dep=0	Dep=1	Total	Dep=0	Dep=1	Total
P(Dep=1)<=C	270	16	286	306	48	354
P(Dep=1)>C	36	32	68	0	0	0
Total	306	48	354	306	48	354
Correct	270	32	302	306	0	306
% correct	88.24	66.67	85.31	100.00	0.00	86.44
% incorrect	11.76	33.33	14.69	0.00	100.00	13.56
Total gain*	−11.76	66.67	−1.13			
Percentage gain**	NA	66.67	−8.33			
E(# of Dep=0)	273.72	31.72	305.44	264.51	41.49	306.00
E(# of Dep=1)	32.28	16.28	48.56	41.49	6.51	48.00
Total	306.00	48.00	354.00	306.00	48.00	354.00
Correct	273.72	16.28	290.00	264.51	6.51	271.02
% correct	89.45	33.91	81.92	86.44	13.56	76.56
% incorrect	10.55	66.09	18.08	13.56	86.44	23.44
Total gain*	3.01	20.35	5.36			
Percentage gain**	22.19	23.55	22.87			

* *Change in "% correct" from default (constant probability) specification.*
** *Percent of incorrect (default) prediction corrected by equation.*

Table 7

Expectation/Prediction Table for Specification #2

Dependent variable: CRISIS
Included observations: 289
Excluded observations: 281 after adjusting endpoints
Prediction evaluation (success cutoff C = 0.25)

	Estimated Equation			Constant Probability		
	Dep=0	Dep=1	Total	Dep=0	Dep=1	Total
P(Dep=1)<=C	218	15	233	249	40	289
P(Dep=1)>C	31	25	56	0	0	0
Total	249	40	289	249	40	289
Correct	218	25	243	249	0	249
% correct	87.55	62.50	84.08	100.00	0.00	86.16
% incorrect	12.45	37.50	15.92	0.00	100.00	13.84
Total gain*	− 12.45	62.50	− 2.08			
Percentage gain**	NA	62.50	− 15.00			
E(# of Dep=0)	221.86	27.01	248.87	214.54	4.46	249.00
E(# of Dep=1)	27.14	12.99	40.13	34.46	5.54	40.00
Total	249.00	40.00	289.00	249.00	40.00	289.00
Correct	221.86	12.99	234.86	214.54	5.54	220.07
% correct	89.10	32.48	81.26	86.16	13.84	76.15
% incorrect	10.90	67.52	18.74	13.84	86.16	23.85
Total gain*	2.94	18.64	5.12			
Percentage gain**	21.26	21.63	21.45			

* *Change in "% correct" from default (constant probability) specification.*
** *Percent of incorrect (default) prediction corrected by equation.*

4.2 Quadratic Probability Scores and Pesaran-Timmermann Test

While the results presented in tables 6 and 7 clearly look highly promising, the strong predictive power of both models is confirmed by the Pesaran-Timmermann (1992) test (P-T test) and the Quadratic Probability Score (QPS)[1]) test.

The QPS test measures the discrepancy between a realization R_t and the estimated probability P_t (as predicted by the probit model) for the realization. In this case, R_t is either one (if there is a crisis period) or zero (in tranquil periods). The QPS can be computed according to the following formula:

$$QPS = \frac{1}{N}\sum_{t=1}^{N} 2(P_1 - R_t)^2 \qquad (3)$$

As the formula shows, the values of the QPS are between zero and two, where zero is the best result. The QPS test statistics for both specifications are provided in table 8. With values of 0.17 and 0.19, both specifications achieve markedly better scores than in comparable studies: For instance, Berg and Pattillo (1998) report quadratic probability scores on the order of 0.23 for their probit-based extensions of Kaminsky, Lizondo and Reinhart's (1998) model. Brüggemann and Linne's (2001) signal approach-based early warning composite indicator achieves a QPS of 0.297.

As the QPS test does not allow conclusions regarding the statistical significance of the results, I computed the P-T test in addition. The P-T test evaluates the predictions of a model (in this case for a binary dependent variable) against the null hypothesis that the forecasts are no better than random guesses. As the squared P-T test statistics follows the chi-square distribution with one degree of freedom, it can be evaluated as a common chi-square test. As shown in table 8, for both probit specifications the null hypothesis can be rejected with a very low error probability for two different cutoff levels. Thus, these results lend support to the hypothesis that balance of payments crises in Central and Eastern Europe may be considered "first-generation" types of crises.

Table 8

Quadratic Probability Score and Pesaran-Timmermann Test

	Probit Specification #1		Probit Specification #2	
	Cutoff level		Cutoff level	
	25%	50%	25%	50%
QPS	0.17205	0.17205	0.18548	0.18548
Squared Pesaran-Timmermann test statistics	80.6	60.3	55.3	23.8
P-value of P-T statistics	2.7814E-19	8.1415E-15	1.055E-13	1.0815E-06
Critical value for squared P-T statistics, 5% significance level, 1 degree of freedom	3.841			

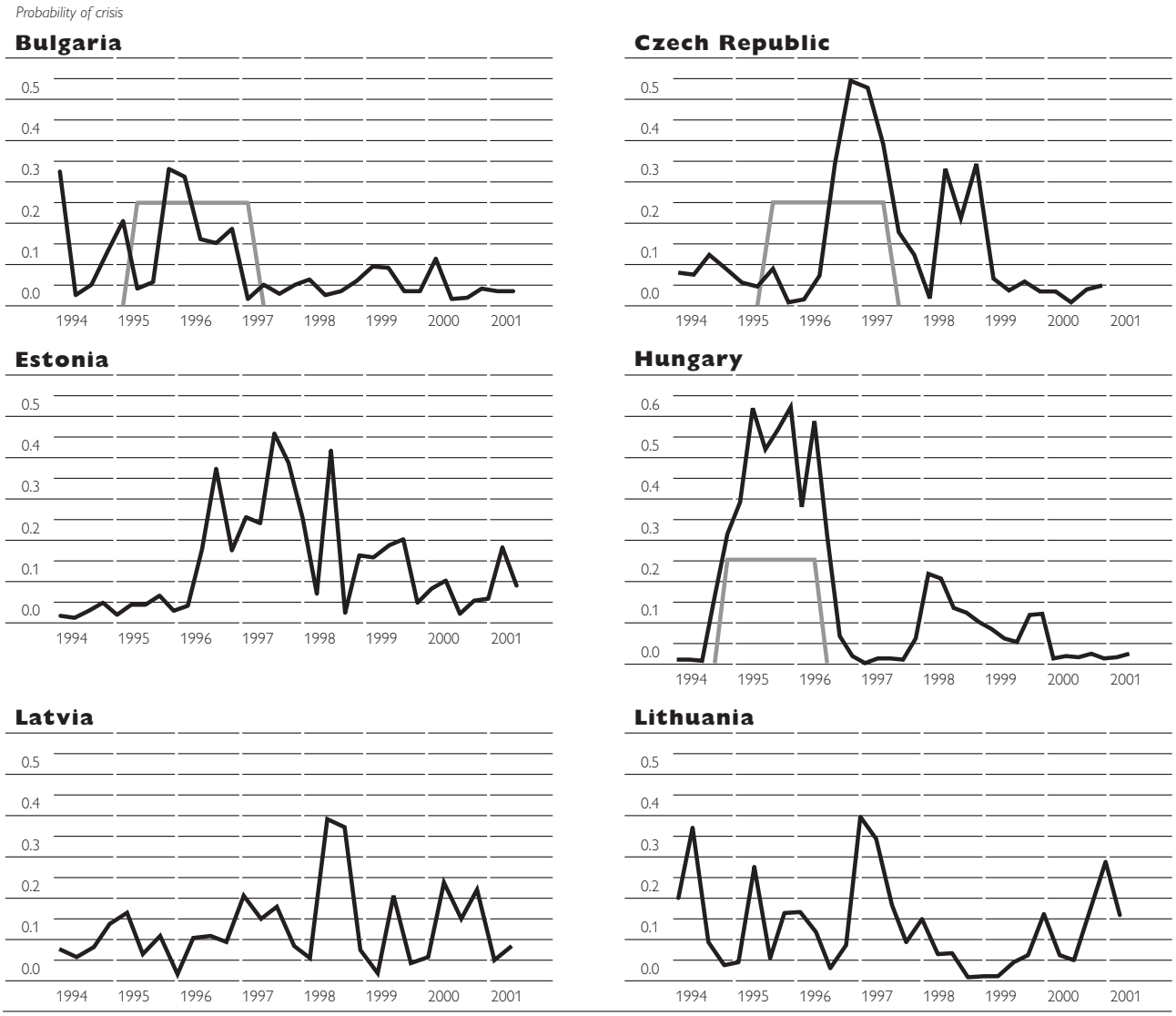
4.3 Individual Country Results

Having statistically confirmed the predictive power of the probit model specifications, the following charts show the development of predicted crisis probabilities of specification #1 against empirical observations for a cutoff level of 25%:

1 *See Diebold and Rudebusch (1989).*

Chart 1

In-Sample Forecasts of Specification #1 Versus Realizations



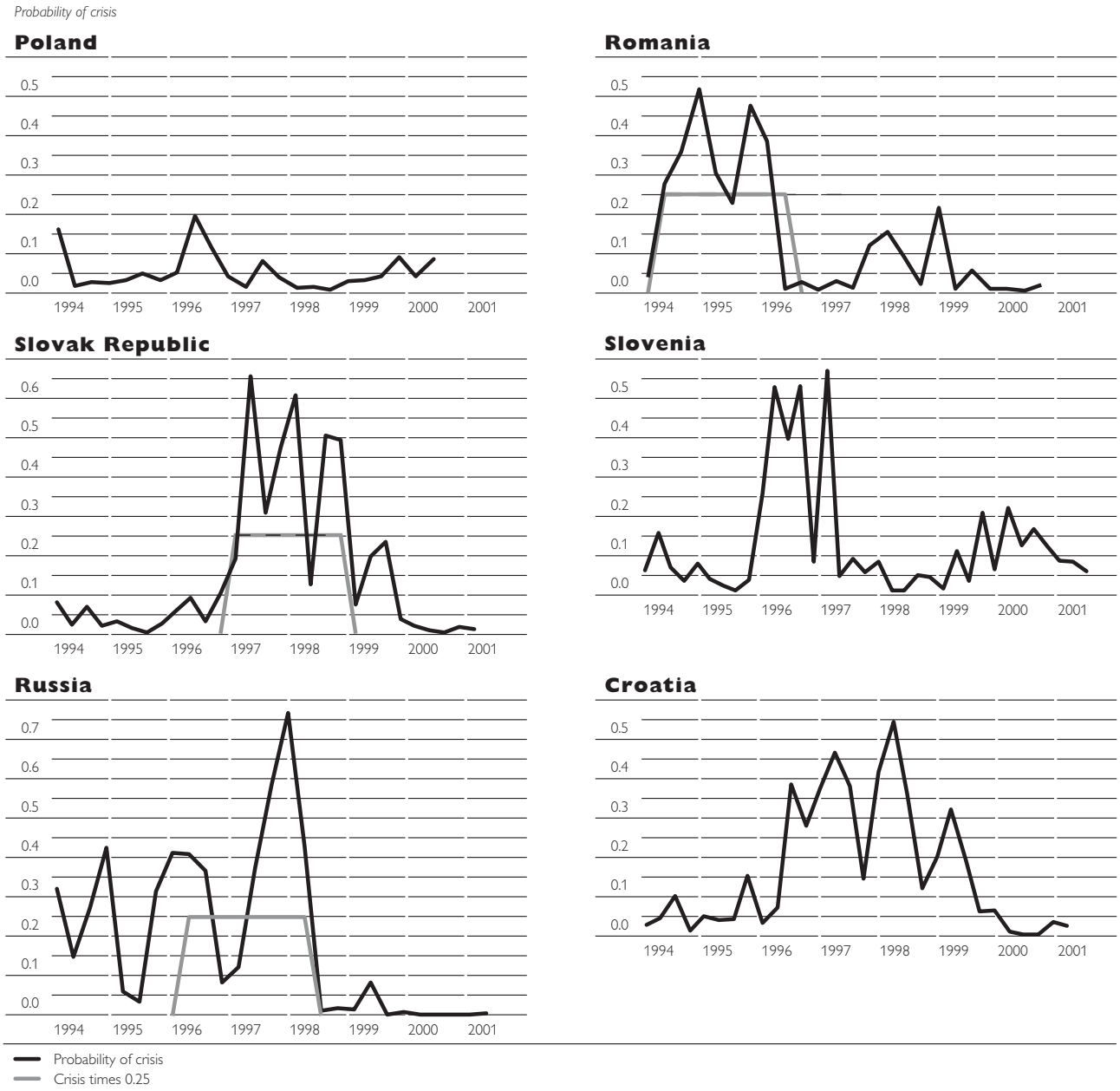
Source: OeNB calculations.

As expected from the statistical tests, the graphical inspection on an individual country basis confirms the good fit of the model's predictions with actual observations. In particular, the Hungarian, Romanian and Slovak crisis episodes can be very well explained. Nearly all currency crises are associated with repeated signals. The model's most recent predictions also appear to be rather plausible, predicting in general rather low probabilities for most countries, but a higher crisis probability for Poland, compared with its peer group.

However, the model appears to work less well for the very small countries in the sample, in particular for Slovenia, where repeated signals were issued from the fourth quarter of 1994. In the case of Slovenia, the transformation of data

Chart 1

In-Sample Forecasts of Specification #1 Versus Realizations – cont.



Source: OeNB calculations.

into percentiles of the country-specific distributions seems to be disadvantageous, as Slovenia is characterized by a high level of macroeconomic stability throughout the whole sample period. Thus, in this case the model reacts sensitively to a slight worsening of macroeconomic conditions from a very sound level to a still satisfactory level in absolute terms.

Finally, it would of course be very interesting to evaluate the out-of-sample forecasting abilities of the two model specifications proposed above. However, owing to the limited number of observations available per country, this type of

analysis faces very tight limits. For instance, as no crisis occurred in the most recent time periods, it is impossible to check whether the model would have correctly predicted these events.

5 Conclusions

In this study, an early warning model for currency/balance of payments crises was developed for a sample of quarterly data from 12 Central and Eastern European transition countries. After reviewing the relevant literature, it was shown that a number of indicators contain useful information for early warning purposes when evaluated according to the signal approach.

However, in addition to some well-known drawbacks inherent to the signal approach, the noise-to-signal ratios for some indicators reached a maximum at the extreme ends of the indicator-specific distributions. Thus, in a next step, the appropriateness of the signal appoach's underlying functional specification was investigated by means of bivariate regressions on one economic variable in different functional specifications.

On the basis of this analysis, two multivariate probit regressions with all statistically significant economic variables on a (0,1)-distributed crisis variable were estimated. For in-sample forecasts, the predictions of both model specifications proved to perform significantly better than random guesses as well as some comparable early warning models. Overall, the model appears to track developments in individual countries rather well, with the exception of countries with consistently strong macroeconomic fundamentals. With respect to economic interpretations, the results of this study lend support to the hypothesis that currency crises in Central and Eastern Europe may be considered "first-generation" types of crises.

References

Berg, Andrew and Catherine Pattillo. 1998. Are Currency Crises Predictable? A Test. IMF Working Paper 98/154. Washington: International Monetary Fund.

Blanco, Herminio and Peter M. Garber. 1986. Recurrent Devaluation and Speculative Attacks on the Mexican Peso. Journal of Political Economy 94: 148–166.

Brüggemann, Axel and Thomas Linne. 1999. How Good are Leading Indicators for Currency and Banking Crises in Central and Eastern Europe? An Empirical Test. Halle Institute for Economic Research Discussion Paper 95 (April).

– 2001. Weiterentwicklung und Anwendung eines Frühwarnindikatorensystems zur Betrachtung und Bewertung von Finanzkrisen in EU-Beitrittskandidatenländern und ausgewählten Staaten Mittel- und Osteuropas. Halle Institute for Economic Research Special Edition 4/2001.

Bussière, Matthieu and Christian Mulder. 1999. External Vulnerability in Emerging Market Economies: How High Liquidity Can Offset Weak Fundamentals and the Effects of Contagion. IMF Working Paper 99/88. Washington: International Monetary Fund.

Connolly, Michael B. and Dean Taylor. 1984. The Exact Timing of the Collapse of an Exchange Rate Regime and its Impact on the Relative Price of Traded Goods. Journal of Money, Credit and Banking 16: 194–207.

Diebold, Francis X. and Glenn Rudebusch. 1989. Scoring the Leading Indicator. Journal of Business 62: 369–392.

Flood, Robert and Peter Garber. 1984. Collapsing Exchange-Rate Regimes: Some Linear Examples. Journal of International Economics 17: 1–13.

Frankel, Jeffrey A. and Andrew K. Rose. 1996. Currency Crashes in Emerging Markets: An Empirical Treatment. Journal of International Economics 41: 351–366.

Kaminsky, Graciela L. 1998. Currency and Banking Crises: The Key Warnings of Distress. Board of Governors of the Federal Reserve System. International Finance Discussion Papers 629 (October).

Kaminsky, Graciela L. and Carmen M. Reinhart. 1999. The Twin Crises: The Causes of Banking and Balance-of-Payments Problems. American Economic Review 89 (3): 473–500.

Kaminsky, Graciela, Lizondo, Saul and Carmen M. Reinhart. 1998. Leading Indicators of Currency Crises. International Monetary Fund Staff Papers 45 (1). Washington: International Monetary Fund.

Krkoska, Libor. 2001. Assessing Macroeconomic Vulnerability in Central Europe, Post-Communist Economies 13 (1): 41–55.

Krugman, Paul. 1979. A Model of Balance-of-Payments Crises. Journal of Money, Credit and Banking 11: 311–325.

Kumar, Manmohan S., Moorthy Uma and William Perraudin. 2002. Predicting Emerging Market Currency Crashes. IMF Working Paper 02/7. Washington: International Monetary Fund.

Obstfeld, Maurice. 1994. The Logic of Currency Crises. NBER Working Paper 4640.

– 1996. Models of Currency Crises with Self-Fulfilling Features, European Economic Review 40 (April): 1037–1047.

Pesaran, M. Hashem and Allan Timmermann. 1992. A Simple Nonparametric Test of Predictive Performance. Journal of Business and Economic Statistics 10: 461–465.

Sachs, Jeffrey D., Aaron Tornell and Andreas Velasco. 1996. Financial Crises in Emerging Markets: The Lessons from 1995. Brookings Papers on Economic Activity: 147–198.

Vlaar, Peter J.G. 2000. Currency Crisis Models for Emerging Markets. DNB Staff Reports 45. Amsterdam: De Nederlandsche Bank.

Weller, Christian E. and Bernard Morzuch. 2000. International Financial Contagion – Why Are Eastern Europe's Banks Not Failing, When Everybody Else's Are? Economics of Transition 8 (3): 639–663.

Wu, Yih-Jiuan, Tzung-Ta Yen and Pei-Wen Chen. 2000. Early Warning System for Currency Crises: An Empirical Study of SEACEN Countries. Kuala Lumpur: The South East Asian Central Banks (SEACEN) Research and Training Centre.

OeNB Activities

Lectures Organized by the Oesterreichische Nationalbank

The OeNB hosted three lectures by renowned economists and experts within its series dedicated to topics crucial to transition economies in the first half of 2002. Readers may benefit from the main insights drawn from the lectures as presented below.

Martin Banse, scientist at the Institute for Agricultural Economics of the University of Göttingen, delivered a lecture on EU enlargement and agriculture in the accession countries, in which he assessed the implications for the national budgets of the accession countries and the EU budget. *Andreas Freytag,* senior economist and managing director at the Institute for Economic Policy, University of Cologne, gave a presentation on exchange rate regimes, institutions and inflation. His hypothesis was that the adopted exchange rate regime does not per se explain inflation performance, but that institutional restrictions to monetary policy play a significant role in fighting inflation. *Christa Hainz,* Assistant Professor at the Institute of Economics, University of Munich, elaborated on the question whether transition countries are overbanked. She examined this issue from the perspective of the theory of industrial organization.

The presentations are routinely rounded off by comments by invited discussants and finally a discussion during which participants – representatives of the academic community, government bodies and reporters, all of whom have a professional interest in the topics presented – 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 Martin Banse

EU Enlargement and Agriculture in the Accession Countries – Implications for the National Budgets of the Accession Countries and for the EU Budget

On March 15, 2002, Martin Banse, scientist at the Institute for Agricultural Economics of the University of Göttingen, delivered a lecture on "EU Enlargement and Agriculture in the Accession Countries – Implications for the National Budgets of the Accession Countries and for the EU Budget" at the Oesterreichische Nationalbank.

Mr. Banse started out by pointing out the fact that the agricultural sector contributes a much higher share to the GDP of the accession countries[1]) and employs a larger part of the workforce than the present EU members do. Although even more land is used for agricultural production in the accession countries than in the EU, value added is much lower. The prices for agricultural goods are clearly below the price level in the EU, but in recent years, a process of convergence has taken place. This convergence was generated partly by lower prices in the EU in the wake of reforms (e.g. the McSharry reform in 1997). In the 1990s, agricultural production declined in nearly all accession countries,

1 *Martin Banse uses the term accession countries for Slovenia, Poland, the Czech Republic, the Slovak Republic, Hungary, Romania, Bulgaria, Estonia, Lithuania, Latvia, Malta and Cyprus.*

with the exception of Slovenia,[1]) where production in fact augmented. In the forthcoming negotiations, the volumes of the quotas to be imposed by the EU e.g. on sugar and milk will become one of the most difficult items to agree on. According to Martin Banse, Eastern enlargement will not have very serious effects on the agricultural markets of the EU. Due to the low farm productivity in the accession countries, the total agricultural production of the EU will merely edge up after enlargement. In some subsectors, the present EU members' net exports offset the net imports of the accession countries and vice versa.[2])

A recent study of the German Institute for Economic Research (DIW) about the future of agricultural subsidies in the EU compares four scenarios for the year 2007:

1. Eastern enlargement does not take place.
2. The EU is enlarged by all 12 candidate countries, and the present rules for subsidies are not changed ("status quo EU-27").
3. A "moderate reform" raises the income threshold for eligibility for structural subsidies, and agricultural subsidies must be cofinanced at the national level.
4. A "substantial reform" decouples agricultural subsidies from the individual level of production. Structural subsidies are no longer paid directly to the regions, but only to Member States whose per capita GDP is below average.

The total expenditures of the EU for structural and agricultural policies clearly differ from scenario to scenario. Without Eastern enlargement, expenditures will amount to EUR 65 billion, under the second scenario – status quo EU-27 – they would come to EUR 86 billion, under the "moderate reform" scenario to EUR 76 billion, and under the "substantial reform" scenario to EUR 63 billion. According to these simulations the net transfers from the present members to the accession countries range from EUR 32 billion (status quo EU-27) and EUR 26 billion (substantial reform). As a result, for the whole period from 2007 to 2013 the total costs of Eastern enlargement could be kept within the bounds of 1.27% of the EU's GNP for the EU budget, regardless of whether reforms are imposed or not. Within that period, the Austrian situation as a net payer will deteriorate in each of the accession scenarios. In the "substantial reform" scenario, of all the current Member States, only Spain and Greece would receive still subsidies, whereas Slovenia would be eligible for subsidies, but only for a very small amount.

The exclusion of accession countries from the subsidies would hurt the principle of equal treatment and would distort competition. Subsidies measured according to the level of production delay or even impede the necessary structural change in the agricultural sector in the long run, because they perpetuate the incentive to produce goods which are not competitive or to produce goods in a way that is no longer competitive. Therefore Martin Banse strongly recommended decoupling subsidies from production and gradually reducing these subsidies. The funds which could be saved in this fashion should be shifted into

1 *The Slovenian agricultural sector has never been nationalized and therefore exhibited quite competitive structures. According to Martin Banse, protectionism in the Slovenian agricultural sector even exceeded the measures taken by the EU.*

2 *E.g. in the markets for pork, eggs and corn.*

the so-called second pillar of agricultural policy, that is the promotion of rural development. If such a reform could be implemented swiftly, production-based subsidies would not necessarily have to be introduced in the accession countries. For a transition period the accession countries could be subsidized from alternative EU funds.

Martin Banse commended the information note of the European Commission of January 30, 2002, on the financing of the EU enlargement as a well balanced proposal. Contrary to the Agenda 2000, it makes the system of direct subsidies more transparent. The note also contains suggestions to step up the promotion of rural development. It is important that a reform of the Community Agricultural Policy (CAP) be initiated at the next mid-term review. In the area of structural policy, a shift from the promotion of needy regions to states should be the main target of reform. According to the principle of subsidiarity, less developed regions should be promoted by the nation state, remarked Martin Banse.

In the course of the lively discussion that followed, Martin Banse agreed with representatives of the ministry for agriculture on the importance of a further strengthening of the second pillar. The representative of the agricultural chamber stressed the role of farmers for nature protection, an activity clearly worthy of being subsidized. The chamber's representative also mentioned that if the EU budget and all national budgets in the EU were summed up, the expenses for agriculture amount to only 1.9% of all budgets. Martin Banse replied that these 1.9% are used to produce 2.5% of the total GDP of the EU.

Lecture by Andreas Freytag

EU Enlargement and Agriculture in the Accession Countries – Implications for the National Budgets of the Accession Countries and for the EU Budget

On April 9, 2002, Andreas Freytag, senior economist and managing director at the Institute for Economic Policy, University of Cologne, delivered a lecture on "Exchange Rate Regime, Institutions and Inflation: Empirical Evidence from Emerging Markets and Transition Economies."

Andreas Freytag started his lecture by briefly presenting different approaches to this issue found in theoretical literature, thereby making a distinction between the bipolar view (fixed rate versus free float as the two corner solutions) and the alternative view (discussing a variety of intermediate regimes). Empirical evidence from 62 countries (Kuttner and Posen) suggests that similar exchange rate regimes seem to have led to largely differing outcomes in terms of inflation. Experience, however, shows that a number of regime changes did not render any visible success and that there is no clear-cut solution to this problem. Therefore, Andreas Freytag formulated the hypothesis that the adopted exchange rate regime does not per se explain inflation performance, but that institutional restrictions to monetary policy play a significant role in fighting inflation.

Subsequently, Andreas Freytag presented four estimation models used to test this hypothesis. First, he used a data set by Kuttner and Posen (2001) which

covers 62 Latin American economies and examines a number of institutional variables (exchange rate arrangement, the degree of central bank autonomy, the objectives of monetary policy, duration of the regime) and their impact on inflation. The result is that the exchange rate regime and the index of economic freedom (as calculated by the Fraser Institute) seem to be most important in explaining inflation performance. Second, a set of data on 17 Central and Eastern European countries (CEECs) was analyzed, examining an index of rule determination, central bank independence, institutional restrictions (including, inter alia, the EBRD liberalization index) and seigniorage as possible determinants of inflation. Results suggest that the exchange rate regime, the degree of central bank independence and the EBRD liberalization index are most important in determining inflation performance in the 17 CEECs under review. Third, Freytag presented an estimation on Latin America, evaluating 100 observations and analyzing a similar set of variables (exchange rate arrangement, institutional environment, political freedom, seigniorage, unemployment, proxy for credibility). This estimation finds that a number of tested variables may explain inflation, namely the degree of strictness of the exchange regime, the index of economic freedom, seigniorage and unemployment. Fourth, Freytag presented his findings on 16 country cases (currency reforms) in Latin America. He examined an index of rule determination (including the exchange rate regime), institutional restrictions and seigniorage and their impact on inflation and found that inflation rates after currency reforms depend on the rigidness of monetary policy rules, the institutional environment, seigniorage and credibility.

Comparing the emerging markets in Latin America to the Central and Eastern European transition economies, Freytag argued that the choice of the exchange rate regimes seemed to be equally important for both regions, whereas the degree of central bank independence played a stronger role in the CEECs and seigniorage was more important in Latin America. Moreover, while a dynamic index measuring the institutional environment seems to be ideal for explaining inflation, respective data are only available for the CEECs (EBRD transition indicators).

Andreas Freytag concluded that the choice of the exchange rate regime had an influence on stabilization policies both in Latin America and in the CEECs. However, he did not find that the bipolar view on this issue is appropriate. Moreover, institutional arrangements also proved to be important for stabilization efforts.

The ensuing discussion centered on three main themes. First, there was a debate on the reasons that led to the Argentinian crisis (in particular the importance of fiscal policy failures versus that of external shocks). Furthermore, the role of the EU as an anchor for reforms in Central and Eastern European accession countries was highlighted, as opposed to the absence of such an anchor in Latin America. Finally, as to the methodology of the paper, it was suggested to test for a bipolar view of the exchange rate regime rather than for a unipolar approach that assigns the highest degree of commitment to a currency board and the lowest to a floating exchange rate regime. Also, it was proposed to carry out additional estimations using subindexes of the economic freedom index as explanatory variables, thus complementing the estimations based on the aggregated index.

Lecture by Christa Hainz

Are Transition Countries Overbanked? An Answer from the Perspective of Industrial Organization Theory

On April 26, 2002, Christa Hainz, Assistant Professor at the Institute of Economics, University of Munich, delivered a lecture entitled "Are Transition Countries Overbanked? An Answer from the Perspective of Industrial Organization Theory."

Christa Hainz started her lecture by presenting stylized facts on the size of banking sectors in transition countries. Earlier papers[1]) show that in some Central and Eastern European countries (CEECs) the number of banks is surprisingly high. In Russia, as an extraordinary example of this phenomenon, 2,029 banks (legal entities) were registered in 1996, while the number of banks according to OECD standards (that is, reflecting GDP and other country characteristics) only comes to between 300 to 400. This number went down slightly during the Russian crisis. Still, in 2000, the number of banks in Russia remained high at 1,311. In general, transition countries are characterized as overbanked but underserviced.[2]) This raises a number of questions: Why did regulatory policy in these countries not result in the optimal number of banks? And is it optimal to adopt the regulatory standards of the EU?

Christa Hainz looks at these questions from the perspective of the theory of industrial organization. This theoretical framework provides an appropriate tool for analyzing market entry and optimal regulation issues. The model is adjusted to the "real" conditions of transition economies in the following respects: Banks collateralize nearly all credit contracts, as several authors have observed.[3]) An important assumption is related to the liquidation values of collateralized assets: The closer banks are located to a firm, the higher the liquidation values of their collateral are. In this sense banks have to bear the transportation costs. Despite this fact, banks cannot price discriminate, meaning that they offer the same contract to all borrowers, whether they are located nearby or far away.

Thus, the number of banks influences both market share and the liquidation value of the collateralized assets. Under these conditions, market entry reduces the market share of individual banks. Because of this effect, the amount of collateral decreases as the distance between the firm and the bank is reduced (the so-called negative externality).

Furthermore, market entry raises the liquidation payoff obtained from the marginal borrower's assets (the so-called positive externality). Therefore, banks receive higher returns for assets that must be liquidated.

1 *Jaffee, Dwight and Mark Levonian. 2001. Structure of Banking Systems in Developed and Transition Economies, European Financial Management 7 (2): 161–181.*

2 *Bonin, John and Paul Wachtel. 1999. Toward Market-Oriented Banking in the Economies of Transition. In Brejer, Mario J. and Marko Skreb (eds.). Financial Sector Transformation, Lessons from Economies of Transition. Cambridge: Cambridge University Press: 195–236.*

3 *Bratkowski, Andrzej, Irena Grosfeld and Jacek Rostowski. 2000. Investment and Finance in De Novo Private Firms: Empirical Results from the Czech Republic, Hungary and Poland. In Economics of Transition 8 (1): 101–116.*

As a result of these two effects, not too many banks enter the market. Transition economies are underbanked for certain parameter values. The difference between the equilibrium number of banks and the socially optimal number determines to what extent the regulation of bank entry is desirable.

This result also emphasizes the role of the legal and institutional environment. Depending on the given costs of market entry, the banking sector is overbanked in economies where the institutional environment is favorable and underbanked in economies with a poor institutional environment. In this case, the negative externality (loss of market share) is dominated by the positive externality (higher liquidation values of collaterals), which increases as the quality of the institutional environment deteriorates.

Actually, this prediction of the model is exactly contrary to observations in Central and Eastern Europe. The number of banks in the Czech Republic, Hungary and Poland is relatively low, while the other CEECs are overbanked. Therefore, further empirical research may be necessary to analyze this issue.

The ensuing discussion covered a broad range of issues. Several contributors addressed the translation of a transition economy into a theoretical model. Also, the question of (sectoral and regional) specialization and diversification was raised. It was pointed out that it may be more appropriate to focus on the number of bank branches than on the number of banks. Furthermore, current issues of bank privatization in Central and Eastern Europe were discussed intensively.

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 series was continued with two presentations in the period under review. 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 the 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 43rd East Jour Fixe meeting on November 30, 2001, Jacek Rostowski, Professor at the Central European University Budapest, dealt with the question of (potential) unilateral euroization in applicant countries to the European Union. The meeting was chaired by Doris Ritzberger-Grünwald, Head of the OeNB's Foreign Research Division. Professor Rostowski's lecture was discussed by Christian Thimann, Head of the EU Neighbouring Regions Division of the European Central Bank (ECB), Eduard Hochreiter, Senior Adviser and Head of the Economic Studies Division of the OeNB, and Cezary Wójcik, economist at the OeNB's Foreign Research Division and at The Vienna Institute for International Economic Studies (WIIW).

The 44th East Jour Fixe meeting on Februar 22, 2002, had as its main speaker Professor László Halpern, Institute of Economics, Hungarian Academy of Sciences, Centre for Economic Policy Research (CEPR), William Davidson Institute (WDI) of University of Michigan Business School and Central European University (CEU) Budapest. Professor Halpern presented a paper jointly written with Professor Charles Wyplosz. They estimated the Balassa-Samuelson effect in a panel of nine transition economies. Special emphasis was put on the different channels of transmission of the Balassa-Samuelson effect. Doris Ritzberger-Grünwald chaired the meeting, and Professor Ronald MacDonald, University of Strathclyde, and Assistant Professor Boštjan Jazbec, University of Ljubljana, were invited as discussants.

Contribution by Jacek Rostowski

Why Unilateral Euroization Makes Sense for (Some) Applicant Countries

1 Introduction

The 43rd East Jour Fixe of the Oesterreichische Nationalbank took place on November 30, 2001, and dealt with a sensitive topic that has been increasingly debated in academic circles and beyond in recent years: the question of (potential) unilateral euroization in applicant countries to the European Union. Under the chair of Doris Ritzberger-Grünwald, Head of the OeNB's Foreign Research Division, Jacek Rostowski, Professor at the Central European University Budapest, gave the main presentation on "Why Unilateral Euroization Makes Sense for (Some) Applicant Countries" (coauthor: Andrzej Bratkowski). This presentation was partly a response to Cezary Wójcik's article "A Critical

Review of Unilateral Euroization Proposals: The Case of Poland," published by the OeNB in Focus on Transition 2/2000, in which Cezary Wójcik deals in detail with some arguments put forward in previous publications on euroization by Rostowski and others. Discussants at the East Jour Fixe were Christian Thimann, Head of the EU Neighbouring Regions Division of the European Central Bank (ECB), Eduard Hochreiter, Senior Adviser and Head of the Economic Studies Division of the OeNB, and Cezary Wójcik, economist at the OeNB's Foreign Research Division and at The Vienna Institute for International Economic Studies (WIIW).

Doris Ritzberger-Grünwald pointed out that the current discussion on euroization had started in 1996 and had received momentum in 1999, when Rostowski suggested unilateral euroization for Poland. It then spread to other countries. Meanwhile, the European Union has come out against euroization, as the European Commission, the Ecofin Council and the Eurosystem have expressed their disapproval of euroization. Since then, the question of euroization appears to have remained an academic discussion, although Willem Buiter, chief economist of the EBRD, recently suggested introducing the euro as a parallel currency in some countries.

2 Jacek Rostowski's Presentation on Unilateral Euroization

Jacek Rostowski started by pointing out that he was focusing on the (potential) economic advantages of unilateral euroization for the applicant countries themselves, taking Poland as an example. Euroization would be brought about by exchanging zlotys for euro and acquiring the necessary amount of euro by using international reserves. Mr. Rostowski felt that the EU should change its stance on euroization. Consensual instead of unilateral euroization would be the preferred strategy. Any failure of negotiations should not prompt applicant countries to give up their ideas on euroization, but in that event it might be better to opt for a currency board, possibly connected with the introduction of the euro as a parallel currency.

Jacek Rostowski argued that successful market reforms lead to high growth expectations. This means that domestic residents wish to save less so as to smooth consumption, while foreign investors are willing to provide the financing needed to bridge the gap between savings and investments. The results are high capital account surpluses and their corollary, high current account deficits, which make the accession countries susceptible to capital inflow stops or reversals, leading to currency crises. In the case of Poland the current account deficit has been around 4% to 8% of GDP over the last three years, which is usually considered well within the "danger zone" in which capital inflows may threaten to stop owing to investors' fears of unsustainability. According to Mr. Rostowski, neither monetary nor fiscal policies can be reliably counted on to keep these destabilizing developments in check. A sharp depreciation reigniting inflation or, in the case of subsequent monetary tightening, a sizeable slowdown of growth or a recession could follow, jeopardizing either nominal or real convergence. Rostowski's proposal for accession countries that have sufficiently large international reserves is to avoid this risk by euroizing unilaterally. He sees unilateral euroization as a "better" –

less painful – route to the euro than the traditional three-step strategy (EU – ERM II – euro).

Rostowski then dealt in detail with Cezary Wójcik's paper. He first referred to monetary, fiscal and exchange rate policy considerations, then to fiscal and financial costs and to the benefits of unilateral euroization. Jacek Rostowski argued that many accession countries, among them Poland, fulfill optimal currency area conditions with respect to the euro area, reaching (almost) the same degree as present euro area members. They may therefore not be subject to substantial asymmetric shocks after unilateral euroization.

A possible exchange rate misalignment resulting from inflationary inertia after the conversion of the domestic currency into euro could be countered by a simple upfront devaluation at the moment of euroization. If this makes inflation harder to control, freedom to devalue is worth little and one may as well euroize. Furthermore, the high rates of labor productivity growth during a dynamic catching-up process mean that any mistakes in initially setting the conversion rate for the domestic economy are likely to be made up quickly. Of course this suggests that accession candidates with relatively slow labor productivity growth, like the Czech Republic, may have less to gain and more to lose if they adopt unilateral euroization.

While Jacek Rostowski expects unilateral euroization to be less credible than full EMU membership, he thinks it would be somewhat more credible than a currency board arrangement and even much more so than "soft pegs of the ERM variety." Jacek Rostowski perceives unilateral euroization to be more credible than a currency board arrangement because it would (technically) be much more difficult to recreate a domestic currency in a euroized country than to remove currency board provisions.

Proceeding from the Harrod-Balassa-Samuelson effect, fast-growing countries (like Poland) are likely to experience higher inflation rates than euro area countries for a sustained period (with the prices of nontradables generally rising faster than those of tradables), thus endangering the fulfillment of the Maastricht inflation criteria. This could be alleviated in the framework of a flexible exchange rate regime by letting the currency appreciate. While such an option is not available in the case of unilateral euroization, Mr. Rostowski stressed that in this case it would nonetheless be possible to curb inflation by sufficiently adjusting domestic demand. Fiscal policy could be tightened accordingly, a temporary "social pact" restraining wages in the nontraded sector could be established or the growth of administrative prices could be temporarily limited to allow the Maastricht criteria to be fulfilled and full EMU membership to be achieved.

Jacek Rostowski did not argue with Cezary Wójcik's claim that unilateral euroization need not necessarily lead to a reduction in medium and long-term interest rates in Poland. For want of the possibility to devalue in order to increase competitiveness, the default risk may grow if an economy develops large fiscal disequilibria. The inability of the National Bank of Poland to print euro banknotes means that the central bank would be limited in acting as a lender of last resort to the banking system. This might lead to increased premia on foreign loans to Polish banks, thereby pushing up lending rates for borrowers.

However, Jacek Rostowski qualified the loss of the lender of last resort function by pointing out that more than half of Polish banks' assets belong to foreigners who should have the means to help their banks if necessary. For the remaining Polish-controlled banks, a Banking Sector Liquidity Fund could be created; the monetary authorities' remaining international reserves could be transferred to this fund after euroization. The large fall in interest rates Jacek Rostowski expects to result from euroization would help improve the fiscal situation. In contrast to Cezary Wójcik, Jacek Rostowski estimated the difference between respective (short-term) interest rate levels with and without euroization to be accounted for not only by a "currency risk premium," but also by a "depreciation premium." Mr. Rostowski determined an interest rate premium that was more than double (12% to 14%) that calculated by Mr. Wójcik (5% to 6%). Moreover, he estimated that the interest rate fall resulting from euroization might possibly trigger a sizeable annual reduction of fiscal expenditures by 2.6% to 2.8% of GDP.

Mr. Rostowski contends that after subtracting seigniorage revenue, which would not accrue in the case of euroization, the possible net annual improvement in the fiscal balance as a result of euroization would still surpass about 2% of GDP. He goes on to say that if Poland's underlying growth rate remains at about 6% a year, euroization should allow the country to close this "growth gap." If euroization were instituted in January 2002, by 2006 Poland would have a GDP that would be about 10% higher than otherwise. This corresponds to an annual "growth effect" of euroization of around 2% of GDP.

3 Comments by Discussants

Christian Thimann focused on two major points: (1) lessons from currently euroized/dollarized countries, and (2) implications of euroization for the institutional governance of the European Union. According to Mr. Thimann, 32 countries worldwide are currently euroized/dollarized. Only 15 of these are IMF members, and not all are sovereign countries. These countries or territories are highly heterogeneous, comprising for example some of Europe's richest countries (e.g. Liechtenstein, Monaco) as well as its poorest regions (e.g. Kosovo, Montenegro). A common point is that they are mostly small states or even "microstates" and have a distinct history (e.g. having been former colonies, having experienced severe macroeconomic stress, and the like). In euroized countries in Western Europe, tourism and finance constitute important economic sectors. Banking sectors here are up to ten times as large as the Western European average. Many of these countries are also tax havens.

The experience of euroized/dollarized countries shows that interest rates have not always fallen to levels of the respective anchor currency and, moreover, full convergence of inflation rates need not necessarily come about. As regards accession countries, the prospect of adopting the euro over the medium term by going through the Maastricht Treaty process suggests that for these countries the benefits of euroization would be relatively small and uncertain. Since there is a clearly determined institutional procedure for joining EMU, the ECB may also take a more restrictive view with respect to possible euroization in applicant countries than the Fed takes with regard to dollarization in countries outside the United States. Christian Thimann went on to stress that you have to

take it all, that you cannot opt for "acquis cherry-picking." Such behavior would have negative externalities in rendering the Treaty provisions on ERM II and the euro itself ineffective. Against this background, accession candidates may only have an incentive to euroize if they are not committed to participating in the orderly functioning of the EU and its institutions.

Eduard Hochreiter (OeNB) pointed out that from an economic viewpoint, the feasibility of a euroization/dollarization strategy depended on some critical assumptions, in particular on large international reserves, high GDP growth, rapid productivity growth, fiscal discipline and the credibility of the country's monetary regime. If these conditions were fulfilled in a sustained manner, Hochreiter stated that he would have no problems supporting a hard currency peg on economic grounds, pointing to the OeNB's successful hard currency policy.

Eduard Hochreiter stressed that notwithstanding the merits of such an approach, one should not downplay the downside risks, either. Here, three points are worth mentioning: (1) The business cycle is well and alive and downturns or upturns may derail fiscal and other policies. Mr. Hochreiter named Austria as an example: here, the federal budget deficit more than doubled between 1992 and 1996 despite knowledge of the Maastricht Treaty provisions and the country's upcoming accession to the EU. (2) There are still big differences in business cycles across accession countries, and quite a few variations appear to have had their origins in domestic policies (e.g. Hungary 1994–95, the Czech Republic 1996–97). (3) Risks persist with labor markets, privatization, and structural reforms. Furthermore, there are pure political risks: For example, Norway's accession to the EU was struck down by popular decision. Bearing such scenarios in mind, Mr. Hochreiter would choose an "insurance policy" with an opt-out possibility and go for a currency board. If the economic conditions listed above were satisfied, the net cost of a currency board may in fact be negative, and the country would retain some seigniorage.

Cezary Wójcik defended his skeptical views on euroization (in the Polish case). He argued that the adoption of the euro as such should be beneficial. However, adopting the euro too early and on a unilateral basis may not be optimal. Mr. Wójcik listed several risks of too early and unilateral euroization. First, there is very limited experience and research on euroization, and most euroized/dollarized economies are tiny, so that their experience may not be fully applicable to Poland. Moreover, Cezary Wójcik pointed to new findings by Sebastian Edwards on the experience of dollarized economies. On the average, these economies have witnessed significantly lower inflation, but have grown at a lower rate and have proved more vulnerable to external shocks than other economies. Second, there is a considerable risk of boom-bust cycles. Since nominal short-term interest rates would fall immediately (after euroization they would be set by the ECB), whereas inflation might prove to decline at a slower pace, real interest rates could at least initially turn out to be artificially low and even negative. This initial shock might fuel an unsustainable consumption/investment boom and lead to a sharp recession later on. The substantial nominal money illusion observed in Poland may heighten the risk of a boom-bust cycle.

Third, Mr. Wójcik mentioned the risk of exchange rate misalignment. Inflationary inertia after an upfront devaluation of the domestic currency as

proposed by Jacek Rostowski, still necessary adjustments of administrative prices as well as demand-side effects could lead to a loss of competitiveness of the euroized Polish economy. Cezary Wójcik felt that a social pact may not be possible in Poland, at least not at this stage; but even if it were, agreeing on such a pact could eliminate potential weaknesses of a floating exchange rate strategy as well, which would render this strategy more advantageous, since seigniorage revenues would not be lost in this case. According to Mr. Wójcik, unilateral euroization may indeed stimulate growth, but there is a risk that growth would only be short-lived. He argued that growth should not only be fast but also sustainable. Remaining structural problems could put medium- and long-term growth at jeopardy. By the same token, gains from interest rate reductions in terms of GDP growth and improvements of the budget balance could well prove to be temporary. A rise of the default risk might compensate or even overcompensate the initial benefits of the reduced currency risk. Mr. Wójcik also pointed out some technical weaknesses of the methodology Jacek Rostowski used to calculate short-term interest rate reductions after euroization, and argued that it wrongly overestimated the potential effect of euroization.

4 General Discussion

In the very lively general discussion, the numerous participants remained divided on the benefits and drawbacks of unilateral euroization. One of the points made was that a key macroeconomic problem of the Polish economy today, namely the unfortunate mix of fiscal and monetary policies, had not received adequate attention in the discussion so far. Euroization would not be able to solve the problems of an expansionary fiscal policy. With respect to the issue of a possible exchange rate misalignment, some participants recalled the unfortunate example of the former GDR, which had entered reunification at a highly overvalued exchange rate. Although unlike the GDR in 1990, Poland can look back on substantial structural adjustment over the past ten years, asymmetric shocks are still possible, as demonstrated by the consequences of the oil price changes and the fallout from the Russian crisis of 1998. Furthermore, Jacek Rostowski's postulate that fiscal policy was powerless in EU accession countries was questioned, as some recent empirical studies on the issue point to the contrary, at least for some accession countries. However, there was wide agreement that besides economic factors, political factors also play an important – and possibly decisive – role in the evaluation of euroization.

Contribution by László Halpern, Ronald MacDonald and Boštjan Jazbec

Real Exchange Rates in Transition Countries

1 Introduction

The 44th East Jour Fixe was held at the OeNB on Februar 22, 2002, and centered on the topic "Real Exchange Rates in Transition Countries." The workshop was chaired by Doris Ritzberger-Grünwald, Head of the Foreign Research Division.

The East Jour Fixe started with the presentation by Professor László Halpern (Hungarian Academy of Sciences) of his paper "Economic Transformation and Real Exchange Rates in the 2000s: The Balassa-Samuelson Connection," coauthored by Professor Charles Wyplosz. At the beginning of his talk, László Halpern gave an overview of the institutional requirements for exchange rate arrangements in EU accession countries in preparation of the eventual adoption of the euro and compared the euro regime with exchange rate regimes currently in place in accession countries. He moved on to explain the working of the Balassa-Samuelson effect and presented tests on the generalization of the assumptions of the Balassa-Samuelson effect, namely (1) the development of sectoral productivity as a function of supply factors, (2) the determination of real sectoral (producer) wages by productivity developments and labor market conditions, (3) the development of real (consumer) wages across sectors, and (4) the fact that sectoral growth is driven by supply and demand factors. Having confirmed the necessity to incorporate these assumptions, he presented a reduced-form estimation of the Balassa-Samuelson effect: For a panel of nine countries, the service-to-nonfood price ratio was explained by the developments in productivity in industry and services as well as demand factors (PPP-based GDP/capita and inflation acceleration). As suggested by theory, the labor productivity terms for industry and services entered the equation with statistically significant positive and negative signs, respectively. Based on estimated regression coefficients and assumptions regarding sectoral productivity developments, he considered a Balassa-Samuelson effect-related annual real appreciation of about 1.5% to 2% as realistic. Thus, in order to fulfill the Maastricht inflation criterion, accession countries need to achieve a rather large nominal appreciation of their exchange rates. In an environment of increasing capital flows, László Halpern considers the ERM II bandwidth as rather small and possibly crisis prone.

In the discussion, a number of questions dealt with policy recommendations about the integration of accession countries into the euro area. Dealing with an early entry into the euro area, László Halpern raised the issue of the endogenization of optimal currency area (OCA) criteria, which could enable a relatively quick entry, provided that certain thresholds are fulfilled prior to taking such a step. In his opinion, the accession countries' central banks should aim for a fulfillment of the criteria of Maastricht, but he cautioned against overambitiousness in keeping a tight timeframe for the fulfillment of the criteria.

Professor Ronald MacDonald of the University of Strathclyde gave a presentation of the paper "PPP and the Balassa Samuelson Effect: The Role of the

Distribution Sector" (coauthored by Luca Ricci). Ronald MacDonald started his presentation by explaining the key motivation for his paper – the slow mean reversion of CPI-deflated real exchange rates. In a small theoretical model, Ronald MacDonald offered a possible explanation for the so-called PPP puzzle: Within a standard Balassa-Samuelson model he explicitly introduced the distribution sector. In this model the distribution sector delivers its services to the tradables sector, but not to the nontradables sector. Besides the conventional predictions of the Balassa-Samuelson model, an increase in the productivity of the distribution secotor in country one relative to country two results in an appreciation of the first country's real exchange rate, if the distribution sector plays a bigger role in delivering goods in the tradable industry rather than to consumers. This is because the productivity of the distribution sector has two effects: on the one hand, it lowers the price of tradables (by lowering the cost of distributing intermediate inputs), thus raising the relative wage and appreciating the real exchange rate (similar to the effect of the productivity of tradables); on the other hand, it lowers the consumer price of tradables, depreciating the real exchange rate (similar to the effect of the productivity of nontradables). Applying a panel dynamic OLS estimation methodology to a sample of OECD countries for the sample period 1970 to 1992, Professor MacDonald first presented a set of regressions for the sectoral price equations before moving on to the main model for the CPI-based real exchange rate. The development of the real exchange rate is explained by Balassa-Samuelson terms, macrovariables and variables that measure the efficiency of the distribution sector. All variables have the expected sign and are statistically significant, thus confirming the empirical relevance of the impact of the efficiency in the distribution sector on the real exchange rate. Finally, Ronald MacDonald showed how the incorporation of the explanantory variables mentioned above contributed to a sharp acceleration of mean reversals of the real exchange rate towards PPP.

Turning to the issue of the timing of the adoption of the euro by the accession countries, Ronald MacDonald mentioned the risks of demand inflation for an early adoption of the euro. An important issue in this respect is the determination of the extent of demand inflation relative to the Balassa-Samuelson effect.

Assistant Professor Boštjan Jazbec gave a presentation on the "Determinants of Real Exchange Rates in Transition Economies." In his paper, Mr. Jazbec also used the Balassa-Samuelson model, but incorporated additional variables in the empirical analysis of real exchange rate developments in transition countries. The additional variables (besides the Balassa-Samuelson terms) employed in his study comprise demand variables (the share of nontradable consumption in total private consumption and real government consumption measured in percent of GDP) and a structural variable (number of workers employed in industry divided by the number of workers employed in services). Moreover, Boštjan Jazbec used country-specific dummy variables to account for different initial country conditions. His model was estimated for a panel of 19 transition countries. All countries entered the sample in the year when their most serious stabilization attempt was introduced. By doing so, it was possible to distinguish the extent of the reforms implemented in each group of transition countries and their impact on real exchange rate determination. He showed that adverse initial conditions and structural reforms affected the real exchange rate

(measured as the relative price of tradables in terms of nontradable goods) only in the first five years of the transition process. After that period, other factors began to dominate real exchange rate determination. Again, he was able to confirm empirically the relevance of the Balassa-Samuelson effect. He argued that transition countries will observe trend appreciation determined by structural reforms at least as long as they catch up with the more advanced economies. While the CEE countries have experienced an increase in productivity differentials between labor productivity in the tradable and nontradable sector at the later stages of transition, the demand factors seemed to play a more pronounced role in determining the real exchange rate in the Baltic countries. With the Balassa-Samuelson effect at work in transition countries, he highlighted the issue of choosing appropriate exchange arrangements in the run-up to EU accession.

In Boštjan Jazbec's opinion, there is a case for a relaxation of the Maastricht inflation criterion, as the magnitude of the Balassa-Samuelson effect is likely to exceed the tolerance band of 1.5 percentage points. Nevertheless, he considers inflation in transition countries mostly as demand driven. An exact quantification of the sources of inflation is difficult, however.

Olga Radzyner Award for Scientific Work On Monetary and Finance Themes for Young Economists from Central, Southeastern and Eastern European Transition Economies

The Oesterreichische Nationalbank has established an award which is bestowed on young economists for excellent research focused on monetary and finance issues in economics. The panel of judges gives preferential treatment to topics dealing with the integration of Central, Southeastern and Eastern transition economies within Europe.

Three applicants are eligible to receive a single payment of EUR 2,500 each from an annual total of EUR 7,500.

The submitted work shall be in the form of a master's or doctoral thesis, a working paper or a scientific article, and shall be in English or in German. The author shall submit the work before his/her 35th birthday, and shall be a citizen of a Central, Southeastern or Eastern European transition country.

To identify their work as a submission, applicants shall mark the envelope with the reference **"Olga Radzyner Preis."** It shall be sent to the Oesterreichische Nationalbank, Foreign Research Division, Otto-Wagner-Platz 3, POB 61, 1011 Vienna, Austria. The Oesterreichische Nationalbank shall receive the work submitted for the award of the year 2002 by September 10 at the latest.

For detailed information please visit our website at www.oenb.at or contact the Foreign Research Division of the Oesterreichische Nationalbank, Ms. Eva Wasserbauer, either by e-mail at Eva.Wasserbauer@oenb.at or by phone at (+43-1) 404 20 ext. 5205.

Technical Cooperation of the Oesterreichische Nationalbank with Countries in Transition

In the first half of 2002, the OeNB continued its cooperation activities with transition countries in Central and Eastern Europe, the western Balkans and the CIS republics both at a bilateral and at a multilateral level.

At the bilateral level, the OeNB held a one-week seminar exclusively designed for central bankers at the Joint Vienna Institute (JVI) covering the topic of "EMU after the Cash Changeover" (March 18 to 22, 2002). Three further one-week seminars for central bankers will be organized in 2002, covering the following topics: "Human Resource Management" (June 17 to 21), "Payment Systems – Future Challenges" (October 7 to 11) and "Banking Supervision Today and Tomorrow – Recent Experiences and Future Capital Regulation" (November 4 to 8). The OeNB still observes a continued strong demand for these seminars and a highly positive reaction of the participants and will therefore keep up its efforts.

In addition to these seminars, the OeNB continued its bilateral technical cooperation activities with central banks in transition countries by organizing consultations, lectures and various study and information visits to the OeNB. Within this framework, the OeNB welcomed a delegation from the National Bank of Georgia that had come to Vienna in April 2002 to exchange views on "banknote production and coins." A visit to the OeNB by experts from the National Bank of Latvia is currently under preparation for July. The visit will cover the following topics: "Markets and Reserve Management," "Risk-Based Audit Process" and "Risk Management Systems." Following a request from the National Bank of Hungary (NBH), the OeNB will arrange a two-day workshop in Budapest on "Future Capital Standards Proposed by the Basel Committee and the European Commission – Review of Regulatory Capital Requirements for Credit Institutions," "Supervising Derivative Transactions" and "Practical Experience from EU and ECB Working Groups Concerning Future Developments on Banking Regulations and Macroprudential Systemic Issues" in 2002. Furthermore, two study visits of staff members of the NBH are scheduled for the second half of 2002, the first visit covering the topic "central bank legal harmonization" and the second dealing with the issue "communication strategy." Furthermore, the OeNB plans a two-day workshop on "The Central Bank's Role in Payment and Settlement Systems" at the training center of the National Bank of Belarus in Minsk.

Apart from these short-term cooperation activities, the OeNB further enhanced the close cooperation with its counterparts in accession countries, planning a six-week internship on the subject of international central bank relationships for an employee of the Czech National Bank for 2002.

At the multilateral level, the OeNB is currently taking part in the EU-financed Twinning Programme on "Strengthening the Capacity of the Romanian Institutions for the Prevention and Control of Money Laundering" in cooperation with Italy. Given its great success, this project was extended for three more months. Thus, the OeNB hosted a study visit in March and is planning to organize other related activities.

The Austrian authorities, i.e. the Austrian Ministry of Finance and the OeNB, remain committed to supporting the Joint Vienna Institute. In March 2002, the Austrian authorities and the IMF signed a Memorandum of Understanding, establishing a permanent basis for the JVI's activities in Vienna.

As a consequence, the Austrian authorities will step up substantially their financial contribution to the JVI as of 2003, when the new arrangement will come into effect. They also committed themselves to providing a new building to host the JVI.

In 2002, in addition to the four one-week seminars the OeNB holds every year and to several lectures for JVI seminar groups, the Austrian authorities jointly organized two one-week seminars to take place at the JVI later in the year. The topics of these two Austrian seminars will be "Foreign Direct Investment Policy" (October 21 to 25, 2002) and "Challenge for Structural Reforms: Design, Implementation, Experience" (September 23 to 27, 2002).

Moreover, as in previous years, the JVI's course in Applied Economic Policy (AEP) includes an "Austrian segment" financed jointly by the Austrian authorities. In the first part of this segment, experts from a variety of academic and organizational backgrounds spend three days presenting 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, and the study tour is accompanied alternately by an OeNB representative and by a representative of the Austrian Ministry of Finance. The first study tour in 2002 was organized in cooperation with the OeNB's branch office in Graz and took place from March 6 to 8, 2002; the second study tour will be jointly organized with the OeNB's branch office in Linz and is scheduled for October 23 to 25, 2002.

Statistical Annex

Gross Domestic Product

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
	Annual change in %										
1992	− 7.3	−0.5	−21.6	−3.1	×	×	+2.6	−8.8	−14.5	−6.5	−5.5
1993	− 1.5	+0.1	− 8.2	−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	+6.7	+4.1
1996	−10.1	+4.3	+ 3.9	+1.3	+ 3.3	+ 4.7	+6.0	+3.9	− 3.4	+6.2	+3.5
1997	− 7.0	−0.8	+10.6	+4.6	+ 8.6	+ 7.3	+6.8	−6.1	+ 0.9	+6.2	+4.6
1998	+ 3.5	−1.2	+ 4.0	+4.9	+ 3.9	+ 5.1	+4.8	−4.8	− 4.9	+4.1	+3.8
1999	+ 2.4	−0.4	− 0.5	+4.2	+ 1.1	− 4.2	+4.1	−1.2	+ 5.4	+1.9	+5.2
2000	+ 5.8	+2.9	+ 6.4	+5.2	+ 6.8	+ 4.2	+4.0	+1.8	+ 9.0	+2.2	+4.6
2001	+ 4.0	+3.6	+ 7.0	+3.8	+ 7.6	+ 5.9	+1.1	+5.3	+ 5.0	+3.3	+3.0
1999											
3rd quarter	+ 4.8	+0.4	− 0.8	+4.2	+ 1.2	− 6.6	+5.0	−1.3	+10.8	+0.6	+4.5
4th quarter	+ 1.0	+1.1	+ 2.5	+5.9	+ 3.9	− 4.8	+6.2	−1.5	+10.5	+2.3	+5.5
2000											
1st quarter	+ 4.5	+3.0	+ 6.5	+6.6	+ 6.3	+ 5.5	+5.9	+1.2	+ 9.0	+1.5	+6.2
2nd quarter	+ 5.7	+2.5	+ 7.8	+5.7	+ 5.3	+ 0.0	+5.0	+2.0	+ 8.6	+1.9	+3.4
3rd quarter	+ 6.1	+2.4	+ 7.3	+4.6	+ 6.8	+ 5.9	+3.1	+2.2	+ 8.8	+2.5	+5.5
4th quarter	+ 6.5	+3.7	+ 6.0	+4.2	+ 8.9	+ 3.9	+2.3	+1.3	+ 6.8	+2.9	+3.5
2001											
1st quarter	+ 4.5	+3.8	+ 5.8	+4.4	+ 8.3	+ 3.5	+2.3	+4.8	+ 4.9	+3.0	+3.2
2nd quarter	+ 4.7	+3.8	+ 5.0	+4.0	+ 9.3	+ 6.6	+0.9	+5.1	+ 5.3	+2.8	+2.8
3rd quarter	+ 3.9	+3.3	+ 5.0	+3.7	+ 6.4	+ 5.3	+0.8	+6.8	+ 4.9	+3.5	+3.3
4th quarter	+ 4.2	+3.1	+ 5.7	+3.3	+ 6.3	+ 7.9	+0.3	+4.5	+ 5.0	+3.9	+2.6

Source: WIIW (The Vienna Institute for International Economic Studies); Estonia, Latvia, Lithuania: IMF; Russia: national sources from 1999. Quarterly data: Eurostat, national sources.
Due to revisions quarterly data may not match annual data.

Industrial Production

	Bulgaria	Czech Republic	Estonia[1])	Hungary	Latvia	Lithuania[2])	Poland	Romania	Russia	Slovak Republic[3])	Slovenia
	Annual change in %										
1991	−20.2	−21.2	×	−16.6	×	− 4.9	− 8.0	−22.8	− 8.0	−19.4	−12.4
1992	−18.4	− 7.9	×	− 9.7	−34.6	−51.6	+ 2.8	−21.9	−18.0	− 9.3	−13.2
1993	− 9.8	− 5.3	×	+ 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	− 5.4	+ 4.5	+15.2	+11.1	+ 6.1	+ 8.0	+11.5	− 7.2	+ 1.9	+ 2.7	+ 1.0
1998	− 7.9	+ 1.6	+ 3.2	+12.5	+ 2.0	+ 9.3	+ 3.5	−13.8	− 5.2	+ 5.0	+ 3.7
1999	− 9.3	− 3.1	− 1.7	+10.4	− 8.8	− 9.6	+ 3.6	− 2.2	+11.0	− 2.7	− 0.5
2000	+ 5.8	+ 5.4	+14.6	+18.6	+ 3.2	+ 5.4	+ 6.7	+ 8.2	+11.9	+ 8.6	+ 6.2
2001	+ 0.7	+ 6.8	+ 7.9	+ 4.1	+ 8.4	+17.2	− 0.2	+ 8.2	+ 4.9	+ 6.9	+ 2.9
2001											
January	− 6.5	+13.8	+11.0	+19.8	+ 9.7	+20.1	+10.7	+16.3	+ 7.8	+13.6	+ 8.9
February	+28.0	+ 6.5	+ 5.5	+ 9.8	+ 7.0	+14.9	− 0.1	+ 9.7	+ 3.1	+ 5.0	+ 2.8
March	+ 2.1	+ 9.8	+ 7.5	+ 3.0	+ 8.8	+ 3.1	+ 3.3	+ 7.4	+ 4.7	+ 5.5	+ 2.9
April	+ 1.6	+11.3	+ 5.0	+11.6	+13.9	+13.2	+ 3.8	+12.5	+ 7.0	+ 6.4	+ 9.4
May	+ 4.0	+ 6.9	+ 8.8	+ 8.6	+ 7.9	+27.8	− 0.4	+12.9	+ 7.0	+ 8.5	+ 1.2
June	+ 0.2	+ 3.7	+ 3.4	+ 0.2	+ 7.7	+16.3	− 4.7	+ 5.0	+ 3.7	+ 8.9	− 3.9
July	+ 6.8	+ 9.3	+16.9	+ 2.7	+12.6	+17.6	+ 1.5	+ 5.7	+ 4.5	+ 9.4	+ 6.4
August	+10.3	+ 3.0	+ 6.4	+ 2.4	+ 8.7	+ 9.7	+ 0.9	+ 4.6	+ 5.1	+ 5.8	+ 2.9
September	+ 2.7	+ 1.1	+ 2.2	− 6.4	+ 5.3	+ 4.2	− 3.7	+ 2.5	+ 3.8	+ 6.8	− 1.1
October	− 0.7	+ 4.1	+12.3	+ 5.9	+10.6	+37.5	+ 1.8	+ 9.5	+ 5.1	+ 8.4	+ 7.2
November	+ 1.3	+ 6.6	+ 9.5	− 1.0	+ 7.1	+23.6	− 1.1	+ 8.4	+ 4.7	+ 3.9	+ 0.1
December	− 5.0	+ 7.0	+ 6.5	− 2.2	+ 3.2	+18.1	− 4.8	+ 5.3	+ 2.6	+ 2.1	+ 0.2
2002											
January	− 2.9	+ 2.6	+ 3.5	− 1.0	+ 4.8	− 4.3	− 1.4	+ 5.1	+ 2.2	+ 1.5	+ 4.3
February	+ 0.1	+ 5.8	+ 3.1	+ 0.0	+ 0.2	− 3.5	+ 0.3	+ 4.7	+ 2.0	+ 5.6	+ 4.0
March	. .	+ 4.1	− 6.7	. .	− 5.5	+ 13.1	− 3.2	. .	+ 3.7	. .	. .

Source: Annual data: WIIW; Estonia, Latvia, Lithuania: national sources. Monthly data: national sources.
[1]) Industrial sales up to 1999.
[2]) Industrial sales.
[3]) From 1999 change in % against 1998 monthly average.

Unemployment Rate

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
	End of period (%)										
1992	15.2	2.6	×	9.8	2.3	×	13.6	8.2	5.2	10.4	13.4
1993	16.4	3.5	1.8	11.9	5.8	4.4	16.4	10.4	6.0	14.4	15.4
1994	12.8	3.2	1.5	10.7	6.5	3.8	16.0	10.9	7.7	14.6	14.2
1995	11.1	2.9	2.1	10.2	6.5	6.2	14.9	9.5	9.0	13.1	14.5
1996	12.5	3.5	2.6	9.9	7.2	7.0	13.2	6.6	9.9	12.8	14.4
1997	13.7	5.2	2.7	8.7	7.0	5.9	10.3	8.9	11.2	12.5	14.8
1998	12.2	7.5	2.7	7.8	9.2	6.9	10.4	10.4	13.3	15.6	14.6
1999	16.0	9.4	4.0	7.0	9.1	10.0	13.1	11.8	12.2	19.2	13.0
2000	17.9	8.8	5.9	6.4	7.8	12.6	15.1	10.5	9.9	17.9	12.0
2001	17.3	8.9	6.1	5.7	7.7	12.9	17.4	8.6	9.0	18.6	11.8
2001											
January	18.5	9.1	6.9	6.0	7.9	13.1	15.7	10.7	10.0	19.8	12.2
February	18.7	9.0	6.8	6.3	8.0	13.2	15.9	10.7	10.2	19.7	12.0
March	18.4	8.7	7.1	5.6	8.1	13.2	16.1	10.3	9.6	19.2	11.8
April	18.5	8.5	7.0	5.8	8.0	12.8	16.0	9.8	9.1	18.3	11.7
May	17.8	8.1	6.8	5.7	7.9	12.3	15.9	9.2	8.6	17.5	11.7
June	17.1	8.1	6.3	5.4	7.8	12.1	15.9	8.7	8.6	17.8	11.7
July	16.8	8.5	6.2	5.7	7.7	12.1	16.0	8.3	8.6	18.0	11.3
August	16.7	8.5	6.1	5.8	7.7	12.1	16.2	8.0	8.6	17.8	11.1
September	16.5	8.5	6.2	5.3	7.6	12.0	16.3	7.8	8.7	17.4	11.3
October	16.7	8.4	6.3	5.6	7.6	12.2	16.4	7.7	8.8	17.3	11.5
November	17.2	8.5	6.3	5.8	7.6	12.5	16.8	8.0	8.9	17.7	11.6
2002											
December	17.3	8.9	6.1	5.4	7.7	12.9	17.4	8.6	9.0	18.6	11.8
January	18.0	9.4	6.6	5.8	7.9	13.1	18.0	12.4	9.0	19.7	12.0
February	17.9	9.3	6.5	5.9	8.2	12.9	18.1	13.2	9.1	19.6	11.8
March	17.5	9.1	6.4	5.7	8.2	12.6	18.1	13.0	8.9	19.1	. .

Source: WIIW; Estonia, Latvia, Lithuania: national sources.

Consumer Price Index

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
	Period average (annual change in %)										
1992	+ 91.2	+11.1	×	+23.0	+243.3	×	+43.0	+210.4	+1,526.5	+10.0	+207.3
1993	+ 72.8	+20.8	+89.8	+22.5	+108.8	+410.2	+35.3	+256.1	+ 873.5	+23.2	+ 32.9
1994	+ 96.0	+10.0	+47.7	+18.8	+ 35.9	+ 72.2	+32.2	+136.8	+ 307.0	+13.4	+ 21.0
1995	+ 62.1	+ 9.1	+28.8	+28.2	+ 25.0	+ 39.7	+27.8	+ 32.3	+ 197.5	+ 9.9	+ 13.5
1996	+ 121.6	+ 8.8	+23.1	+23.6	+ 17.6	+ 24.6	+19.9	+ 38.8	+ 47.8	+ 5.8	+ 9.9
1997	+1,058.4	+ 8.5	+10.6	+18.3	+ 8.4	+ 8.9	+14.9	+154.8	+ 14.8	+ 6.1	+ 8.4
1998	+ 18.7	+10.7	+ 8.2	+14.3	+ 4.7	+ 5.1	+11.8	+ 59.1	+ 27.6	+ 6.7	+ 7.9
1999	+ 2.6	+ 2.1	+ 3.3	+10.0	+ 2.4	+ 0.8	+ 7.3	+ 45.8	+ 85.7	+10.6	+ 6.1
2000	+ 10.3	+ 3.9	+ 4.0	+ 9.8	+ 2.7	+ 1.0	+10.1	+ 45.7	+ 20.8	+12.0	+ 8.9
2001	+ 7.4	+ 4.7	+ 5.7	+ 9.2	+ 2.5	+ 1.2	+ 5.5	+ 34.5	+ 21.6	+ 7.3	+ 8.4
2000											
September	+ 11.8	+ 4.1	+ 4.7	+10.3	+ 2.2	+ 0.3	+10.3	+ 44.9	+ 18.6	+ 8.7	+ 8.9
October	+ 11.9	+ 4.4	+ 5.4	+10.4	+ 2.0	+ 1.1	+ 9.9	+ 42.9	+ 19.4	+ 8.5	+ 9.0
November	+ 12.3	+ 4.3	+ 5.7	+10.6	+ 1.6	+ 1.5	+ 9.3	+ 41.3	+ 19.8	+ 8.6	+ 9.7
December	+ 11.3	+ 4.0	+ 5.0	+10.1	+ 1.8	+ 1.4	+ 8.5	+ 40.7	+ 20.1	+ 8.4	+ 8.9
2001											
January	+ 9.3	+ 4.2	+ 5.8	+10.1	+ 1.4	− 0.4	+ 7.4	+ 39.9	+ 20.7	+ 7.5	+ 8.5
February	+ 8.5	+ 4.0	+ 6.0	+10.4	+ 0.6	− 0.2	+ 6.6	+ 40.0	+ 22.3	+ 6.3	+ 8.7
March	+ 8.9	+ 4.1	+ 5.8	+10.5	+ 1.4	+ 0.6	+ 6.2	+ 40.3	+ 23.8	+ 6.6	+ 8.9
April	+ 9.8	+ 4.6	+ 6.3	+10.3	+ 1.3	+ 0.0	+ 6.6	+ 37.5	+ 25.0	+ 7.1	+ 9.0
May	+ 9.7	+ 5.0	+ 7.0	+10.8	+ 2.6	+ 1.7	+ 6.9	+ 37.4	+ 25.0	+ 7.4	+ 9.7
June	+ 9.4	+ 5.5	+ 6.8	+10.5	+ 3.1	+ 1.5	+ 6.2	+ 35.7	+ 23.7	+ 8.0	+ 9.5
July	+ 8.5	+ 5.9	+ 6.4	+ 9.4	+ 3.1	+ 1.1	+ 5.2	+ 31.8	+ 22.2	+ 8.0	+ 8.8
August	+ 5.7	+ 5.5	+ 6.1	+ 8.7	+ 3.0	+ 2.3	+ 5.1	+ 32.3	+ 20.9	+ 7.8	+ 8.5
September	+ 4.7	+ 4.7	+ 5.7	+ 8.0	+ 3.7	+ 2.0	+ 4.3	+ 31.2	+ 20.1	+ 7.3	+ 7.9
October	+ 5.2	+ 4.4	+ 4.7	+ 7.6	+ 3.4	+ 2.3	+ 4.0	+ 30.8	+ 18.9	+ 6.9	+ 7.8
November	+ 4.6	+ 4.2	+ 4.1	+ 7.1	+ 3.1	+ 2.0	+ 3.6	+ 30.7	+ 18.8	+ 6.4	+ 7.0
December	+ 4.8	+ 4.1	+ 4.2	+ 6.8	+ 3.2	+ 1.9	+ 3.6	+ 30.3	+ 18.8	+ 6.4	+ 7.0
2002											
January	+ 7.0	+ 3.7	+ 4.2	+ 6.6	+ 3.5	+ 3.2	+ 3.4	+ 28.6	+ 19.2	+ 6.2	+ 8.4
February	+ 8.4	+ 3.9	+ 4.5	+ 6.2	+ 3.3	+ 2.7	+ 3.5	+ 27.2	+ 17.9	+ 4.3	+ 8.1
March	+ 9.2	+ 3.7	+ 4.3	+ 5.9	+ 3.2	+ 1.6	+ 3.3	+ 25.2	+ 16.9	+ 3.6	+ 7.6

Source: WIIW; Estonia, Latvia, Lithuania: IMF.

Trade Balance

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
	USD million										
1992	×	×	– 90.1	– 48.0	×	×	×	–1,420.0	×	×	791.1
1993	×	– 525.3	– 144.8	–3,247.0	18.6	– 154.8	– 2,482.0	–1,128.0	15,590.0	– 932.0	– 154.2
1994	×	–1,381.2	– 356.9	–3,635.0	– 301.1	– 204.9	– 895.0	– 411.0	17,374.0	58.5	– 337.5
1995	×	–3,677.9	– 732.5	–2,442.0	– 580.7	– 698.0	– 1,912.0	–1,577.0	20,310.0	– 227.5	– 954.3
1996	– 237.9	–5,706.3	–1,190.8	–1,206.9	– 799.1	– 896.2	– 8,179.0	–2,470.0	22,471.0	–2,292.6	– 881.7
1997	– 45.5	–4,892.9	–1,687.2	–1,567.1	–1,051.3	–1,147.5	–11,320.0	–1,980.0	17,025.0	–2,057.9	– 771.6
1998	– 763.2	–2,603.3	–1,743.4	–1,904.9	–1,377.4	–1,518.4	–13,720.0	–2,625.0	16,869.0	–2,353.1	– 774.9
1999	–1,508.7	–1,902.6	–1,344.5	–2,190.5	–1,223.2	–1,404.6	–14,380.0	–1,092.0	36,129.0	–1,092.4	–1,245.2
2000	–1,682.5	–3,131.0	–1,597.9	–2,902.7	–1,322.2	–1,103.8	–13,168.0	–1,684.0	60,703.0	– 916.8	–1,138.9
2001	–2,133.6	–3,128.1	–1,503.8	–3,127.9	–1,505.1	–1,108.0	–11,680.0	–2,969.0	49,429.0	–2,314.7	– 621.7
2001											
January	– 79.8	– 201.0	– 91.8	– 391.2	– 80.9	×	– 1,515.0	– 157.0	5,104.0	– 102.7	– 33.6
February	– 45.6	– 199.0	– 40.9	– 266.1	– 91.1	×	– 726.0	– 80.4	4,478.0	– 114.6	– 48.4
March	– 98.7	– 297.0	– 95.7	– 250.9	– 119.1	– 232.3	– 906.0	106.9	4,648.0	– 179.6	– 37.2
April	– 118.7	– 296.0	– 108.3	– 323.0	– 113.0	×	– 709.0	– 218.9	4,357.0	– 137.9	– 81.9
May	– 164.0	– 221.0	– 48.5	– 299.0	– 116.1	×	– 1,165.0	– 372.3	4,204.0	– 157.2	– 92.5
June	– 170.1	– 118.0	– 65.1	– 205.8	– 105.3	– 225.6	– 902.0	531.9	4,643.0	– 164.2	– 32.6
July	– 204.1	– 469.0	– 85.9	– 390.0	– 138.5	×	– 828.0	21.2	3,836.0	– 169.2	– 26.8
August	– 101.9	– 358.0	– 106.1	– 176.2	– 131.4	×	– 1,018.0	61.0	4,588.0	– 167.1	– 40.7
September	– 81.9	79.0	– 63.0	– 90.7	– 129.7	– 48.4	– 889.0	48.6	4,434.0	– 145.5	– 10.9
October	– 177.4	– 296.0	– 95.6	– 294.1	– 165.1	×	– 1,174.0	– 338.4	3,298.0	– 193.6	– 22.5
November	– 161.9	– 160.0	– 82.6	– 129.2	– 156.8	×	– 953.0	92.1	3,438.0	– 267.9	– 71.8
December	– 163.7	– 599.0	– 94.5	– 364.3	– 156.7	– 114.2	– 890.0	– 176.3	2,403.0	– 331.9	– 9.9
2002											
January	– 86.5	– 166.0	– 94.0	– 330.6	– 99.4	×	– 1,108.0	– 166.8	3,309.0	– 118.9	– 21.5
February	– 74.0	48.0	– 75.0	– 233.6	– 99.4	×	– 811.0	– 80.6	2,684.0	– 134.0	– 29.7
March	. .	. .	– 106.7	– 150.2	. .	. .	– 670.0	. .	3,834.0	– 154.4	– 36.4

Source: National sources.

Current Account

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic[1])	Slovenia
	USD million										
1992	×	×	24.4	324.0	191.4	×	– 269.0	–1,564.0	×	×	926.2
1993	×	455.8	15.8	–3,455.0	428.0	– 83.5	– 2,329.0	–1,174.0	12,792.0	– 601.2	191.9
1994	×	– 786.8	–121.6	–3,911.0	200.8	– 90.4	– 944.0	– 428.0	8,291.0	664.9	573.0
1995	×	–1,369.1	–102.6	–2,480.0	– 17.9	– 56.6	5,455.0	–1,774.0	7,457.0	391.4	– 99.4
1996	×	–4,121.2	–272.3	–1,678.0	–280.0	– 722.6	– 1,352.0	–2,571.0	11,725.0	–2,098.1	31.4
1997	426.5	–3,563.5	–442.5	– 981.0	–346.2	– 981.3	– 4,312.0	–2,137.0	2,032.0	–1,803.9	11.4
1998	–375.4	–1,385.5	–383.0	–2,298.0	–707.8	–1,298.0	– 6,810.0	–2,968.0	659.0	–2,124.0	–147.2
1999	–660.2	–1,567.1	–204.4	–2,076.0	–635.9	–1,053.4	–11,660.0	–1,296.0	24,731.0	– 979.7	–782.6
2000	–696.2	–2,843.6	–308.4	–1,325.0	–487.7	– 674.9	– 9,946.0	–1,400.0	46,405.0	– 713.0	–611.5
2001	0.0	–2,654.0	–349.2	–1,118.0	0.0	0.0	– 7,081.0	–1,800.0	35,092.0	–1,755.9	– 66.9
2000											
October	–134.2	×	– 36.4	3.0	×	×	– 842.0	– 89.0	×	– 128.3	– 22.9
November	– 66.9	×	– 63.9	23.2	×	×	– 443.0	– 69.0	×	– 156.0	– 28.0
December	–136.1	–1,176.4	– 50.1	– 504.0	–191.4	– 254.2	– 797.0	– 649.0	12,889.0	– 259.9	–137.0
2001											
January	–138.7	×	– 46.3	– 164.5	×	×	– 959.0	– 107.0	×	– 98.9	51.4
February	– 41.0	×	1.2	– 12.7	×	×	– 532.0	– 231.0	×	– 29.4	5.0
March	– 51.7	– 635.6	– 46.9	– 43.7	– 74.3	– 136.6	– 739.0	– 117.0	11,448.0	– 186.8	– 8.6
April	– 82.1	×	– 53.4	– 108.1	×	×	– 522.0	– 336.0	×	– 57.1	– 25.7
May	– 94.0	×	29.1	– 186.4	×	×	– 737.0	– 406.0	×	– 214.4	– 51.5
June	– 10.3	– 623.9	– 0.8	– 371.8	–120.7	– 121.4	– 951.0	– 140.0	9,431.0	– 198.1	– 14.4
July	– 80.7	×	– 17.2	80.7	×	×	– 305.0	– 45.0	×	– 71.1	13.4
August	– 79.5	×	– 44.7	181.1	×	×	– 360.0	– 5.0	×	– 100.5	20.6
September	– 50.4	– 708.1	– 15.2	– 10.4	–121.4	– 1.8	– 308.0	9.0	7,800.0	– 174.7	45.2
October	–117.5	×	– 63.9	– 65.6	×	×	– 836.0	– 248.0	×	– 120.3	50.6
November	–157.9	×	– 48.7	– 112.0	×	×	– 418.0	– 277.0	×	– 241.4	16.2
December	–142.7	– 687.3	– 49.1	– 291.5	–232.3	– 313.9	– 499.0	– 446.0	6,412.0	– 263.2	–169.0
2002											
January	–136.1	×	– 73.2	– 348.5	×	×	– 868.0	– 59.0	×	– 84.2	55.4
February	– 50.3	×	– 39.7	– 174.9	×	×	– 820.0	– 121.0	×	. .	29.1
March	. .	. .	– 63.5	24.4	. .	. .	– 637.0	. .	7,600.0	. .	– 18.7

Source: National central banks.

[1]) From 1997: BOP Manual, 5th edition; monthly data: calculated on the basis of cumulative data.

Total Reserves Minus Gold

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
	End of period (USD million)										
1991	310.6	×	×	3,934.3	×	×	3,632.6	694.9	×	×	112.1
1992	902.2	×	170.2	4,424.7	×	45.3	4,099.1	825.9	×	×	715.5
1993	655.2	3,789.4	386.1	6,700.0	431.5	350.3	4,092.0	995.5	5,835.0	415.6	787.8
1994	1,001.8	6,144.5	443.4	6,735.5	545.2	525.5	5,841.8	2,086.2	3,980.4	1,691.2	1,499.0
1995	1,236.5	13,842.9	579.9	11,974.3	505.7	757.0	14,774.1	1,579.0	14,382.8	3,363.9	1,820.8
1996	483.6	12,351.8	636.8	9,720.2	654.1	772.2	17,844.0	2,102.8	11,276.4	3,418.9	2,297.4
1997	2,248.5	9,733.7	757.7	8,407.9	704.0	1,010.0	20,407.2	3,803.3	12,894.7	3,230.3	3,314.7
1998	2,830.8	12,542.1	810.6	9,318.7	728.2	1,409.1	27,325.2	2,867.4	7,801.4	2,868.8	3,638.5
1999	3,083.4	12,806.1	853.5	10,954.0	840.2	1,195.0	26,354.7	2,687.0	8,457.2	3,370.7	3,168.0
2000	3,342.3	13,019.2	920.6	11,189.6	850.9	1,311.6	26,562.0	3,922.2	24,264.3	4,022.3	3,196.0
2001	3,390.3	14,337.4	820.2	10,727.2	1,148.7	1,617.7	25,648.4	5,441.9	32,542.4	4,188.7	4,330.0
2001											
January	3,112.0	12,956.9	921.4	10,752.5	812.7	1,286.1	27,231.9	3,998.1	25,888.5	3,918.4	3,112.9
February	3,037.2	13,080.1	765.0	11,114.0	848.7	1,430.9	27,898.5	4,075.4	24,590.7	3,916.6	3,187.0
March	2,980.3	12,781.5	737.5	10,694.9	852.7	1,239.7	27,145.8	4,204.2	25,942.2	3,808.5	3,105.9
April	3,036.0	12,981.4	797.1	11,267.9	869.9	1,280.9	26,872.0	4,350.0	27,868.3	4,034.9	3,632.8
May	2,895.3	12,521.9	740.0	10,969.2	843.2	1,303.8	26,163.9	4,300.3	29,748.6	3,725.5	3,550.8
June	2,980.4	12,697.8	749.4	11,485.1	867.4	1,407.6	26,219.2	4,834.0	31,251.2	3,668.3	3,552.5
July	2,938.2	12,941.8	680.8	11,816.5	916.1	1,507.2	26,965.4	4,951.7	32,694.6	3,714.1	3,737.5
August	2,973.9	13,351.1	729.7	12,003.1	912.5	1,491.5	27,523.4	5,227.4	33,685.8	3,818.9	3,634.7
September	2,953.4	13,583.6	766.3	11,980.3	914.1	1,551.3	27,332.5	5,350.3	34,044.0	3,798.4	3,809.3
October	3,086.3	14,649.5	754.2	11,715.3	948.5	1,688.0	27,978.5	5,132.4	34,016.4	. .	3,942.3
November	3,322.7	14,310.6	777.3	11,238.1	1,112.5	1,716.9	25,216.4	5,262.8	33,276.9	. .	4,014.4
December	3,390.3	14,342.0	820.2	10,727.2	1,148.7	1,617.7	25,648.4	5,441.9	32,542.4	. .	4,330.0
2002											
January	3,122.6	14,498.4	800.6	10,104.2	1,139.3	1,638.5	25,400.4	5,316.3	32,316.7	. .	4,272.7
February	3,033.1	14,521.4	788.7	9,657.9	1,121.2	1,758.1	25,454.1	5,349.7	32,768.3	. .	4,511.2
March	2,979.9	. .	858.6	9,593.7	1,129.9	1,683.3	26,053.9	. .	33,179.2	. .	. .

Source: IMF.

Central Government Surplus/Deficit

	Bulgaria	Czech Republic	Estonia[1])	Hungary	Latvia	Lithuania	Poland[2])	Romania	Russia	Slovak Republic	Slovenia[3])
	% of GDP										
1992	− 5.8	−0.2	×	−6.7	−3.0	×	−6.0	−4.4	− 3.4	−2.8	+1.2
1993	−11.0	+0.1	−0.4	−5.6	−0.2	×	−2.8	−1.7	− 4.6	−6.2	+0.9
1994	− 6.5	+0.9	−0.6	−8.1	−1.9	−1.9	−2.7	−4.2	−10.3	−4.9	+0.0
1995	− 6.6	+0.5	+0.3	−5.5	−3.8	−1.8	−2.4	−4.1	− 5.7	−1.5	+0.0
1996	−10.9	−0.1	−1.6	−1.9	−0.8	−2.5	−2.4	−4.9	− 8.4	−4.2	+0.3
1997	− 3.9	−0.9	+2.2	−4.0	+1.2	−1.0	−1.2	−3.6	− 6.8	−5.4	−1.2
1998	+ 1.5	−1.6	−1.8	−5.5	+0.2	−1.3	−2.4	−2.8	− 4.8	−2.6	−0.8
1999	+ 1.8	−1.6	−4.8	−3.0	−3.0	−0.3	−2.0	−2.5	− 1.4	−2.1	−0.6
2000	− 0.9	−2.4	−0.7	−2.8	−2.8	−1.6	−2.2	−3.6	+ 1.2	−3.1	−1.4
2001	. .	−3.2	+0.6	−2.8	−1.5	. .	−4.5	−3.5	+ 3.1	−4.6	−1.4
1999											
3rd quarter	− 5.5	−0.5	−1.2	−1.5	−2.8	+1.8	+0.0	−2.5	− 0.2	−2.5	+1.4
4th quarter	− 5.7	−4.3	−4.6	+0.2	−3.9	+1.1	−0.7	−1.5	+ 0.2	−1.1	+1.4
2000											
1st quarter	− 0.1	+1.9	−0.9	−4.3	−0.9	−2.6	−4.5	−6.7	+ 2.7	−0.4	−4.1
2nd quarter	+ 7.7	−2.7	−2.3	−1.1	−4.8	−2.0	−2.2	−5.9	+ 4.0	+0.1	−2.4
3rd quarter	− 5.7	−2.4	+2.0	−0.4	−2.0	−0.6	−2.0	−1.9	+ 2.8	−3.1	−3.0
4th quarter	− 2.8	−5.5	−1.5	−5.5	−3.2	−1.6	−0.7	−2.3	+ 0.1	−8.7	+5.2
2001											
1st quarter	− 3.7	+0.6	+0.2	−1.1	−1.7	+0.3	−9.1	−4.4	+ 4.4	−2.6	−5.0
2nd quarter	+ 0.6	−6.0	+1.0	−1.3	−0.8	−5.1	−2.2	−5.4	+ 3.7	−3.2	−5.5
3rd quarter	− 5.3	+1.3	+3.5	−2.3	−0.9	−0.2	−1.7	−2.5	+ 1.8	−3.8	−0.8
4th quarter	. .	−8.1	−2.4	−6.1	−2.5	. .	−5.1	−1.7	+ 3.5	−8.6	+6.4

Source: WIIW; Estonia: national sources from 1996; Latvia, Lithuania: national sources; Russia: IMF (1992 to 1997, cash balance), Ministry of Finance − Economic Expert Group (from 1998). Quarterly data: national sources. Due to different data sources, quarterly data may not match annual data.

[1]) Including social budget in 1993 and 1994.

[2]) Since 1998: privatization receipts treated as financing items.

[3]) General government balance revised methodology since 1999.

Gross External Debt

	Bulgaria[1])	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania[2])	Russia	Slovak Republic[3])	Slovenia
	USD million										
1992	13,805.7	7,762.3	×	21,644.0	×	×	47,044.0	3,240.0	80,200.0	2,981.0	1,741.0
1993	13,836.4	9,604.9	228.0	24,566.0	×	×	47,246.0	4,249.0	112,784.0	3,626.0	1,873.0
1994	11,338.4	12,209.7	381.0	28,526.0	×	529.0	42,174.0	5,563.0	121,600.0	4,310.0	2,258.0
1995	10,148.0	17,190.3	626.0	31,660.0	1,538.0	1,374.0	43,957.0	6,482.1	120,500.0	5,827.0	2,970.0
1996	9,601.6	21,180.5	1,534.0	27,956.0	2,091.0	2,401.0	47,541.0	8,344.9	125,000.0	7,810.0	3,981.0
1997	9,760.2	21,616.5	2,562.0	24,395.0	2,756.0	3,299.0	49,647.0	9,502.7	130,800.0	10,700.0	4,123.0
1998	10,891.9	24,348.4	2,924.0	27,280.0	3,098.0	3,795.0	59,135.0	9,898.6	145,000.0	11,900.0	4,915.0
1999	10,913.9	22,860.6	2,879.0	29,336.0	3,821.0	4,495.0	65,397.0	9,156.0	158,800.0	10,518.0	5,400.0
2000	11,201.8	21,386.1	3,007.0	30,742.0	4,711.0	4,856.0	69,610.0	10,616.0	144,500.0	10,804.2	6,217.0
2001[4])	10,616.0	22,000.0	3,318.0	33,386.0	5,374.0	5,236.0	70,160.0	11,823.0	134,000.0	11,268.5	6,717.0

Source: WIIW; Estonia, Latvia, Lithuania: EBRD (European Bank for Reconstruction and Development).
[1]) Gross external debt in convertible currencies.
[2]) Medium- and long-term gross debt.
[3]) The official level of foreign debt in 1997 was USD 9.9 billion; however, this figure was distorted by an accounting operation.
[4]) Czech Republic, Russia: EBRD.

Exchange Rate

	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Russia	Slovak Republic	Slovenia
	Period average (ATS per 100 units of national currency)[1])										
1991	0.48	×	×	0.11	×	×	8.10	0.11	×	×	0.31
1992	0.39	×	×	0.12	12.36	5.13	6.68	0.03	×	×	0.11
1993	311.48	0.29	0.65	0.09	12.73	1.98	4.75	0.01	8.59	0.28	0.08
1994	161.83	0.30	0.67	0.08	15.64	2.20	3.85	0.01	3.96	0.27	0.07
1995	147.61	0.37	0.87	0.08	18.80	2.48	4.09	0.005	2.16	0.33	0.08
1996	53.10	0.35	0.78	0.06	17.15	2.36	3.50	0.003	1.83	0.31	0.07
1997	4.87	0.26	0.59	0.04	14.11	2.05	2.50	0.001	1.40	0.24	0.05
1998	4.59	0.25	0.57	0.04	13.70	2.02	2.32	0.001	0.83	0.23	0.05
1999	58.27	3.10	7.29	0.45	182.84	26.75	26.97	0.0070	4.35	2.59	0.59
2000	43.52	2.39	5.45	0.33	152.35	23.10	21.26	0.0043	3.28	2.01	0.41
2001	40.99	2.35	5.11	0.31	142.63	22.39	21.88	0.0031	3.07	2.31	0.37
2000											
October	51.15	2.84	6.40	0.38	188.37	29.25	25.23	0.0048	4.20	2.30	0.48
November	51.13	2.89	6.39	0.38	187.15	29.20	25.61	0.0047	4.20	2.33	0.48
December	51.13	2.86	6.39	0.38	180.11	27.87	25.85	0.0044	3.99	2.39	0.47
2001											
January	51.13	2.85	6.28	0.38	173.60	26.65	25.92	0.0041	3.76	2.29	0.47
February	51.13	2.89	6.31	0.38	175.58	27.13	26.53	0.0040	3.79	2.29	0.47
March	51.13	2.90	6.27	0.38	176.27	27.50	27.07	0.0040	3.84	2.29	0.47
April	51.16	2.90	6.27	0.38	178.00	28.04	27.91	0.0040	3.89	2.30	0.46
May	51.22	2.91	6.25	0.39	180.76	28.61	28.74	0.0040	3.94	2.32	0.46
June	51.13	2.95	6.44	0.41	183.44	29.31	29.52	0.0040	4.03	2.34	0.46
July	51.13	2.95	6.57	0.40	181.88	29.06	27.76	0.0040	3.98	2.35	0.46
August	51.13	2.93	6.18	0.40	176.88	27.77	26.16	0.0037	3.79	2.31	0.46
September	51.27	2.92	6.04	0.39	176.50	27.45	26.02	0.0036	3.73	2.30	0.46
October	51.13	2.98	6.35	0.39	176.66	27.60	26.71	0.0036	3.74	2.29	0.45
November	51.13	3.00	6.55	0.40	178.70	28.15	27.50	0.0036	3.78	2.28	0.45
December	51.14	3.07	6.49	0.40	177.05	28.02	27.92	0.0036	3.72	2.27	0.45
2002											
January	51.13	3.12	6.43	0.41	177.49	28.31	27.86	0.0035	3.72	2.26	0.45
February	51.13	3.15	6.56	0.41	178.76	28.94	27.45	0.0036	3.73	2.25	0.45
March	51.12	3.18	6.52	0.41	178.41	28.98	27.56	0.0035	3.68	2.24	0.45
April[2])	51.28	3.30	6.39	0.41	178.57	28.96	27.80	0.0034	3.61	2.23	0.45

Source: IMF.
[1]) In Austrian schillings up to December 31, 1998; in euro as of January 1, 1999.
[2]) Source: OeNB; Russia: OeNB, end of period.

Official Lending Rate[1])

	Bulgaria[2])	Czech Republic[3])	Estonia	Hungary[2])	Latvia[2])	Lithuania[2])	Poland[3])	Romania[3])	Russia[2])	Slovak Republic[3])	Slovenia[3])
	End of period										
1992	41.0	9.5	×	21.0	120.0	×	32.0	70.0	80.0	9.5	25.0
1993	52.0	8.0	×	22.0	27.0	×	29.0	70.0	210.0	12.0	18.0
1994	72.0	8.5	×	25.0	25.0	×	28.0	58.0	180.0	12.0	16.0
1995	34.0	9.5	×	28.0	24.0	×	25.0	35.0	160.0	9.8	10.0
1996	180.0	10.5	×	23.0	9.5	×	22.0	35.0	48.0	8.8	10.0
1997	6.7	13.0	×	20.5	4.0	13.0	24.5	40.0	28.0	8.8	10.0
1998	5.1	7.5	×	17.0	4.0	13.0	18.3	35.0	60.0	8.8	10.0
1999	4.5	5.0	×	14.5	4.0	13.0	19.0	35.0	55.0	8.8	8.0
2000	4.6	5.0	×	11.0	3.5	9.6	21.5	35.0	25.0	8.8	10.0
2001	4.7	3.8	×	9.8	3.5	7.8	14.0	35.0	25.0	8.8	11.0
2000											
July	3.5	5.0	×	11.0	3.5	10.1	20.0	35.0	28.0	8.8	9.0
August	4.1	5.0	×	11.0	3.5	8.5	21.5	35.0	28.0	8.8	9.0
September	4.1	5.0	×	11.0	3.5	8.2	21.5	35.0	28.0	8.8	9.0
October	4.5	5.0	×	11.0	3.5	8.6	21.5	35.0	28.0	8.8	9.0
November	4.8	5.0	×	11.0	3.5	8.4	21.5	35.0	25.0	8.8	9.0
December	4.7	5.0	×	11.0	3.5	9.6	21.5	35.0	25.0	8.8	10.0
2001											
January	4.4	5.0	×	11.0	3.5	8.0	21.5	35.0	25.0	8.8	10.0
February	4.3	4.0	×	11.0	3.5	8.7	21.5	35.0	25.0	8.8	10.0
March	4.2	4.0	×	11.0	3.5	9.2	19.5	35.0	25.0	8.8	10.0
April	4.4	4.0	×	11.0	3.5	9.6	19.5	35.0	25.0	8.8	11.0
May	4.6	4.0	×	11.0	3.5	9.4	19.5	35.0	25.0	8.8	11.0
June	4.6	4.0	×	11.0	3.5	8.6	18.0	35.0	25.0	8.8	11.0
July	4.6	4.3	×	11.3	3.5	7.0	18.0	35.0	25.0	8.8	11.0
August	4.8	4.3	×	11.3	3.5	7.7	17.0	35.0	25.0	8.8	11.0
September	4.9	4.3	×	11.0	3.5	7.0	17.0	35.0	25.0	8.8	11.0
October	4.7	4.3	×	10.8	3.5	6.9	15.5	35.0	25.0	8.8	11.0
November	4.9	3.8	×	10.3	3.5	7.6	14.0	35.0	25.0	8.8	11.0
December	4.7	3.8	×	9.8	3.5	7.8	14.0	35.0	25.0	8.8	11.0
2002											
January	4.9	3.5	×	9.0	3.5	6.9	12.0	35.0	25.0	7.8	9.0
February	4.6	3.3	×	8.5	3.5	7.3	12.0	35.0	25.0	7.8	9.0
March	4.5	3.3	×	8.5	3.5	6.7	12.0	34.0	25.0	7.8	10.0
April	4.0	2.8	×	8.5	3.5	. .	. .	34.0	23.0	. .	. .

Source: WIIW; Latvia, Lithuania: national sources.

[1]) *Due to currency board arrangements, the Bank of Estonia and the Bank of Lithuania do not lend to the government or to 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": a weighted average rate on domestic currency lending to residents.*

[2]) *Refinancing rate.*

[3]) *Discount rate.*