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EUROPEAN ECONOMIC
INTEGRATION

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The OeNB's semiannual publication **Focus on European Economic Integration** (the successor of **Focus on Transition**) provides a wide range of CEEC- and SEE-related material – country analyses and data, studies on economic topics as well as descriptions of events hosted by the OeNB.

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

Dear reader,

The transition process that has transformed the Central and Eastern European Countries (CEECs) from centrally planned economies into market economies began some 15 years ago; from the very outset, the OeNB's Foreign Research Division has attentively tracked and analyzed its evolution. To keep the interested public informed about these activities, the Foreign Research Division has published the semiannual *Focus on Transition* and has hosted the annual East-West-Conference.

Some of these countries have now completed transition and became new Member States of the European Union on May 1, 2004, marking a moving and historical moment for Europe. The OeNB's products thus had to be renamed: a publication by the name of *Focus on Transition* is no longer in tune with the times. Moreover, the title *East-West Conference* implied a European split which is no longer relevant. As Europe is overcoming its geographical and economic polarization, both designations had to be adapted to emphasize European unity.

The Foreign Research Division used the opportunity to extend its geographical research focus to Southeastern Europe, as some of the countries in this region are currently at the preparatory and negotiation stage for EU accession, and others are in the midst of transition. In addition, this economic area is of particular economic importance to Austria and thus to the OeNB: Austrian companies and above all the banking sector are doing more and more business in the region.

Hand in hand with this geographical shift, the structure and the content of the *Focus* have also been revamped, an effort that was greatly aided by the results of a reader survey conducted a few months ago. I would like to thank all readers who participated in the survey for their effort and their suggestions. We hope that we have met your needs with this adaptation of the *Focus on Transition*.

In the new **Focus on European Economic Integration**, the Recent Economic Developments section will cover more countries, for the first time including Bulgaria, Romania and Croatia.

The Highlights section will inform you about the most recent changes on our CEEC Research Platform at ceec.oenb.at. In addition, abstracts of contributions in other OeNB publications will point readers of the *Focus* to CEEC- and SEE-related information. Finally, we will continue to provide brief summaries of East Jour Fixe meetings.

The Statistical Annex has been expanded to include key economic indicators for Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Former Yugoslav Republic of Macedonia, Romania, Russia, Serbia and Montenegro, Turkey, and Ukraine. Statistics for an even broader set of indicators will be provided on the CEEC Research Platform.

Studies still represent the main part of the *Focus*. This issue contains studies on the following topics:

"Nonlinear Exchange Rate Dynamics in Target Zones: A Bumpy Road Toward a Honeymoon," by Jesús Crespo-Cuaresma, Balázs Égert and Ronald MacDonald, rounds out the special topic of the *Focus on Transition* 2/2003

on exchange rates with an analysis of exchange rate movements in the exchange rate mechanism of the European Monetary System and in the exchange rate mechanism II.

“Determinants of Geographical Concentration Patterns in Central and Eastern European Countries,” by Antje Hildebrandt and Julia Wörz, investigates the determinants of the location of industries in Central and Eastern European countries. Using output and employment data for 13 manufacturing industries in the 1990s, they find the concentration of industrial activity to have increased in 10 CEECs in contrast to the general trend prevailing in Western Europe in the same period.

“Employment and Labor Market Flexibility in the New EU Member States,” authored by Thomas Gruber, deals with labor market flexibility, a topic that is important also from a central banker’s view. The analysis shows that on the one hand, labor cost flexibility is higher in the new Member States than in the EU in general. On the other hand, supply side flexibility, notably occupational and regional mobility, seems to be lower. However, overall flexibility seems to be small or even insignificant.

The next two studies were written even before the subjects they treat had become highly topical. “Distorted Incentives Fading? The Evolution of the Russian Banking Sector since Perestroika,” written by Stephan Barisitz, analyzes the development of the Russian banking sector since the final years of Soviet rule. It deals with legal foundations, banking supervision, banks’ major sources of assets, liabilities, earnings and related changes, bank restructuring, rehabilitation programs, the role of foreign credit institutions and FDI. Although it is a historical overview, it may be interesting for the interpretation of current developments, which appear to give some cause for concern. Overall, though, the study draws an optimistic picture for the future, based on the knowledge that authorities have undertaken impressive efforts to intensify reforms and based on the assumption that their implementation will be relatively rapid.

“Oil Prices and the World Economy,” by Ray Barrell and Olga Pomerantz, is the study behind the presentation at the East Jour Fixe meeting held in June 2004. Historically, oil prices have been associated with bouts of inflation and economic instability, and they have been rising in recent months. In this paper, oil market developments are discussed. A survey provides results of previous studies on the impacts of oil price increases. In addition, the NiGEM forecasting model is used to evaluate the impact of temporary and permanent rises in oil prices on the world economy under various policy responses, and the impact of a decline in the speed of oil revenue recycling is analyzed.

I certainly hope that some of these findings will prove useful to you and that they will enrich the ongoing debate; they might even support your own research results. If so, please do not hesitate to contact us for a further exchange of ideas and information at

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You may also fax your comments to (43-1) 494 29-5299 or mail them to doris.ritzberger-gruenwald@oenb.at, Head of the Foreign Research Division.

To conclude, please let me announce this year's **Conference on European Economic Integration** on "South Eastern EUROPEAN Challenges and Prospects," which will take place on November 29 and 30, 2004, in Vienna. The topic underlines the extension of the OeNB's strategic focus on South-eastern Europe. Moreover, it will help make us all more familiar with this region. If you are interested in attending, please contact us via ceec.oenb.at, where you will also find a detailed program.

Klaus Liebscher
Governor

RECENT ECONOMIC DEVELOPMENTS

Stephan Barisitz,
Balázs Égert,
Jarko Fidrmuc,
Antje Hildebrandt,
Silvia Kirova,
Tamás Magel,
Thomas Reininger,
Zoltan Walko

1 Introduction

In the first quarter of 2004, economic growth in the new Member States of the European Union in Central Europe (the Czech Republic, Hungary, Poland, the Slovak Republic and Slovenia) ranged from a low of 3.1% year on year in the Czech Republic to a high of 6.9% year on year in Poland. At the same time, the growth levels of the current accession countries¹ (Bulgaria, Croatia and Romania) lay within this range, while at 7.4% year on year Russia's growth rate was outstanding. By contrast, in full-year 2003 economic growth in all the Central European new Member States was slower than in the current accession countries.

Annual GDP growth in the first quarter of 2004 was higher than the average annual growth in recent quarters, except in the Czech Republic, Croatia and Russia, where the growth rate remained constant.

Table 1

Gross Domestic Product (Real)							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
	Annual change in %						
Czech Republic	0.5	3.2	2.6	1.5	3.1	3.3	3.1
Hungary	4.2	5.2	3.8	3.5	2.9	3.6	4.2
Poland	4.0	4.0	1.0	1.4	3.8	4.7	6.9
Slovak Republic	1.5	2.0	3.8	4.4	4.2	4.7	5.5
Slovenia	5.6	3.9	2.7	3.4	2.3	2.5	3.7
Bulgaria	2.4	5.4	4.1	4.9	4.3	4.9	5.3
Croatia	-0.9	2.9	4.4	5.2	4.3	3.3	4.2
Romania	-1.2	2.1	5.7	5.0	4.9	4.6	6.1
Russia	6.3	9.0	5.1	4.7	7.3	7.6	7.4

Source: Eurostat, national statistical offices, wiw.

Looking at growth dynamics from the demand side, the new Member States show a pattern that may be broadly characterized by the following common features: First, compared to previous periods, private consumption growth in the first quarter of 2004 slowed toward the longer-term trend level. This means that the Czech Republic and Hungary saw a downward correction from quite a high growth level, partly as a result of fiscal consolidation measures. In Poland and Slovenia, household consumption growth accelerated from rather low levels, while in Slovakia it resumed at a moderate pace after last year's contraction. Second, compared to previous periods, growth of gross fixed capital formation in the first quarter of 2004 accelerated or resumed (in countries like Poland and Slovakia, which had suffered from investment contraction). The level of investment growth, however, is still comparatively low in Poland and Slovakia. In general, demand for capital goods was supported by the dynamic development of exports as well as advanced profitability in industry, as unit labor costs had decreased, or increased, at rates below those of producer price inflation for quite a while. Third, taking both private consumption and fixed capital formation developments, the contribution of total domestic demand to GDP growth augmented – with the exception of Hungary, where the investment take-off was not able to fully compensate the slowdown in consumption. Fourth, real export

¹ In view of the European Council's unconditional decision of June 2004 to enter into accession negotiations with Croatia, in this contribution the term "accession country" refers not only to Bulgaria and Romania, but also to Croatia, regardless of the fact that accession negotiations have not yet been formally opened.

growth accelerated in all countries under observation, except in Poland and the Slovak Republic, where growth rates slowed down moderately from very high levels in the previous year to still considerably high levels in the reporting period. Fifth, the combination of high or higher export growth and the sizeable weight of exports in total real GDP, ranging from 63% (Slovenia) to 93% (Czech Republic), had the effect that the contribution of exports to GDP growth was above that of total domestic demand. The only exception was Poland with its export weight of no more than 32%, which to a large extent reflects the fact that Poland is the largest economy among these countries.

However, these common features – and, in particular, also the few exceptions mentioned – caused import growth and thus the contribution of net exports to growth to develop along different lines. In the Czech Republic and Slovenia, both higher domestic demand and higher export growth pushed up import growth by so much that the contribution of net exports to growth continued to be negative. In the Czech Republic, the negative contribution of net exports was even more pronounced than in previous quarters. However, it is interesting to note that in both countries the deterioration of real net exports was not reflected in the goods and services balance of the balance of payments, which actually improved by even turning into a slight surplus. Import growth accelerated also in Hungary, driven by higher export growth. However, the parallel weakening of domestic demand contained this acceleration so that the contribution of net exports to growth was close to zero. By contrast and despite the strengthening of domestic demand, in Poland and Slovakia lower export growth slowed down import growth by so much that the contribution of net exports continued to be positive. Moreover, this development was reflected in the balance of payments. All in all, the five new Member States in Central Europe are either following a relatively balanced growth path or are on their way toward more balanced growth.

Turning to the current accession countries, Bulgaria shows a growth pattern that is, at first glance, somewhat similar to the main features of development in the Czech Republic, with a corrective slowdown in consumption growth being more than compensated by faster investment growth and the resulting increase in domestic demand growth leading to higher import growth and deteriorating net exports. However, this development was far more pronounced in Bulgaria, with booming investment demand (on the back of increased profitability and stepped-up lending) and a highly negative contribution of net exports to growth, which was also reflected in a further deterioration of the goods and services balance in the balance of payments on top of an already high deficit. By contrast, in Croatia and Romania growth dynamics differ considerably from the common features sketched out above for the new Member States in Central Europe. As the result of a slowdown in gross fixed capital formation, which more than compensated the further increase in consumption growth from an already high level in Romania, growth in domestic demand has not increased. At the same time, export growth has declined. The combination of weaker or constant growth in domestic demand and lower export growth slowed import growth. However, this slowdown did not suffice to keep net exports from deteriorating further. This development was also reflected in a further worsening of the goods and services balance in the balance of payments against

the backdrop of an already high deficit. All in all, the three accession countries are still struggling to find a sustainable basis for growth.

In Russia, the domestic demand boom, driven by both private consumption and gross fixed capital formation, led to a significant acceleration of real import growth against a moderate deceleration of real export growth. However, given the very low base level of imports, even the marked excess of import over export growth rates led to an only moderate deterioration of net exports, equivalent to a small decline of the sizeable net export surplus.

Price developments have been quite heterogeneous throughout the region. Among the new Member States in Central Europe, inflation rates (as measured by year-on-year changes of consumer prices in the second quarter of 2004) ranged from 2.5% in the Czech Republic to 8.0% in the Slovak Republic. In the current accession countries, inflation (as measured by year-on-year changes of consumer prices in the first quarter of 2004) ranged from 1.9% in Croatia to 13.6% in Romania, while it stood at 10.8% in Russia.

In the Czech Republic, Hungary and Poland, annual inflation went up in the first and second quarters of 2004, compared to the average annual price changes in recent quarters. In addition to rising energy prices, hikes in indirect tax rates related to EU accession and higher food prices, which were partly related to accession as well, were the main causes. Apart from the lagged effect of a wage-driven consumption boom in Hungary, demand-side driven inflation is hardly noticeable.

By contrast, inflation decreased in the Slovak Republic, where the relatively low level of core inflation (below 3%) pulled down headline inflation, which was influenced by hikes in administered prices and tax changes. Inflation also declined in Slovenia, on the back of lower unit labor cost advances which resulted from the gradual deindexation of the economy.

While inflation rates have come down over recent quarters also in Romania and Russia, they markedly augmented in Bulgaria as a result of tax changes, drought-related increases of food prices and the strong credit expansion.

In assessing the quality of sovereign long-term foreign currency debt by rating agencies, both Moody's and Standard & Poor's have awarded Slovenia the highest rating among the countries monitored in this contribution. The Czech Republic and Hungary share the second-highest rating, while Poland

Table 2

Consumer Price Index (HICP)							
	2000	2001	2002	2003	Q4 2003	Q1 2004	Q2 2004
	Annual change in %						
Czech Republic	3.9	4.5	1.4	-0.1	0.8	2.0	2.5
Hungary	10.0	9.1	5.2	4.7	5.4	6.8	7.4
Poland	10.1	5.3	1.9	0.7	1.4	1.8	3.4
Slovak Republic	12.2	7.2	3.5	8.5	9.4	8.2	8.0
Slovenia	8.9	8.6	7.5	5.7	5.0	3.7	3.8
Bulgaria	10.3	7.4	5.8	2.3	4.7	6.4	6.7
Croatia ¹	6.4	5.0	1.7	1.8	1.8	1.9	..
Romania ¹	45.7	34.5	22.5	15.3	14.8	13.6	..
Russia ¹	20.8	21.6	16.0	13.6	12.5	10.8	..

Source: Eurostat, national statistical offices, wiw.

¹ CPI.

and Slovakia are ranked third. Moody's has not changed its ratings of any of the observed countries for the last ten months, while Standard & Poor's has upgraded several countries (Slovakia, Slovenia, Bulgaria and Russia) during 2004. These upgrades reflect better economic performance as well as a more prudent fiscal policy and, in the case of Bulgaria, the prospect of EU membership in 2007.

Table 3

Ratings of Sovereign Long-Term

Foreign Currency-Denominated Debt

Currency	Moody's			Standard & Poor's		
	Former rating	Last change	Current rating	Former rating	Last change	Current rating
CZK	Baa1	12.11.02	A1	A	05.11.98	A-
HUF	A3	12.11.02	A1	BBB+	19.12.00	A-
PLN	Baa1	12.11.02	A2	BBB	15.05.00	BBB+
SKK	Baa3	12.11.02	A3	BBB	02.03.04	BBB+
SIT	A2	12.11.02	Aa3	A+	13.05.04	AA-
BGN	B1	05.06.03	Ba2	BB+	24.06.04	BBB-
HRK	..	27.01.97	Baa3	..	17.01.97	BBB-
ROL ¹	B2	17.06.02	Ba3	BB-	17.09.03	BB
RUB	Ba2	08.10.03	Baa3	BB	27.01.04	BB+

Source: Bloomberg.

Note: The date format used is day/month/year.

¹ After the cutoff date for this analysis, Standard & Poor's raised Romania's foreign currency rating from BB to BB+.

Developments after Enlargement

In June 2004, the new Member States of the European Union participated in the EU parliamentary elections. The voter turnout of this EU-wide election was disappointingly low. In the Slovak Republic, only 16.8% of all eligible voters cast their ballot. Hungary, with a voter turnout of 38.5%, reported the highest turnout among the new Member States in Central Europe (EU-25 average: 45.7%).

Since their EU accession on May 1, 2004, the new members are heading toward the next milestone of European integration: the adoption of the euro. The authorities in the new Member States have announced target years for euro adoption ranging from 2006 (Estonia) to 2010 (Hungary). Before adopting the euro, the countries have to fulfill the Maastricht convergence criteria, which require – inter alia – participation in the Exchange Rate Mechanism II (ERM II) without severe tensions for at least two years before compliance with the Maastricht criteria is examined. At the end of June 2004, Estonia, Lithuania and Slovenia already entered ERM II.

2 Czech Republic: Weakest Growth Rate among the New EU Member States

With economic growth coming to 3.1% in the first quarter of 2004, just as in full-year 2003, economic performance in the Czech Republic exceeded the average growth of the EU-15, but lagged behind that of the other new Member States. The deterioration of net exports continued to have a negative impact on growth, reducing GDP growth by nearly 4 percentage points in the first quarter. Household consumption growth slowed down, but remained above GDP growth, whereas government consumption even contracted. Gross fixed capital formation increased strongly, partly because investors in the building and con-

Table 4

Gross Domestic Product and Its Demand Components							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Real year-on-year change in %</i>							
Gross domestic product	0.5	3.2	2.6	1.5	3.1	3.3	3.1
Private consumption	1.7	2.6	2.6	2.8	4.9	3.8	3.9
Public consumption	2.3	-9.8	3.8	4.5	2.2	2.0	-1.6
Gross fixed capital formation	-1.0	0.3	5.4	3.4	7.4	8.5	9.5
Exports of goods and services	6.1	16.9	11.5	2.3	5.9	7.0	8.3
Imports of goods and services	5.4	16.6	13.0	4.9	7.9	9.6	11.3
<i>Contribution to GDP growth in percentage points</i>							
Domestic demand	0.4	4.0	4.7	4.2	5.7	7.3	6.9
Exports	4.2	12.2	9.1	2.0	5.2	6.6	7.7
Net exports	0.1	-0.8	-2.1	-2.7	-2.6	-4.0	-3.8

Source: Eurostat, OeNB.

struction sector anticipated the rise in VAT from 5.0% to 19.0% effective from May, and rushed to beat this increase.

In the first half of 2004, industrial production rose sharply by 10.8% (first half of 2003: 5.6%), largely driven by an upswing in export demand which was predominantly realized by foreign-owned firms, as they account for over 70% of industrial exports. In the first half of 2004, labor productivity in the industrial sector increased more strongly than the average industry wage. Despite the upswing in industrial production, industrial employment declined in the first half of 2004. The unemployment rate (ILO definition) was about 1 percentage point higher in the first quarter of 2004 than the year before.

Table 5

Productivity, Wages, Prices, Exchange Rate and Key Interest Rate							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Year-on-year change of period average levels in %</i>							
Gross production of industry (real)	-3.1	5.4	6.7	4.9	5.9	6.3	8.7
Labor productivity of industry (real)	3.6	9.1	6.1	6.8	8.3	8.5	9.5
Gross average wage of industry (nominal)	6.6	7.1	6.4	6.7	5.9	6.6	8.8
Unit labor cost of industry (nominal)	3.0	-1.8	0.3	-0.1	-2.2	-1.8	-0.7
Producer price index (PPI) of industry	0.9	4.8	2.9	-0.5	-0.4	0.4	1.8
Consumer price index (HICP)	1.8	3.9	4.5	1.4	-0.1	0.8	2.0
Exchange rate (nominal):							
CZK ¹ per 1 EUR, + = EUR appreciation	2.3	-3.5	-4.3	-9.5	3.3	4.0	3.9
EUR per 1 CZK, + = CZK appreciation	-2.2	3.6	4.5	10.6	-3.2	-3.9	-3.8
<i>Period average levels</i>							
Unemployment rate (ILO definition, %)	8.8	8.9	8.2	7.3	7.8	8.1	8.7
Key interest rate per annum (%)	6.7	5.3	5.1	3.6	2.3	2.0	2.0
Exchange rate (nominal):							
CZK ¹ per 1 EUR	36.89	35.60	34.07	30.81	31.84	32.10	32.86
EUR per 1 CZK	0.0271	0.0281	0.0294	0.0325	0.0314	0.0312	0.0304

Source: Bloomberg, Eurostat, national statistical office, national central bank, OeNB, wiiv.

¹ CZK: Czech koruna.

While prices remained almost constant in 2003, HICP inflation jumped from 1.0% year on year in December 2003 to 2.0% in January 2004 and accelerated further to about 3% year on year in the period from May to July. In the first half of 2004, average HICP inflation was around 2.2%. These price developments were largely attributable to the harmonization of excise duties and VAT

with EU law, to an increase in regulated prices and to the sharp rise in fuel prices. At the end of August, Česká národní banka (ČNB), the Czech central bank, decided to raise the key interest rate by 25 basis points to 2.50%, the second interest rate increase in 2004, after a hike from 2.00% to 2.25% in June, which in turn had been the first change since August 2003.

Table 6

Monetary Developments

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Nominal year-on-year change of the annual average stock in %</i>							
Broad money (including foreign currency deposits)	8.9	6.5	10.8	7.1	5.2	5.9	8.9
<i>Contributions to the nominal year-on-year change of broad money in percentage points</i>							
Net foreign assets of the banking system	13.0	8.0	8.0	7.9	1.2	-5.7	-2.6
Domestic credit (net) of the banking system	-3.2	-1.1	0.2	-9.7	7.7	13.5	12.4
<i>of which: claims on the private sector</i>	-3.8	-5.0	-5.6	-12.3	0.9	3.6	4.2
<i>claims on households</i>	0.1	0.3	1.1	1.7	..	..	..
<i>claims on enterprises</i>	-4.0	-5.3	-6.7	-14.0	..	..	..
<i>net claims on the public sector</i>	0.6	3.9	5.8	2.5	6.8	9.8	8.2
Other domestic assets (net) of the banking system	-0.9	-0.4	2.6	8.9	-3.7	-1.9	-0.9

Note: Data since 2003 according to ECB methodology.

The exceptionally high budget deficit in 2003 was attributable to the fact that the government had to account for a realized one-off state guarantee, which totaled 6.3% of GDP. Since only a very small proportion of this guarantee actually had to be paid in cash, the resulting cash deficit came to around 7.3% of GDP, which still indicates a deterioration of the fiscal deficit. The financial framework for the period from 2004 to 2007 provides for gradually reducing the deficit to 3.5% by 2007. Gross public debt is expected to increase to 44% by that time. The implementation of fiscal reforms is strongly exposed due to the weak political backing for the government and to political uncertainties.² After the resignation of Prime Minister Spidla in reaction to the weak support for his party in this year's elections to the European Parliament, the implementation of fiscal reform plans is one of the main challenges for new Prime Minister Stanislav Gross, given that parliamentary elections will take

Table 7

Government Budget

	1999	2000	2001	2002	2003	2004	2005
<i>% of GDP</i>							
General government							
Revenues	44.1	44.8	45.9	44.3	49.9	50.0	49.5
Expenditures	47.8	48.9	51.9	51.0	63.6	55.6	54.4
<i>of which: interest payments</i>	1.0	1.0	1.1	1.7	..	..	..
Balance	-3.7	-4.5	-6.4	-6.4	-13.6	-5.6	-4.9
Primary balance	-2.6	-3.0	-4.9	-5.0	-12.9	-4.6	-3.9
Gross public debt	14.9	18.2	25.2	28.9	39.7	40.5	41.8

Source: European Commission, Eurostat, national ministry of finance (2003–2005: Convergence program May 2004), OeNB.

² Due to the deterioration of the fiscal position and the uncertain outlook for fiscal consolidation, Standard & Poor's downgraded its long-term local currency sovereign credit rating for the Czech Republic from A+ to A at the beginning of September 2004.

place in 2006. Another major challenge for the Czech authorities is to get under way with reforms of the pension and health care systems – an essential precondition for reducing the budget deficit beyond 2007.

In the first half of 2004, the rise in exports (+21.6%), which was particularly strong vis-à-vis the European transition countries and the CIS, surpassed import growth (+20.2%), which implied a lower trade deficit than in the first half of 2003. However, in the first quarter of 2004, the current account deficit was larger than the year before, partly because increasing flows of repatriated and reinvested profits of foreign firms drove up the income balance deficit, but mainly because of the sharp contraction of the surplus in the transfer balance. Net FDI inflows, by contrast, considerably exceeded the current account deficit.

Table 8

Balance of Payments							
	1999	2000	2001	2002	2003	Q1 2003	Q1 2004
<i>EUR million</i>							
Merchandise exports	24,651	31,509	37,271	40,713	43,080	10,544	11,400
Merchandise exports:							
year-on-year change in %	6.9	27.8	18.3	9.2	5.8	7.0	8.1
Merchandise imports	26,448	34,918	40,705	43,034	45,250	10,677	11,427
Merchandise imports:							
year-on-year change in %	4.1	32.0	16.6	5.7	5.1	5.3	7.0
Trade balance	-1,797	-3,409	-3,434	-2,322	-2,170	-133	-28
% of GDP	-3.5	-5.6	-5.0	-3.0	-2.7	-0.7	-0.1
Services balance	1,130	1,536	1,706	706	416	102	55
Income balance (factor services balance)	-1,265	-1,490	-2,450	-3,760	-3,656	-518	-584
Current transfers	552	403	524	934	487	296	48
Current account balance	-1,379	-2,960	-3,653	-4,442	-4,923	-253	-509
% of GDP	-2.7	-4.9	-5.4	-5.7	-6.2	-1.3	-2.6
Direct investment flows (net)	5,879	5,356	6,121	8,870	2,094	861	915
% of GDP	11.4	8.9	9.0	11.3	2.6	4.6	4.7

Source: Eurostat, national central bank, OeNB.

Table 9

Gross Official Reserves and Gross External Debt						
	1999	2000	2001	2002	2003	Q1 2004
<i>End of period in EUR million</i>						
Gross official reserves (including gold)	12,771	14,158	16,400	22,614	21,340	22,076
Gross external debt	22,765	23,285	25,368	25,738	27,599	26,382
<i>% of GDP¹</i>						
Gross official reserves (including gold)	24.8	23.4	24.1	28.8	26.8	27.5
Gross external debt	44.1	38.5	37.3	32.8	34.7	32.9
<i>Import months of goods and services</i>						
Gross official reserves (including gold)	4.8	4.2	4.2	5.4	5.0	5.1

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

¹ Q1 2004: As a percentage of rolling four-quarter GDP.

In the first quarter of 2004, gross official reserves increased slightly, while gross external debt markedly declined as a result of net FDI inflows being above the current account deficit.

The privatization process in the Czech Republic has not yet been completed. In the medium term, a number of major privatization projects are still on the

agenda, such as the sale of Český Telecom (ČT) and of the electricity producer České energetické závody (ČEZ), which will ensure privatization-related FDI inflows in the coming years.

3 Hungary: On the Road to More Sustainable Growth

Following 2.9% economic growth in full-year 2003, GDP in Hungary grew by 4.2% year on year in the first quarter of 2004. Annual GDP growth has accelerated continuously since mid-2003, although the annual growth of consumption (private and public) decelerated, as expected, from 6.5% in the first half to 5.5% in the second half of 2003 and to 2.8% in the first quarter of 2004, owing to fiscal tightening measures and the slackening of net real wage growth. In the first quarter of 2004, the main domestic contribution to GDP growth stemmed from gross fixed capital formation, which picked up sharply, albeit from a very weak base period. Starting from a lower base level, exports grew somewhat more strongly than imports, so that real net exports had no effect on the GDP growth rate. Thus, after having reduced GDP growth by nearly 3 percentage points in 2003, the year-on-year deterioration of net exports has now come to a halt.

Table 10

Gross Domestic Product and Its Demand Components							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Real year-on-year change in %</i>							
Gross domestic product	4.2	5.2	3.8	3.5	2.9	3.6	4.2
Private consumption	5.6	5.5	5.6	10.4	..	..	..
Public consumption	1.5	1.9	4.4	2.2	..	..	..
Gross fixed capital formation	5.9	7.7	5.0	8.0	3.0	4.7	18.9
Exports of goods and services	12.2	21.0	7.8	3.7	7.2	17.0	17.4
Imports of goods and services	13.3	19.4	5.1	6.2	10.3	13.4	16.6
<i>Contribution to GDP growth in percentage points</i>							
Domestic demand	5.1	4.6	1.7	5.5	5.7	1.7	4.3
Exports	7.9	14.5	6.2	3.1	6.1	13.8	14.8
Net exports	-1.0	0.5	2.1	-2.0	-2.8	1.9	0.0

Source: Eurostat, OeNB.

Despite the recovery of economic activity, the unemployment rate stood at 5.8% in the second quarter of 2004, unchanged from the same period in the previous year. At the same time, real net wages (deflated by the CPI) stagnated in year-on-year terms in the first half of 2004, compared to a growth rate of 9.3% in 2003. This was the result of weakening nominal wage growth in the public sector and an only modest acceleration of wage dynamics in the private sector during the first half of 2004 while inflation was picking up.

Following inflation (HICP) of 4.7% on average in 2003 and of 5.7% year on year in December 2003, price growth accelerated to 7.6% in May 2004 but went down again to 7.2% in July. The hike in VAT rates and regulated prices at the beginning of 2004, higher fuel and food prices and the weakening of the forint in the second half of 2003 were the major factors behind this acceleration, though some lagged effects of the strong domestic consumption seen over the past two years may have exerted some pressure as well. The inflation target of Magyar Nemzeti Bank (MNB), the Hungarian central bank, consists in achieving an inflation rate of $4\% \pm 1$ percentage point in December 2005. In the

Table 11

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
Productivity, Wages, Prices, Exchange Rate and Key Interest Rate							
	<i>Year-on-year change of period average levels in %</i>						
Gross production of industry (real)	10.1	18.5	4.1	2.9	6.3	10.0	10.6
Labor productivity of industry (real)	5.1	17.0	5.6	4.7	8.4	11.6	13.2
Gross average wage of industry (nominal)	13.4	15.0	14.5	12.4	9.4	9.6	11.8
Unit labor cost of industry (nominal)	7.9	-1.7	8.4	7.4	1.0	-1.8	-1.2
Producer price index (PPI) of industry	5.0	11.4	5.7	-1.1	2.5	5.5	4.9
Consumer price index (HICP)	10.0	10.0	9.1	5.2	4.7	5.4	6.8
Exchange rate (nominal):							
HUF ¹ per 1 EUR, + = EUR appreciation	5.2	2.9	-1.3	-5.3	4.3	8.5	6.7
EUR per 1 HUF, + = HUF appreciation	-4.9	-2.8	1.4	5.6	-4.2	-7.8	-6.3
	<i>Period average levels</i>						
Unemployment rate (ILO definition, %)	7.0	6.4	5.7	5.8	5.9	5.5	6.0
Key interest rate per annum (%)	15.2	11.5	11.1	9.1	8.6	11.0	12.5
Exchange rate (nominal):							
HUF ¹ per 1 EUR	252.76	260.07	256.60	242.95	253.51	259.82	260.00
EUR per 1 HUF	0.00396	0.00385	0.00390	0.00412	0.00394	0.00385	0.00385

Source: Bloomberg, Eurostat, national statistical office, national central bank, OeNB, wiiv.

¹ HUF: Hungarian forint.

MNB's view, disinflation should be effected through the tightening of fiscal and income policy, the continuation of a cautious monetary policy stance and the passing of the adverse base effects from the index in late 2004 and early 2005.

Following the tightening of monetary policy by a total of 600 basis points in the second half of 2003, the MNB reduced its key policy rate only gradually by 150 basis points to 11.0% by mid-August 2004. On the one hand, the strengthening of the forint since the beginning of the year, the more favorable GDP growth composition and the surpassing of the peak in the inflation cycle supported this easing of monetary policy. On the other hand, in the MNB's view, risks to the inflation forecast (uncertainty about the outlook for fiscal policy, private sector wage and consumption growth as well as fuel and food prices) continue to call for a cautious monetary approach.

The government intends to cut the budget deficit in 2004 to 4.6% of GDP (ESA) from the disappointing 5.9% registered in 2003. However, despite the

Table 12

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
Monetary Developments							
	<i>Nominal year-on-year change of the annual average stock in %</i>						
Broad money (including foreign currency deposits)	17.4	17.7	16.3	10.1	14.2	14.4	12.3
	<i>Contributions to the nominal year-on-year change of broad money in percentage points</i>						
Net foreign assets of the banking system	10.3	10.3	9.2	2.2	-1.0	-0.6	0.1
Domestic credit (net) of the banking system	6.0	6.0	10.7	12.3	22.3	23.7	20.2
of which: claims on the private sector	8.8	16.2	17.2	15.4	18.6	22.0	25.9
claims on households	1.6	2.7	4.2	6.3	10.6	11.5	11.5
claims on enterprises	7.1	13.4	13.0	9.1	8.0	10.5	14.4
net claims on the public sector	-2.7	-10.2	-6.5	-3.1	3.7	1.7	-5.7
Other domestic assets (net) of the banking system	1.1	-5.8	-3.6	-4.5	-7.1	-8.7	-8.0

Source: National central bank, OeNB.

freezing of expenditures worth around 1% of GDP, the deficit (on a cash flow basis) had already reached 90.5% of the annual target at the end of July, which is sharply above the speed of deficit accumulation seen in previous years. While the government has committed itself to further savings, if necessary, politics (the replacement of Prime Minister Medgyessy in September and the election of a new Socialist Party chairman in October) will constitute a challenge when it comes to fulfilling this commitment.

Table 13

Government Budget							
	1999	2000	2001	2002	2003	2004	2005
	% of GDP						
General government							
Revenues	..	45.4	44.4	44.1	44.5	44.2	43.4
Expenditures	..	48.4	49.1	53.4	50.4	48.8	47.5
of which: interest payments	..	5.6	4.9	4.1			
Balance	..	-3.0	-4.4	-9.3	-5.9	-4.6	-4.1
Primary balance	..	2.6	0.2	-5.2	-2.0	-0.5	-0.2
Gross public debt	60.9	55.4	53.5	57.1	59.1	59.4	57.9

Source: European Commission, Eurostat, national ministry of finance (2003–2005: Convergence program May 2004), OeNB.

The worsening trend in the current account has not yet ended, contrary to the recent developments of real net exports. In the first quarter of 2004, the deficit amounted to 9.5% of GDP. In the period from January to April, the deficit was 23% higher, in euro terms, than in the comparable period of the previous year. This deterioration stemmed mainly from a strong increase in the deficit in the services balance, which had traditionally been in surplus. On a positive note, net FDI returned to positive territory, covering around 30% of the current account deficit.

Table 14

Balance of Payments							
	1999	2000	2001	2002	2003	Q1 2003	Q1 2004
	EUR million						
Merchandise exports	24,059	31,278	34,697	36,821	38,161	8,947	10,263
Merchandise exports: year-on-year change in %	14.3	30.0	10.9	6.1	3.6	-0.5	14.7
Merchandise imports	26,102	34,457	37,193	39,024	41,132	9,547	10,671
Merchandise imports: year-on-year change in %	14.8	32.0	7.9	4.9	5.4	1.0	11.8
Trade balance	-2,044	-3,180	-2,496	-2,203	-2,971	-599	-408
% of GDP	-4.5	-6.3	-4.3	-3.2	-4.1	-3.4	-2.3
Services balance	816	1,207	1,625	591	-170	-132	-384
Income balance (factor services balance)	-2,713	-2,792	-3,192	-3,835	-3,930	-904	-1,017
Current transfers	408	385	450	547	583	148	104
Current account balance	-3,531	-4,380	-3,613	-4,900	-6,488	-1,488	-1,705
% of GDP	-7.8	-8.7	-6.2	-7.1	-8.9	-8.5	-9.5
Direct investment flows (net)	2,872	2,334	3,992	2,734	775	-69	327
% of GDP	6.4	4.6	6.9	4.0	1.1	-0.4	1.8

Source: Eurostat, national central bank, OeNB.

The country's net foreign debt continued to increase, from 26% of GDP at the end of 2003 to 28% of annual GDP at end-March 2004, with the position of the private sector improving modestly.

Table 15

Gross Official Reserves and Gross External Debt						
	1999	2000	2001	2002	2003	Q1 2004
<i>End of period in EUR million</i>						
Gross official reserves (excluding gold)	10,722	12,038	12,164	9,887	10,108	10,067
Gross external debt	29,231	32,572	37,387	38,425	44,093	45,685
<i>% of GDP</i>						
Gross official reserves (excluding gold)	23.8	23.8	21.0	14.3	13.8	13.7
Gross external debt	64.9	64.4	64.5	55.7	60.2	62.0
<i>Import months of goods and services</i>						
Gross official reserves (excluding gold)	4.3	3.7	3.4	2.6	2.5	2.4

Source: Eurostat, national central bank, OeNB, wiiv.
¹ Q1 2004: As a percentage of rolling four-quarter GDP.

4 Poland: In Need of Fixed Capital Formation

GDP growth accelerated to 6.9% year on year in the first quarter of 2004, against 3.8% in full-year 2003. Being clearly below GDP growth, private consumption growth was only moderately stronger than in 2003. Gross fixed capital formation expanded for the first time after three years of contraction. However, its growth rate was still modest and remained below that of private consumption despite high profitability in industry. The strong weakening of the zloty may have induced the delay of several import-intensive fixed investments. By contrast, the build-up of inventories was very strong, lifting investment growth to 21.8% and the contribution of domestic demand to GDP growth from 3.5 to 5.7 percentage points. This increase in the build-up of stocks may include a significant number of half-finished investment goods and thus indicate higher fixed capital formation growth in future periods. Slowing down from very high levels, export growth still remained substantial. As import growth decelerated in tandem, despite the pick-up in domestic demand, the contribution of net exports to growth continued to be positive.

Table 16

Gross Domestic Product and Its Demand Components							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Real year-on-year change in %</i>							
Gross domestic product	4.0	4.0	1.0	1.4	3.8	4.7	6.9
Private consumption	5.3	2.8	2.1	3.3	3.1	3.9	4.0
Public consumption	1.0	1.1	0.6	0.6	0.4	1.2	1.0
Gross fixed capital formation	9.2	2.7	-8.8	-5.8	-0.9	0.1	3.5
Exports of goods and services	-3.2	23.2	3.1	4.8	14.7	16.4	10.4
Imports of goods and services	1.1	15.6	-5.3	2.6	9.3	8.9	6.5
<i>Contribution to GDP growth in percentage points</i>							
Domestic demand	5.4	-0.1	-1.7	0.8	2.5	2.9	5.7
Exports	-1.0	9.8	0.9	1.3	4.4	4.9	3.3
Net exports	-1.4	4.2	2.7	0.5	1.3	1.8	1.2

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

Coming to 20.7% in the first quarter of 2004, the unemployment rate (ILO definition) remained very high – even slightly higher than a year earlier (20.5%) – despite the GDP growth acceleration; however, the continuously high unemployment rate corresponded to the low fixed investment growth rates. Despite very high output growth, labor shedding in industry continued, albeit at a lower

pace. Although unit labor costs (ULC) continued to fall substantially, inflation of industrial producer prices significantly rose to 9.9% in May (and 8.6% in July) because of higher oil prices and the strong depreciation of the zloty by 10% against the euro from August 2003 to February 2004. Inflation (HICP) rose from a low of 0.7% year on year in August 2003 to 4.6% year on year in July 2004, mainly as a result of higher energy prices and an increase in food prices (which was partly EU accession-related), while the increase of other manufactured goods prices still remained nearly negligible. In an effort to contain the surge of inflationary expectations and second-round effects and to achieve the target corridor of 1.5% to 3.5%, the Monetary Policy Council raised the key interest rate (two-week rate on central bank bills) by a total of 1.25 percentage points to 6.5% in three steps from the end of June, after it had stood at 5.25% for about a year.

Table 17

Productivity, Wages, Prices, Exchange Rate and Key Interest Rate

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Year-on-year change of period average levels in %</i>							
Gross production of industry (real)	4.7	7.8	0.6	1.4	8.6	11.8	18.7
Labor productivity of industry (real)	9.6	17.9	6.1	7.4	11.4	14.2	19.6
Gross average wage of industry (nominal)	34.1	10.9	6.9	3.7	3.0	4.5	6.6
Unit labor cost of industry (nominal)	22.3	-5.9	0.8	-3.4	-7.5	-8.5	-10.9
Producer price index (PPI) of industry	5.7	7.8	1.7	1.1	2.7	3.4	4.4
Consumer price index (HICP)	7.2	10.1	5.3	1.9	0.7	1.4	1.8
Exchange rate (nominal):	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PLN ¹ per 1 EUR, + = EUR appreciation	8.0	-5.2	-8.4	5.0	14.1	15.7	14.0
EUR per 1 PLN, + = PLN appreciation	-7.4	5.5	9.2	-4.7	-12.4	-13.5	-12.3
<i>Period average levels</i>							
Unemployment rate (ILO definition, %)	..	16.1	18.3	19.9	19.6	19.3	20.7
Key interest rate per annum (%)	13.7	17.9	16.0	8.8	5.6	5.3	5.3
Exchange rate (nominal):							
PLN ¹ per 1 EUR	4.23	4.01	3.67	3.85	4.40	4.62	4.78
EUR per 1 PLN	0.2365	0.2495	0.2725	0.2595	0.2274	0.2163	0.2094

Source: Bloomberg, Eurostat, national statistical office, national central bank, OeNB, wiw.

¹ PLN: Polish zloty.

Real key interest rates³ fell continuously to 0.6% in July (from 6.3% a year earlier) in CPI-deflated terms and to -3.0% (from 4.9% a year earlier) in PPI-deflated terms. The combination of past depreciation and declining real interest rates eased monetary conditions substantially, even though the zloty appreciated by 6% from February to August. However, bank lending to enterprises nearly stagnated in nominal terms and declined in real terms, while lending to households made the largest contribution to the year-on-year growth of broad money in the second half of 2004. Net foreign assets were the second-largest contributor to broad money growth, but this was primarily a statistical effect of the depreciation.

The government's convergence program presented in May 2004 envisages a deficit of 5.7% in 2004.⁴ Despite assumed higher growth, the planned revenue

³ As measured by the 12-month moving average of the nominal key interest rate deflated by the change in the price index level during the respective 12-month period.

⁴ This figure does not take into account the potential impact of this year's Eurostat framework ruling on the deficit definition according to ESA 95 with respect to fiscal costs arising from the introduction of a funded pension system. The ruling could increase the deficit-to-GDP ratio on a permanent basis by more than 1 percentage point.

Table 18

Monetary Developments							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Nominal year-on-year change of the annual average stock in %</i>							
Broad money (including foreign currency deposits)	24.7	15.4	12.1	2.0	1.5	4.9	5.3
<i>Contributions to the nominal year-on-year change of broad money in percentage points</i>							
Net foreign assets of the banking system	7.8	7.0	4.5	0.9	0.0	1.3	2.8
Domestic credit (net) of the banking system	25.1	13.5	7.2	7.1	5.2	7.4	6.2
<i>of which: claims on the private sector</i>	18.5	15.7	8.3	3.4	3.8	4.7	4.9
<i>claims on households</i>	6.2	7.0	4.2	2.8	2.5	3.5	3.9
<i>claims on enterprises</i>	12.3	8.7	4.1	0.5	1.3	1.2	1.0
<i>net claims on the public sector</i>	6.7	-2.1	-1.1	3.7	1.4	2.7	1.3
Other domestic assets (net) of the banking system	-8.3	-5.1	0.4	-6.0	-3.8	-3.8	-3.7

Source: National central bank, OeNB.

ratio remained nearly unchanged compared to 2003, given cuts in income and corporate tax rates. By contrast, noninterest payments were set to rise substantially; the authorities attributed a substantial part of the expenditure-driven deficit widening to the fiscal impact of EU accession. However, in the first seven months of 2004, the central government's deficit was about 16% below the level observed in the same period of 2003. A better-than-scheduled fiscal outcome for 2004 could help to prevent the public debt-to-GDP ratio from rising to the level of nearly 52% envisaged in the convergence program (according to ESA 95). That debt level would correspond to close to 59% according to the national definition, which includes government guarantees, inter alia, and is relevant for the constitutional ceilings of 50%, 55% and 60%, the surpassing of which will require the implementation of increasingly drastic fiscal consolidation measures in the years to come.

Table 19

Government Budget							
	1999	2000	2001	2002	2003	2004	2005
<i>% of GDP</i>							
General government							
Revenues	40.3	42.1	42.3	42.2	50.9	50.6	50.4
Expenditures	44.1	42.6	44.2	44.9	55.0	56.3	54.6
<i>of which: interest payments</i>	3.2	3.3	3.4	3.7	..	..	..
Balance	-2.0	-1.8	-3.5	-3.6	-4.1	-5.7	-4.2
Primary balance	1.2	0.8	0.5	0.0	-1.0	-2.8	-1.1
Gross public debt	42.5	36.6	36.7	41.2	45.3	49.0	51.9

Source: European Commission, Eurostat, national ministry of finance (2003–2005: Convergence program May 2004), OeNB.

Corresponding to the improvement of real net exports, the deficit in the goods and services balance in the balance of payments shrank further both in the first quarter and in the first half of 2004. This can be attributed mainly to the substantial weakening of the ULC-based real exchange rate, owing to both nominal depreciation and the nominal decrease of industrial ULC. The current account deficit, which shrank in parallel, was fully covered by net direct investment inflows in the first half of 2004.

Table 20

Balance of Payments

	1999	2000	2001	2002	2003	Q1 2003	Q1 2004
<i>EUR million</i>							
Merchandise exports	28,215	39,026	46,489	49,325	53,814	12,097	14,451
Merchandise exports:							
year-on-year change in %	-2.5	38.3	19.1	6.1	9.1	8.3	19.5
Merchandise imports	42,361	52,359	55,074	57,036	58,892	13,624	15,365
Merchandise imports:							
year-on-year change in %	4.9	23.6	5.2	3.6	3.3	3.0	12.8
Trade balance	-14,146	-13,333	-8,585	-7,711	-5,078	-1,527	-914
% of GDP	-9.2	-7.4	-4.1	-3.8	-2.7	-3.4	-2.1
Services balance	1,297	1,542	909	857	428	-252	37
Income balance							
(factor services balance)	-948	-1,612	-1,584	-1,987	-2,741	-647	-597
Current transfers	2,078	2,595	3,226	3,435	3,730	781	782
Current account balance	-11,719	-10,808	-6,034	-5,406	-3,661	-1,645	-692
% of GDP	-7.6	-6.0	-2.9	-2.7	-2.0	-3.7	-1.6
Direct investment flows (net)	6,795	10,253	6,457	4,149	3,424	1,215	612
% of GDP	4.4	5.7	3.1	2.0	1.9	2.7	1.4

Source: Eurostat, national central bank, OeNB.

After temporarily falling below the 2003 average of EUR 27.3 billion at end-2003 and rising again to a peak of EUR 29.3 billion at the end of February 2004, gross official reserves remained rather stable at the average level of the first half of 2004 (EUR 28.4 billion).

Table 21

Gross Official Reserves and Gross External Debt

	1999	2000	2001	2002	2003	Q1 2004
<i>End of period in EUR million</i>						
Gross official reserves (excluding gold)	26,224	28,555	29,031	27,367	25,846	28,856
Gross external debt	65,365	69,465	71,900	84,743	104,734	106,560
<i>% of GDP¹</i>						
Gross official reserves (excluding gold)	17.0	15.8	14.0	13.5	14.0	15.8
Gross external debt	42.4	38.4	34.6	41.8	56.6	58.2
<i>Import months of goods and services</i>						
Gross official reserves (excluding gold)	6.4	5.5	5.4	4.9	4.5	5.0

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

¹ Q1 2004: As a percentage of rolling four-quarter GDP.**5 Slovak Republic: Skyrocketing Economy**

In the first quarter of 2004 the Slovak economy boomed, with GDP growth coming to 5.5% year on year after 4.2% in full-year 2003. This development was primarily traceable to a continuing strong rise in real exports, which grew at the lower, but still high rate of 15.8%. Moreover, domestic demand began to rise again, with private consumption growing at 3.1% and gross fixed capital formation showing the first signs of a revival (0.9%) after two years of decline. Public consumption, by contrast, contracted by 2.3%. Despite lower export growth, real import growth remained at the high level of 12.0%, given the recovery of domestic demand. However, with export growth still exceeding import growth, net exports continued to contribute positively to GDP growth (3.6 percentage points), albeit less than in full-year 2003.

Table 22

Gross Domestic Product and Its Demand Components							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Real year-on-year change in %</i>							
Gross domestic product	1.5	2.0	3.8	4.4	4.2	4.7	5.5
Private consumption	3.2	-0.8	4.7	5.3	-0.4	-2.1	3.1
Public consumption	-7.1	1.6	4.6	4.7	2.9	10.4	-2.3
Gross fixed capital formation	-19.6	-7.2	13.9	-0.9	-1.2	-1.8	0.9
Exports of goods and services	5.0	13.7	6.3	5.5	22.6	26.1	15.8
Imports of goods and services	-6.7	10.5	11.0	5.2	13.8	11.9	12.0
<i>Contribution to GDP growth in percentage points</i>							
Domestic demand	-7.0	0.1	7.5	4.4	-2.2	-6.0	1.9
Exports	3.3	9.4	4.8	4.3	17.8	21.6	13.9
Net exports	8.4	1.9	-3.7	0.0	6.4	10.7	3.6

Source: Eurostat, national statistical office, OeNB.

Despite high economic growth, industrial employment declined by 1.3% in the first half of 2004. Although construction and service sector employment expanded slightly, the unemployment rate (ILO definition) increased by 1 percentage point to 19.5% in the first quarter of 2004. As a result of this development, industrial labor productivity growth increased. As industrial wage growth accelerated, too, the ULC continued to increase and CPI-deflated industrial wage growth turned positive as well.

Table 23

Productivity, Wages, Prices, Exchange Rate and Key Interest Rate							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Year-on-year change of period average levels in %</i>							
Gross production of industry (real)	-2.0	8.3	7.6	6.7	5.5	4.2	6.5
Labor productivity of industry (real)	1.0	11.8	6.6	6.5	4.9	3.8	7.5
Gross average wage of industry (nominal)	7.9	9.1	10.2	7.3	7.3	8.9	10.8
Unit labor cost of industry (nominal)	6.8	-2.4	3.4	0.7	2.3	4.9	3.1
Producer price index (PPI) of industry	3.9	10.8	6.5	2.0	8.3	8.4	2.9
Consumer price index (HICP)	10.4	12.2	7.2	3.5	8.5	9.4	8.2
Exchange rate (nominal):							
SKK ¹ per 1 EUR, + = EUR appreciation	11.7	-3.4	1.6	-1.4	-2.8	-1.2	-2.9
EUR per 1 SKK, + = SKK appreciation	-10.5	3.6	-1.6	1.4	2.9	1.2	3.0
<i>Period average levels</i>							
Unemployment rate (ILO definition, %)	16.3	18.8	19.3	18.7	17.6	17.5	19.5
Key interest rate per annum (%)	..	..	8.8	7.9	6.4	6.2	5.9
Exchange rate (nominal):							
SKK ¹ per 1 EUR	44.12	42.60	43.30	42.68	41.49	41.18	40.56
EUR per 1 SKK	0.0227	0.0235	0.0231	0.0234	0.0241	0.0243	0.0247

Source: Bloomberg, Eurostat, national statistical office, national central bank, OeNB, wiiv.

¹ SKK: Slovak koruna.

In January 2004 a far-reaching tax reform was implemented. First, a flat income tax set at a uniform level of 19% was introduced. Second, the VAT was unified at 19% as well. Simultaneously, the system of social benefits was reformed. First analyses indicate that the tax reform actually improved the economic incentives, although its negative effects severely burdened the middle-income population.

Following the tax reform and a further liberalization of administered prices, inflation (HICP) accelerated to a peak of 8.4% year on year in February, but

inflationary expectations remained strong also afterwards, with a possible overheating in the economy and seasonal effects causing new rises in inflation in May and July. Still, average inflation in the second quarter declined to 8.0% after 8.2% in the first quarter of the reporting year.

The monetary policy strategy of Národná banka Slovenska (NBS), the Slovak central bank, is based on inflation and monetary indicators, but also takes account of exchange rate developments (managed float). While leaving the main key interest rate (two-week repo tender limit rate) unchanged in the first eight months of 2003, the NBS cut it twice by a total of 0.5 percentage point in the remaining months of 2003 and three times by a total of 1.5 percentage points during 2004, to a level of 4.5% in mid-August. These rate cuts have been mainly viewed as being connected to the appreciation of the Slovak koruna since 2003.

Table 24

Monetary Developments

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Nominal year-on-year change of the annual average stock in %</i>							
Broad money (including foreign currency deposits)	8.1	14.1	12.7	8.7	5.5	5.3	4.4
<i>Contributions to the nominal year-on-year change of broad money in percentage points</i>							
Net foreign assets of the banking system	-4.9	6.6	2.7	13.5	7.7	-4.3	-3.8
Domestic credit (net) of the banking system	13.6	3.7	12.2	0.4	-1.9	10.6	13.8
<i>of which: claims on the private sector</i>	4.9	2.2	-13.9	-1.0	4.9	5.9	6.1
<i>claims on households</i>	1.7	2.0	1.2	1.4	2.2	3.1	3.5
<i>claims on enterprises</i>	3.2	0.2	-15.1	-2.3	2.7	2.8	2.6
<i>net claims on the public sector</i>	8.7	1.5	26.1	1.4	-6.7	4.7	7.7
Other domestic assets (net) of the banking system	-0.5	3.8	-2.2	-5.2	-0.4	-1.0	-5.7

Note: Data after deduction of bad claims written off during bank consolidation.

Fiscal development was better than expected in 2003, given the surprisingly good development of exports. As a result, the budget deficit (according to ESA 95) came to 3.6% of GDP, against an initial target of 5% of GDP. However, the government's convergence program presented in May 2004 expects a slightly higher budget deficit of 4% of GDP in 2004. Regarding implementation, the central government posted a small surplus in the first quarter compared to a sizeable deficit a year earlier. Key measures of the healthcare and pension reforms were approved by parliament in the second half of 2003 – a fact which will provide significant support to the fiscal reform package.

Table 25

Government Budget

	1999	2000	2001	2002	2003	2004	2005
<i>% of GDP</i>							
General government							
Revenues	51.3	50.1	47.7	43.2	37.4	37.4	38.4
Expenditures	59.2	63.6	54.3	50.4	40.9	41.5	41.8
<i>of which: interest payments</i>	3.4	4.1	4.0	3.8	..	..	..
Balance	-7.8	-12.3	-6.0	-5.7	-3.6	-4.0	-3.4
Primary balance	-4.5	-9.4	-2.7	-3.4	-1.2	-1.5	-0.6
Gross public debt	43.8	49.9	48.7	43.3	42.8	45.1	46.4

Source: European Commission, Eurostat, national ministry of finance (2003–2005: Convergence program May 2004), OeNB.

Buoyant, mainly supply side-driven exports since 2003 caused a marked improvement in the current account balance. Both in the first quarter and in the first four months of 2004, the current account balance was positive, mainly as a result of the trade balance performance. In 2002, FDI inflows based on large-scale privatization deals reached 16.2% of GDP, but this indicator fell to 1.8% in 2003. In the first quarter of 2004, results were roughly at the level of the comparable period in 2003. However, there is still some potential for new increases especially in view of an announced investment project by Hyundai.

Table 26

Balance of Payments							
	1999	2000	2001	2002	2003	Q1 2003	Q1 2004
<i>EUR million</i>							
Merchandise exports	9,607	12,866	14,119	15,263	19,363	4,197	5,015
<i>Merchandise exports:</i>							
<i>year-on-year change in %</i>	0.5	33.9	9.7	8.1	26.9	23.5	19.5
Merchandise imports	10,633	13,838	16,494	17,538	19,934	4,363	5,001
<i>Merchandise imports:</i>							
<i>year-on-year change in %</i>	-8.8	30.1	19.2	6.3	13.7	13.0	14.6
Trade balance	-1,027	-971	-2,376	-2,275	-571	-166	15
<i>% of GDP</i>	-5.4	-4.4	-10.2	-8.9	-2.0	-2.6	0.2
Services balance	208	476	536	483	208	15	49
Income balance							
(factor services balance)	-281	-382	-350	-485	-107	-27	15
Current transfers	184	128	237	206	221	61	53
Current account balance	-916	-750	-1,953	-2,070	-248	-117	131
<i>% of GDP</i>	-4.8	-3.4	-8.4	-8.1	-0.9	-1.8	1.7
Direct investment flows (net)	737	2,048	1,726	4,151	516	326	337
<i>% of GDP</i>	3.9	9.3	7.4	16.2	1.8	5.0	4.4

Source: Eurostat, national central bank, OeNB.

The country's gross foreign debt decreased from 49.7% of GDP at the end of 2003 to 47.7% of annual GDP at end-March 2004, given the strong improvement in the position of the private sector.

Table 27

Gross Official Reserves and Gross External Debt						
	1999	2000	2001	2002	2003	Q1 2004
<i>End of period in EUR million</i>						
Gross official reserves (including gold)	3,410	4,391	4,748	8,824	9,717	10,019
Gross external debt	..	..	..	12,576	14,323	14,282
<i>% of GDP¹</i>						
Gross official reserves (including gold)	17.8	20.0	20.4	34.3	33.7	33.5
Gross external debt	..	..	..	49.0	49.7	47.7
<i>Import months of goods and services</i>						
Gross official reserves (including gold)	3.3	3.3	3.0	5.3	5.2	5.3

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

¹ Q1 2004: As a percentage of rolling four-quarter GDP.

6 Slovenia: ERM II Participation – The New Monetary Policy Challenge

After the economy had expanded by 2.3% in 2003, GDP growth accelerated to 3.7% year on year in the first quarter of 2004. Rising by 8% year on year, gross fixed capital formation delivered the largest domestic contribution to GDP growth. Private consumption grew at an unchanged rate of 3.7%, public consumption growth decelerated sharply and real net exports delivered a negative contribution of 1.2 percentage points to the overall growth rate, after weaker net exports had reduced growth by about 2 percentage points in 2003.

Table 28

Gross Domestic Product and Its Demand Components

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Real year-on-year change in %</i>							
Gross domestic product	5.6	3.9	2.7	3.4	2.3	2.5	3.7
Private consumption	5.9	0.4	2.3	0.4	2.9	3.6	3.7
Public consumption	2.9	2.3	3.9	2.5	1.9	1.9	0.6
Gross fixed capital formation	21.0	0.6	4.1	2.6	5.4	5.5	8.0
Exports of goods and services	1.6	13.0	6.3	6.8	3.1	4.1	8.8
Imports of goods and services	8.0	7.6	3.0	4.8	6.4	6.9	10.4
<i>Contribution to GDP growth in percentage points</i>							
Domestic demand	9.4	1.5	1.0	2.4	4.3	4.4	4.9
Exports	0.9	7.1	3.5	3.9	1.9	2.6	5.6
Net exports	-3.9	2.4	1.7	1.0	-2.0	-2.0	-1.2

Source: Eurostat, national statistical office, OeNB.

In the first half of 2004, average net wages in the total economy (deflated by the CPI) rose by 1.7% year on year. This was slightly below the 2003 average, although labor market conditions were somewhat tighter, with the unemployment rate declining to 6.8% in the first quarter of 2004 from 7% one year earlier. Further progress has been achieved in the deindexation of wages by concluding a wage agreement for the private sector as well. Since the fourth quarter of 2003, the annual increase in industrial unit labor costs has been clearly below industrial producer price inflation.

The inflation rate fell to a record low of 3.5% in March 2004. Further deindexation, the slowing down of the tolar's depreciation rate, the restraint in raising regulated prices, temporary anti-inflationary changes to the fuel tax regime and – until mid-2003 – the slowdown of economic activity supported disinflation. However, inflation picked up to between 3.8% and 3.9% between May and July 2004, with inflation rising in a few categories only (primarily clothing, energy, and recreation and culture), while easing in the majority of categories. Banka Slovenije, the Slovenian central bank, forecasts inflation to come to 3.2% year on year in the fourth quarter of 2004.

On June 27, 2004, Slovenia entered ERM II. The central rate was fixed at the then prevailing market rate of SIT/EUR 239.64, and a standard fluctuation band of $\pm 15\%$ around the central rate was agreed upon. Since then, the exchange rate has fluctuated in a narrow range of between 0.07% and 0.17% on the weak side of the central rate. In the run-up to ERM II entry and encouraged by the decline in inflation, Banka Slovenije has continued to frequently cut various key interest rates by between 200 and 250 basis points in total since the

Table 29

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
Productivity, Wages, Prices, Exchange Rate and Key Interest Rate							
<i>Year-on-year change of period average levels in %</i>							
Gross production of industry (real)	-0.5	6.3	3.1	2.5	1.4	4.9	4.0
Labor productivity of industry (real)	0.9	6.8	2.3	1.4	3.0	6.5	5.5
Gross average wage of industry (nominal)	9.3	11.7	10.8	9.9	7.6	7.0	7.9
Unit labor cost of industry (nominal)	8.3	4.6	8.4	8.3	4.4	0.5	2.2
Producer price index (PPI) of industry	2.2	7.7	8.9	5.3	2.6	2.3	3.3
Consumer price index (HICP)	6.1	8.9	8.6	7.5	5.7	5.0	3.7
Exchange rate (nominal):							
SIT ¹ per 1 EUR, + = EUR appreciation	4.6	6.3	5.5	3.6	3.5	3.0	2.8
EUR per 1 SIT, + = SIT appreciation	-4.4	-5.9	-5.2	-3.5	-3.4	-2.9	-2.7
<i>Period average levels</i>							
Unemployment rate (ILO definition, %)	7.4	6.7	6.2	6.3	6.7	6.7	6.8
Key interest rate per annum (%)	7.2	8.1	10.5	8.4	7.0	6.2	5.6
Exchange rate (nominal):							
SIT ¹ per 1 EUR	194.43	206.63	217.98	225.93	233.82	236.14	237.65
EUR per 1 SIT	0.0051	0.0048	0.0046	0.0044	0.0043	0.0042	0.0042

Source: Bloomberg, Eurostat, national statistical office, national central bank, OeNB, wiiv.

¹ SIT: Slovenian tolar.

beginning of 2004. Money market rates fell in tandem and the three-month interest rate differential between Slovenia and the euro area halved between January and August 2004, coming to 1.9 percentage points at end-August. Real interest rates (as measured by the differential between the 12-month interbank rate and the year-on-year CPI rate) fell from 2% in February 2004 to 0% by July, while domestic credit growth continued to accelerate, in particular lending to enterprises.

Table 30

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
Monetary Developments							
<i>Nominal year-on-year change of the annual average stock in %</i>							
Broad money (including foreign currency deposits)	..	13.7	19.2	22.8	12.7	8.0	5.8
<i>Contributions to the nominal year-on-year change of broad money in percentage points</i>							
Net foreign assets of the banking system	..	3.1	9.1	11.0	3.3	-2.4	-5.3
Domestic credit (net) of the banking system	..	15.1	14.4	12.2	11.2	14.4	15.7
of which: claims on the private sector	..	15.1	12.6	9.1	8.7	9.6	10.4
claims on households	..	4.4	2.0	1.6	2.2	1.6	2.0
claims on enterprises	..	10.7	10.6	7.5	6.5	8.0	8.4
net claims on the public sector	..	0.0	1.7	3.2	2.4	4.8	5.3
Other domestic assets (net) of the banking system	..	-4.4	-4.2	-0.4	-1.8	-4.1	-4.6

Source: National central bank, OeNB.

Fiscal policy in Slovenia has remained on a solid footing. The government aims at a general government budget deficit of 1.9% of GDP (ESA 95 definition) this year, slightly above last year's 1.8% deficit. According to the government's convergence program presented in May 2004, deficit reduction will be resumed in 2005 with a deficit of 1.8%, and the deficit ratio is envisaged to drop below 1% in 2007. Parliamentary elections will be held at the beginning of October 2004.

Table 31

Government Budget							
	1999	2000	2001	2002	2003	2004	2005
	% of GDP						
General government							
Revenues	43.0	42.5	43.1	43.3	44.0	45.1	44.0
Expenditures	45.1	45.6	45.8	45.8	45.8	47.0	45.7
of which: interest payments	2.3	2.2	2.2	2.4	..	..	..
Balance	-2.1	-3.0	-2.7	-1.9	-1.8	-1.9	-1.8
Primary balance	0.2	-0.9	-0.5	-0.1	-0.3	-0.3	-0.4
Gross public debt	25.1	26.7	26.9	27.8	28.6	29.1	29.5

Source: European Commission, Eurostat, national ministry of finance (2003–2005: Convergence program May 2004), OeNB.

Following a balanced current account in 2003, Slovenia registered a small surplus of 0.8% of GDP during the first quarter of 2004 (Q1 2003: -0.4%). By the end of April, however, a deficit had emerged, which – at EUR 25 million – was double that of April 2003, owing to a widening of the trade deficit. The FDI account continued to register a net outflow of capital.

Table 32

Balance of Payments							
	1999	2000	2001	2002	2003	Q1 2003	Q1 2004
	EUR million						
Merchandise exports	8,071	9,506	10,420	11,098	11,427	2,763	2,985
Merchandise exports:							
year-on-year change in %	-0.4	17.8	9.6	6.5	3.0	2.9	8.0
Merchandise imports	9,230	10,722	11,100	11,363	11,971	2,915	3,087
Merchandise imports:							
year-on-year change in %	4.7	16.2	3.5	2.4	5.3	5.0	5.9
Trade balance	-1,159	-1,216	-680	-265	-544	-151	-102
% of GDP	-6.2	-5.9	-3.1	-1.1	-2.2	-2.7	-1.7
Services balance	329	486	534	629	541	140	138
Income balance							
(factor services balance)	57	28	43	-176	-73	-23	2
Current transfers	111	124	143	142	93	9	8
Current account balance	-661	-579	38	330	17	-25	46
% of GDP	-3.5	-2.8	0.2	1.4	0.1	-0.4	0.8
Direct investment flows (net)	55	76	252	1,611	-109	-64	-22
% of GDP	0.3	0.4	1.2	6.9	-0.4	-1.1	-0.4

Source: Eurostat, national central bank, OeNB.

The ongoing increase in the country's gross foreign debt has turned Slovenia into a net debtor since end-2003. Nevertheless, at the end of March 2004 net foreign debt was negligible at 0.9% of annual GDP.

Table 33

Gross Official Reserves and Gross External Debt						
	1999	2000	2001	2002	2003	Q1 2004
	End of period in EUR million					
Gross official reserves (excluding gold)	3,159	3,436	4,908	6,702	6,798	6,791
Gross external debt	8,012	9,491	10,403	11,483	12,994	13,491
	% of GDP ¹					
Gross official reserves (excluding gold)	16.8	16.7	22.5	28.5	27.8	27.3
Gross external debt	42.7	46.1	47.6	48.8	53.1	54.3
	Import months of goods and services					
Gross official reserves (excluding gold)	3.6	3.4	4.6	6.1	5.9	5.8

Source: Eurostat, national central bank, OeNB, wiw.
¹ Q1 2004: As a percentage of rolling four-quarter GDP.

7 Bulgaria: High Current Account Deficit Leads to Attempts to Restrain Credit Growth

Real GDP in Bulgaria grew by 5.3% year on year in the first quarter of 2004, up from 4.3% in full-year 2003. A very high growth in domestic demand and increasingly negative net exports continued to characterize the economy. In the first quarter, growth of domestic consumption (private and public) moderated to 5.2% year on year, roughly matching the level of GDP growth, compared to 6.6% in full-year 2003 and 7.0% in the fourth quarter. Gross fixed capital formation boomed at a growth rate of 21.4%, fueled by enhanced profitability and credit expansion. This investment boom caused imports to grow by 17.7% and thus outpace export growth by an even higher rate than previously. The resulting deterioration in net exports reduced GDP growth by 11.5 percentage points, after dampening growth by 7.2 percentage points in full-year 2003.

Table 34

Gross Domestic Product and Its Demand Components							
	1999	2000	2001	2002	2003	Q4 2003 ¹	Q1 2004 ¹
	Real year-on-year change in %						
Gross domestic product	2.4	5.4	4.1	4.9	4.3	4.9	5.3
Private consumption	9.6	4.3	5.2	3.5	6.4	6.5	4.9
Public consumption	6.3	18.8	0.3	4.4	7.3	10.2	6.9
Gross fixed capital formation	20.8	15.4	23.3	8.5	13.8	10.0	21.4
Exports of goods and services	-4.6	16.6	9.9	7.2	7.9	5.3	8.0
Imports of goods and services	9.3	18.7	14.8	4.9	14.8	13.9	17.7
	Contribution to GDP growth in percentage points						
Domestic demand	11.4	8.7	9.2	4.3	11.5	13.5	16.8
Exports	-2.8	9.3	6.1	4.7	5.3	3.1	5.7
Net exports	-8.9	-3.3	-5.1	0.6	-7.2	-8.6	-11.5

Source: Eurostat, OeNB, wiw.
¹ In this column, public consumption covers only collective consumption.
Private consumption in this column additionally includes the difference between public and collective consumption.

The remarkable labor productivity advances in industry since 2002 have been based on the expansion of production and not on further labor shedding. This trend contributed to a decrease in the unemployment rate (ILO definition) to 13.4% in the first quarter of 2004, down from 15.6% a year earlier. Industrial unit labor costs continue to decline if measured on the basis of gross production,

while remaining roughly constant on the basis of gross value added. Thus, the rise in industrial producer prices, while moderating, implied a substantial increase in corporate sector profitability.

Inflation (HICP) accelerated from an annual average of 2.3% in 2003 to 6.7% year on year in the second quarter of 2004, on account of a drought-related jump in food prices, increases in excise taxes (on alcohol and tobacco) at the beginning of 2004, and particularly the continuing credit boom.

Table 35

Productivity, Wages, Prices, Exchange Rate and Key Interest Rate

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Year-on-year change of period average levels in %</i>							
Gross production of industry (real)	-9.6	5.3	2.5	4.7	15.3	17.2	17.0
Labor productivity of industry (real)	1.2	10.0	7.6	2.2	12.0	15.2	16.6
Gross average wage of industry (nominal)	8.0	6.6	7.4	3.7	4.5	6.1	5.9
Unit labor cost of industry (nominal)	6.7	-3.1	-0.2	1.4	-6.7	-7.9	-9.2
Producer price index (PPI) of industry	3.2	17.0	3.8	1.4	5.0	4.5	1.9
Consumer price index (HICP)	2.6	10.3	7.4	5.8	2.3	4.7	6.4
<i>Exchange rate (nominal):</i>							
BGN ¹ per 1 EUR, + = EUR appreciation	-0.7	-0.2	-0.2	0.1	0.0	0.0	-0.1
EUR per 1 BGN, + = BGN appreciation	0.7	0.2	0.2	-0.1	0.0	0.0	0.1
<i>Period average levels</i>							
Unemployment rate (ILO definition, %)	..	16.9	20.3	18.2	13.7	12.7	13.4
Key interest rate per annum (%)	4.7	3.9	4.5	4.0	2.7	2.6	2.5
<i>Exchange rate (nominal):</i>							
BGN ¹ per 1 EUR	1.96	1.95	1.95	1.95	1.95	1.95	1.95
EUR per 1 BGN	0.5113	0.5123	0.5133	0.5130	0.5131	0.5130	0.5124

Source: Bloomberg, Eurostat, national statistical office, national central bank, OeNB, wiiv.

¹ BGN: Bulgarian lev.

Domestic demand growth was partly driven by strong growth in credit to the private sector (households and enterprises), which have accelerated since the first quarter of 2001. In the first quarter of 2004, nominal private credit grew by about 50% year on year, with claims on the corporate sector expanding by more than 40% and claims on households by around 80%. However, despite the monetary expansion of recent years, monetization in Bulgaria (measured by the ratio of broad money to nominal GDP) is still comparatively low at 42.5%.

Table 36

Monetary Developments

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Nominal year-on-year change of the annual average stock in %</i>							
Broad money (including foreign currency deposits)	7.9	27.4	27.8	18.3	16.3	20.5	21.3
<i>Contributions to the nominal year-on-year change of broad money in percentage points</i>							
Net foreign assets of the banking system	-0.2	26.1	13.5	7.7	5.4	3.8	2.7
Domestic credit (net) of the banking system	2.0	6.8	15.0	12.1	14.5	18.2	20.6
<i>of which: claims on the private sector</i>	9.5	8.7	8.1	13.6	19.9	22.7	24.4
<i>claims on households</i>	2.6	1.1	2.4	3.3	5.9	7.6	8.5
<i>claims on enterprises</i>	6.9	7.7	5.7	10.3	14.0	15.1	15.8
<i>net claims on the public sector</i>	-7.4	-2.0	6.9	-1.5	-5.4	-4.4	-3.8
Other domestic assets (net) of the banking system	6.0	-5.5	-0.7	-1.5	-3.6	-1.5	-1.9

Source: National central bank, OeNB.

In order to reduce the level of liquidity in the banking system, the Ministry of Finance transferred fiscal reserves from commercial banks to Balgarska Narodna Banka (BNB), the Bulgarian central bank. On May 20, 2004, heeding an IMF recommendation, the BNB extended the coverage of minimum reserve requirements to include deposits of over two years with effect from July 1, 2004, albeit at the reduced rate of 4% (against the standard rate of 8%). The minimum reserve rate is the main remaining monetary policy tool within the framework of the Currency Board Arrangement (CBA), which has been in place in Bulgaria since mid-1997.

Table 37

Government Budget							
	1999	2000	2001	2002	2003	2004	2005
	% of GDP						
General government							
Revenues	38.7	38.6	37.5	37.1
Expenditures	39.4	39.4	38.2	37.7
of which: interest payments
Balance	..	-0.5	0.2	-0.7	-0.8	-0.7	-0.6
Primary balance	1.5	1.5	1.7	2.1
Gross public debt	..	73.6	66.2	56.2	50.5	45.8	42.7

Source: 2000–2001: European Commission, 2002–2005: Preaccession Economic Program 2003.

Note: Gross debt excluding social security and local government debt.

While the Preaccession Economic Program (PEP) presented in autumn 2003 provided for a fiscal deficit target of 0.7% of GDP for 2004, this target was lowered to 0.4% of GDP in April in accordance with IMF recommendations to contain the external deficit, given that the actual fiscal result for 2003 was not a deficit of 0.8% of GDP as expected in the PEP, but a balanced budget. In the first half of 2004, the budget surplus came to about 5% of this period's GDP and was thus higher than in the comparable period of 2003 (4% of GDP), since revenues grew at a faster pace than expenditures in real terms. At the end

Table 38

Balance of Payments							
	1999	2000	2001	2002	2003	Q1 2003	Q1 2004
	EUR million						
Merchandise exports	3,734	5,253	5,714	6,063	6,668	1,635	1,718
Merchandise exports:							
year-on-year change in %	-0.3	40.7	8.8	6.1	10.0	20.5	5.1
Merchandise imports	4,742	6,533	7,493	7,755	8,868	1,926	2,227
Merchandise imports:							
year-on-year change in %	16.3	37.8	14.7	3.5	14.4	17.3	15.7
Trade balance	-1,008	-1,280	-1,779	-1,692	-2,200	-290	-509
% of GDP	-8.3	-9.3	-11.7	-10.2	-12.5	-7.8	-12.3
Services balance	305	547	454	486	523	-58	-34
Income balance							
(factor services balance)	-167	-345	-340	-285	-441	-154	-133
Current transfers	282	316	562	566	613	127	175
Current account balance	-587	-762	-1,102	-926	-1,505	-375	-502
% of GDP	-4.8	-5.6	-7.2	-5.6	-8.5	-10.0	-12.2
Direct investment flows (net)	759	1,100	893	951	1,235	258	327
% of GDP	6.2	8.0	5.9	5.7	7.0	6.9	7.9

Source: Eurostat, national central bank, OeNB.

of July, the Bulgarian government approved a 0.5%-of-GDP deficit target for the election year 2005.

In the first quarter of 2004, the current account deficit climbed to 12.2% of GDP – a rise that was attributable exclusively to the significant weakening of the trade balance due to differences between domestic and foreign real demand growth and the further rise in oil prices. However, price competitiveness did not deteriorate, as the real exchange rate based on industrial unit labor costs slightly depreciated in 2003 and at the beginning of 2004. In the first quarter of 2004, net FDI inflows covered about 60% of the current account gap – significantly less than in 2002 and 2003.

In the first quarter of 2004, gross external debt increased markedly, reflecting both the current account deficit in excess of net FDI inflows and the weakening of the euro against the U.S. dollar. Foreign currency reserves remained constant at EUR 5.0 billion, corresponding to about 5.5 months of import cover.

Table 39

Gross Official Reserves and Gross External Debt

	1999	2000	2001	2002	2003	Q1 2004
<i>End of period in EUR million</i>						
Gross official reserves (excluding gold)	2,879	3,391	3,734	4,247	4,981	5,038
Gross external debt	10,864	12,038	12,046	10,769	10,476	11,168
<i>% of GDP¹</i>						
Gross official reserves (excluding gold)	23.7	24.7	24.5	25.6	28.2	27.9
Gross external debt	89.3	87.8	79.0	64.9	59.3	61.9
<i>Import months of goods and services</i>						
Gross official reserves (excluding gold)	5.6	4.9	4.8	5.2	5.4	5.5

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

¹ Q1 2004: As a percentage of rolling four-quarter GDP.

Structural reforms have continued, albeit at a slower pace. Bank privatization has been completed, and the long-delayed sale of Bulgaria Telecom Company was finalized in June 2004, leading to a rise in net FDI by about 10% year on year in the first quarter of 2004. Looking ahead, the completion of key privatization projects by end-2004, including the sale of Bulgartabak, the reform of the energy and railway sectors and of the health and education systems, the enactment of judicial reforms and the improvement of state administration will be important further areas of structural and institutional change.

8 Croatia: Toward the Stabilization of External Debt?

Economic activity in Croatia remained strong in the first quarter of 2004, with real GDP growth amounting to 4.2%, after 4.3% in full-year 2003. Gross fixed capital formation slowed considerably, but still rendered almost the same contribution to GDP growth as private consumption, which remained more or less stable. At the same time, public consumption contracted even more strongly. Although import growth slowed down to below the export growth rate, the higher base level of imports implied a further deterioration of net exports, which dampened GDP growth by about 1 percentage point, after it had reduced growth by 1.5 percentage points in full-year 2003.

As of January 2004, Hrvatska narodna banka (HNB), the Croatian central bank, changed its methodology of calculating the inflation rate. The Retail Price

Table 40

Gross Domestic Product and Its Demand Components							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Real year-on-year change in %</i>							
Gross domestic product	-0.9	2.9	4.4	5.2	4.3	3.3	4.2
Private consumption	-2.9	4.2	4.5	7.5	4.1	3.6	3.9
Public consumption	2.8	-1.5	-6.2	-1.8	-0.3	-0.1	-1.6
Gross fixed capital formation	-3.9	-3.8	7.1	12.0	16.8	14.8	8.9
Exports of goods and services	0.7	12.0	8.1	1.3	10.1	12.3	6.4
Imports of goods and services	-3.5	3.7	9.8	8.8	10.9	13.1	5.9
<i>Contribution to GDP growth in percentage points</i>							
Domestic demand	-3.0	-0.3	5.8	9.4	5.8	6.3	5.1
Exports	0.3	5.1	3.7	0.6	4.6	4.8	2.4
Net exports	2.1	3.2	-1.4	-4.2	-1.5	-3.0	-0.9

Source: National statistical office, OeNB.

Index (RPI) and the Cost of Living Index (COLI) were replaced by the Consumer Price Index (CPI), which is in line with Eurostat standards. The main differences are in the number and classification of items, the weighting scheme, the formula used and the adjustment for quality changes. The biggest discrepancy can be observed in 2002, when CPI inflation was 0.6 percentage point below RPI inflation.

After year-on-year CPI inflation came to 1.8% in full-year 2003 and 1.9% in the first quarter of 2004, it rose to 2.5% in June 2004, mainly driven by higher prices of energy and (mostly administered or regulated) services. However, CPI inflation slowed down in July to 1.9%, with the changes in oil prices (30.3% year on year) being the remaining inflation-driving factor.

Table 41

Productivity, Wages, Prices, Exchange Rate and Key Interest Rate							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Year-on-year change of period average levels in %</i>							
Gross production of industry (real)	-1.5	1.8	6.1	5.5	4.1	1.3	5.4
Labor productivity of industry (real)	1.6	4.4	7.8	7.8	3.5	-0.1	7.8
Gross average wage of industry (nominal)	5.6	6.1	8.2	6.9	5.4	3.5	5.6
Unit labor cost of industry (nominal)	3.8	1.6	0.4	-0.8	1.8	3.6	-2.1
Producer price index (PPI) of industry	2.5	9.5	3.4	-0.5	1.9	0.6	0.1
Consumer price index (CPI) ¹	4.3	6.4	5.0	1.7	1.8	1.8	1.9
Exchange rate (nominal):							
HRK ² per 1 EUR, + = EUR appreciation	6.2	0.7	-2.2	-0.8	2.1	2.5	0.4
EUR per 1 HRK, + = HRK appreciation	-5.8	-0.7	2.2	0.9	-2.1	-2.4	-0.4
<i>Period average levels</i>							
Unemployment rate (registered unemployed, %)	19.1	21.1	22.0	22.3	19.5	18.9	19.1
Key interest rate per annum (%)	7.5	6.5	5.9	5.6	4.5	4.5	4.5
Exchange rate (nominal):							
HRK ² per 1 EUR	7.58	7.64	7.47	7.41	7.56	7.62	7.61
EUR per 1 HRK	0.1319	0.1310	0.1339	0.1350	0.1322	0.1312	0.1313

¹ Retail price index until 2001, CPI since 2002.

² HRK: Croatian kuna.

The HNB discount rate has been at a low of 4.5% since September 2002. The Croatian kuna appreciated from about 7.7 HRK/EUR in early 2003 to about 7.45 HRK/EUR in mid-2003 and then depreciated back to 7.7 HRK/EUR. By mid-2004, the kuna had appreciated again to 7.35 HRK/EUR, reflect-

ing the usual tourism peak in the summer season. The HNB's exchange rate regime is a managed float regime, with the HNB intervening if it deems intervention necessary. However, interventions have become less frequent recently: after 22 and 16 official interventions, respectively, in 2001 and 2002, the HNB conducted only 9 in 2003 and 9 from January until mid-August 2004.

Table 42

Monetary Developments

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Nominal year-on-year change of the annual average stock in %</i>							
Broad money (including foreign currency deposits)	2.6	14.0	30.9	32.4	11.3	11.6	9.3
<i>Contributions to the nominal year-on-year change of broad money in percentage points</i>							
Net foreign assets of the banking system	-3.7	20.3	13.4	9.8	-7.7	-2.6	-1.3
Domestic credit (net) of the banking system	9.8	-1.2	21.1	23.2	19.5	14.6	10.8
<i>of which: claims on the private sector</i>	5.9	-2.0	17.0	21.5	17.7	13.0	10.4
<i>claims on households</i>	..	..	..	..	..	..	..
<i>claims on enterprises</i>	..	..	..	..	..	..	..
<i>net claims on the public sector</i>	3.9	0.9	4.1	1.7	1.8	1.7	0.4
Other domestic assets (net) of the banking system	-3.4	-5.1	-3.6	-0.5	-0.5	-0.5	-0.1

Source: National central bank, OeNB.

In 2003, the general government deficit in Croatia stood at 5.5% of GDP, as in 2002. The deficit of the consolidated central government climbed to 2.9% in 2003 because of higher-than-expected expenditure increases. The 2004 consolidated central government budget provides for a deficit of 2.7% of GDP. In the first four months of 2004, the corresponding deficit was more than 60% higher than in the comparable period of 2003, as revenues (+7%) grew at a slower pace than expenditures (+13%), primarily because of a strong increase in capital expenditures. After exploding from 26% of GDP in 1998 to 39.5% of GDP in 2000, public sector debt went up only slightly to 43% of GDP in 2003. 61% of public sector debt was denominated in foreign currencies.

Table 43

Government Budget

	1999	2000	2001	2002	2003	2004	2005
<i>% of GDP</i>							
Consolidated central government							
Revenues	47.7	43.8	42.8	39.6	42.0	..	..
Expenditures	49.7	48.8	45.2	41.6	44.9	..	..
<i>of which: interest payments</i>	1.5	1.7	1.8	1.8	1.9	..	..
Balance	-2.0	-5.0	-2.4	-2.0	-2.9	..	..
Primary balance	-0.3	-2.3	-0.8	-0.1	0.7	..	..
Gross public debt	33.0	39.5	40.6	41.1	43.2	..	..

Source: National ministry of finance.

The deficit of the trade balance has been widening from the early 1990s to reach a record low at 26.9% of GDP in 2003. Exports gained momentum, but were not able to fully compensate the constantly high import growth. However, the increasingly positive balance of services based on tourism and rising transfers from Croatians abroad kept the annual current account deficit in single

digits over the last few years. In the first quarter of 2004, the current account deficit stood at 19.3% of GDP as against 17.4% of GDP a year earlier. FDI inflows roughly matched the current account deficits from 1999 to 2003, with the exception of the year 2002.

Table 44

Balance of Payments							
	1999	2000	2001	2002	2003	Q1 2003	Q1 2004
	<i>EUR million</i>						
Merchandise exports	4,205	4,976	5,341	5,212	5,464	1,375	1,502
<i>Merchandise exports:</i>							
<i>year-on-year change in %</i>	3.6	18.3	7.3	-2.4	4.8	14.5	9.3
Merchandise imports	7,374	8,477	9,961	11,084	12,329	2,717	2,945
<i>Merchandise imports:</i>							
<i>year-on-year change in %</i>	-3.8	15.0	17.5	11.3	11.2	11.5	8.4
Trade balance	-3,168	-3,502	-4,620	-5,872	-6,865	-1,342	-1,442
<i>% of GDP</i>	-17.0	-17.5	-20.8	-24.2	-26.9	-23.2	-23.3
Services balance	1,556	2,543	3,254	3,236	4,965	251	191
Income balance							
(factor services balance)	-340	-441	-587	-543	-1,055	-222	-219
Current transfers	605	963	1,085	1,123	1,214	304	277
Current account balance	-1,348	-436	-867	-2,056	-1,741	-1,010	-1,194
<i>% of GDP</i>	-7.2	-2.2	-3.9	-8.5	-6.8	-17.4	-19.3
Direct investment flows (net)	1,385	1,159	1,575	617	1,598	274	195
<i>% of GDP</i>	7.4	5.8	7.1	2.5	6.3	4.7	3.2

Source: Eurostat, national central bank, OeNB.

Gross external debt as a percentage of GDP has been on a steady rise from around 20% in the mid-1990s to 75.7% at the end of the first quarter of 2004. It augmented significantly in 2003 because of the results of the public and the private (banking and corporate) sectors. In order to contain the private sector credit boom, which is based on foreign liabilities incurred by banks, the monetary authorities tightened the liquidity belt at the beginning of 2003: Commercial banks whose loan portfolio was growing by more than 4% quarter on quarter were required to buy low-interest HNB bills worth twice as much as their lending above the 4% threshold. Also, banks were ordered to hold 35% of their foreign exchange-denominated liabilities in liquid foreign exchange-denominated assets, and reserve requirements were tightened as well.

Table 45

Gross Official Reserves and Gross External Debt						
	1999	2000	2001	2002	2003	Q1 2004
	<i>End of period in EUR million</i>					
Gross official reserves (excluding gold)	3,013	3,783	5,334	5,651	6,554	6,179
Gross external debt	9,932	11,880	12,841	14,710	18,652	19,629
	<i>% of GDP¹</i>					
Gross official reserves (excluding gold)	16.1	18.9	24.0	23.3	25.7	23.8
Gross external debt	53.2	59.4	57.9	60.7	73.1	75.7
	<i>Import months of goods and services</i>					
Gross official reserves (excluding gold)	3.9	4.3	5.3	5.0	5.3	5.2

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

¹ Q1 2004: As a percentage of rolling four-quarter GDP.

In 2003, privatization was mostly shaped by a single sale, that of a minority stake in the oil firm INA to Hungarian MOL for some EUR 446 million. The new conservative government elected in November 2003 announced that it would step up efforts to complete the privatization process by 2006. Upcoming privatizations concern Croatia Telecom and the sale of further stakes of INA. The remaining two state-owned banks, an insurance company, nearly 150 hotels, numerous agricultural firms and shipyards are still awaiting privatization.

9 Romania: On the Road toward Sustainable Economic Expansion?

Following economic growth rates of 4.9% in 2003, real GDP increased by 6.1% year on year in the first quarter of 2004. As in 2003, export growth and private consumption growth were the most important contributors to GDP growth. Strong household consumption was fueled by vigorous consumer credit growth and increasing wages, real net wages rising by 9.7% year on year in the first quarter of 2004. The robust growth of domestic consumption (private and public) continued to exceed the level of GDP growth, increasing further to 8.1% year on year, from 6.9% in full-year 2003 and 6.8% in the fourth quarter. By contrast, growth of gross fixed capital formation declined to 7.3%. Net exports of goods and services continued to deteriorate and thus dampened GDP growth, albeit to a smaller degree than in full-year 2003.

Table 46

	1999	2000	2001	2002	2003	Q4 2003	Q1 2004 ¹
Gross Domestic Product and Its Demand Components							
<i>Real year-on-year change in %</i>							
Gross domestic product	-1.2	2.1	5.7	5.0	4.9	4.6	6.1
Private consumption	-1.1	-0.8	6.9	5.2	7.3	7.2	8.4
Public consumption	..	..	3.9	-9.4	5.0	5.1	4.1
Gross fixed capital formation	-4.8	5.5	10.1	8.2	9.2	11.0	7.3
Exports of goods and services	..	23.4	12.1	17.6	11.1	17.6	10.2
Imports of goods and services	..	27.1	18.4	12.0	16.3	23.8	12.4
<i>Contribution to GDP growth in percentage points</i>							
Domestic demand	..	..	8.8	4.1	7.7	8.0	7.7
Exports	..	..	4.0	5.9	3.9	5.1	4.8
Net exports	..	..	-3.1	0.9	-2.8	-3.4	-1.6

Source: Eurostat, OeNB, wiw.

¹ In this column, public consumption covers only collective consumption.

Private consumption in this column additionally includes the difference between public and collective consumption.

In the first half of 2004, industrial output increased by 4.2% year on year, with growth slowing down in the second quarter. As in 2003, labor productivity was enhanced by labor shedding in the first quarter, while high wage growth continued to induce nominal unit labor cost growth. The resulting substantial increases in industrial producer prices still exceed inflation (HICP). This may undermine the impressive success of efforts directed at disinflation, i.e. tighter monetary policy and fiscal consolidation. (Inflation was brought down from 45.8% to 15.3% between 1999 and 2003.) Nevertheless, inflation slowed to 12.3% year on year in May 2004. After the key policy rate (reference rate) had been held constant at 21.25% since the beginning of the year, it was cut

to 20.75% in June and to 20.00% in July. In two steps, the reference rate was further reduced to 18.75% in August, in response to the continued disinflation process. The authorities have announced a gradual shift to an inflation targeting strategy beginning in 2005.

Table 47

Productivity, Wages, Prices, Exchange Rate and Key Interest Rate							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Year-on-year change of period average levels in %</i>							
Gross production of industry (real)	-7.9	6.2	8.3	4.4	3.2	0.9	5.7
Labor productivity of industry (real)	7.2	12.5	11.6	5.4	5.2	3.1	8.4
Gross average wage of industry (nominal)	44.0	41.7	51.1	23.6	19.5	19.8	24.0
Unit labor cost of industry (nominal)	34.3	25.9	35.4	17.2	13.6	16.1	14.4
Producer price index (PPI) of industry	41.6	53.8	38.7	23.2	19.6	19.2	18.0
Consumer price index (CPI)	45.8	45.7	34.5	22.5	15.3	14.8	13.6
Exchange rate (nominal): ROL ¹ per 1 EUR, + = EUR appreciation	63.8	22.0	30.5	20.1	20.2	18.8	13.9
EUR per 1 ROL, + = ROL appreciation	-39.0	-18.1	-23.4	-16.8	-16.8	-15.8	-12.2
<i>Period average levels</i>							
Unemployment rate (ILO definition, %)	6.9	7.2	6.7	8.4	7.1	6.8	..
Key interest rate per annum (%)	35.0	35.0	35.0	29.6	18.8	19.7	21.1
Exchange rate (nominal): ROL ¹ per 1 EUR	16 326.75	19 926.00	26 000.25	31 234.75	37 543.00	39 735.00	40 550.00
EUR per 1 ROL	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000

¹ ROL: Romanian leu.

Source: Bloomberg, Eurostat, national statistical office, national central bank, OeNB, wiiv.

Credit to the private sector is booming, with growth further accelerating to 47% in CPI-deflated terms in the first quarter of 2004 from 37% in full-year 2003. However, the growth of credits to households has slowed down over the past months, as Banca Națională a României, the central bank of Romania,

Table 48

Monetary Developments							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Nominal year-on-year change of the annual average stock in %</i>							
Broad money (including foreign currency deposits)	52.0	40.4	42.5	40.9	31.2	28.1	26.2
<i>Contributions to the nominal year-on-year change of broad money in percentage points</i>							
Net foreign assets of the banking system	10.8	38.4	44.9	31.8	15.5	11.6	6.2
Domestic credit (net) of the banking system	42.3	14.0	10.2	18.7	23.9	25.6	28.3
of which: claims on the private sector	24.3	3.6	18.3	24.1	28.2	33.7	34.5
claims on households	..	..	..	..	..	..	..
claims on enterprises	..	..	..	..	..	..	..
net claims on the public sector	17.9	10.3	-8.1	-5.3	-4.3	-8.1	-6.2
Other domestic assets (net) of the banking system	-1.0	-12.0	-12.6	-9.6	-8.3	-9.1	-8.2

Source: National central bank, OeNB.

has introduced stricter rules on granting credits to private households. Regarding exchange rate policy, the authorities have followed a managed float strategy with a focus on both the external balance and disinflation for several years. In July 2005, the national currency, the leu, will be redenominated by slashing four zeros off the currency.

Table 49

Government Budget							
	1999	2000	2001	2002	2003	2004	2005
	% of GDP						
General government							
Revenues	36.4	37.0	36.7	35.7
Expenditures	38.6	39.5	39.9	38.9
of which: interest payments
Balance	..	-4.4	-3.5	-2.2	-2.5	-3.2	-3.2
Primary balance	0.3	-0.6	-1.4	-1.5
Gross public debt	..	23.9	23.2	22.7	22.3	22.7	24.2

Source: 2000–2001: European Commission, 2002–2005: Preaccession Economic Program 2003.

Within the 24-month Stand-By Arrangement approved in July by the IMF, which provides Romania with SDR 250 million, the target for the general fiscal deficit in 2004 was reduced to 2.1% of GDP. Both this new target and the actual deficit in 2003 (2.0% of GDP) are below the deficit values envisaged in the Pre-accession Economic Program presented in autumn 2003 (PEP 2003). For the years 2005 to 2008, the authorities forecast a gradual deficit increase reaching 2.7% by 2008. In the first quarter of 2004, the central government deficit of 1.5% of GDP was below that in the comparable period of 2003 (2.4%), despite forthcoming parliamentary elections in November 2004. According to the medium-term fiscal plan, in 2005, the corporate tax rate will be reduced from 25% to 19%, the upper-income tax rate from 40% to 38% and the lower-income tax rate from 18% to 14%. Excise tax rates are expected to be raised in order to bring them into line with European Union practices. On the expen-

Table 50

Balance of Payments							
	1999	2000	2001	2002	2003	Q1 2003	Q1 2004
	EUR million						
Merchandise exports	8,487	10,366	11,385	14,637	15,614	3,778	4,329
Merchandise exports:							
year-on-year change in %	2.2	22.1	9.8	28.6	6.7	14.3	14.6
Merchandise imports	9,744	12,050	14,354	17,400	19,569	4,191	4,933
Merchandise imports:							
year-on-year change in %	-10.8	23.7	19.1	21.2	12.5	8.7	17.7
Trade balance	-1,257	-1,684	-2,969	-2,763	-3,955	-413	-604
% of GDP	-3.8	-4.2	-6.7	-5.8	-7.9	-4.5	-6.0
Services balance	-395	-246	-115	-53	72	17	4
Income balance							
(factor services balance)	-411	-285	-282	-531	-592	-76	-94
Current transfers	626	860	1,143	1,614	1,639	323	425
Current account balance	-1,437	-1,355	-2,223	-1,733	-2,836	-149	-269
% of GDP	-4.4	-3.4	-5.0	-3.6	-5.7	-1.6	-2.7
Direct investment flows (net)	1,025	1,048	1,174	1,131	1,562	376	407
% of GDP	3.1	2.6	2.6	2.4	3.1	4.1	4.1

Source: National central bank, OeNB.

diture side, policymakers intend to reduce subsidies to loss-making firms and to follow a prudent wage policy in the public sector.

In 2003, the current account deficit reached 5.7% of GDP, while the trade deficit came to 7.9%. In the first half of 2004, the trade deficit worsened even further, reflecting the strong demand for both capital and consumer durable goods. As a result, the current account deficit of the first half of 2004 reached EUR 1.6 billion (first half of 2003: EUR 1.3 billion). As net inflows of FDI amounted to EUR 1.2 billion in the first half of 2004 (first half of 2003: EUR 0.8 billion), they may cover a larger part of the current account gap in full-year 2004 than in recent years, owing to large privatization projects, a more stabilized macroeconomic situation and, above all, the prospect of EU membership.

In the first quarter of 2004, gross official reserves increased, slightly raising the rather moderate level of import cover despite strong import growth.

Table 51

Gross Official Reserves and Gross External Debt						
	1999	2000	2001	2002	2003	Q1 2004
	End of period in EUR million					
Gross official reserves (excluding gold)	1,520	2,655	4,445	5,877	6,374	6,725
Gross external debt (medium- and long-term)	8,735	11,044	13,507	14,648	15,396	15,809
	% of GDP ¹					
Gross official reserves (excluding gold)	4.6	6.7	10.0	12.3	12.7	13.2
Gross external debt (medium- and long-term)	26.5	27.7	30.4	30.6	30.8	31.1
	Import months of goods and services					
Gross official reserves (excluding gold)	1.6	2.3	3.2	3.5	3.5	3.6

¹ Q1 2004: As a percentage of rolling four-quarter GDP.

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

On the structural side, Romania still has to cope with the phenomenon of soft budget constraints – and the resulting accumulation of substantial arrears, which is most widespread among state-owned enterprises and reflected, in particular, by the low collection rate of large utilities. The authorities are taking several measures to limit the accumulation of arrears, for example the acceleration of bankruptcy procedures and a more forceful restructuring of large state-owned, loss-making companies. Privatization is being stepped up: In July, a strongly debated privatization project was finally brought to a conclusion after repeated delays, when the Austrian OMV acquired the majority stake of the biggest Romanian company, the Petrom oil company.

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Real GDP growth accelerated to 7.3% in 2003 and, according to preliminary data, amounted to 7.4% year on year in the first half of 2004. Growth continued to benefit from high and rising oil and raw material prices, political stability under President Putin and the cumulative positive effect of economic reforms. In the first quarter of 2004, real export growth and private consumption growth on the back of strong wage and pension increases were the demand com-

ponents that delivered the highest contribution to GDP growth with 6.3 and 6 percentage points, respectively. Notwithstanding its very high real growth rates of 14.1% year on year in the first quarter and 12.6% in the first half of 2004, gross fixed capital formation contributed considerably less to overall GDP growth (1.8 percentage points), given its still relatively low weight. Although the import volume is still far below that of exports, import growth exceeded export growth by so much that a deterioration of net exports resulted, dampening GDP growth in the first quarter by about 1 percentage point.

Table 52

Gross Domestic Product and Its Demand Components							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Real year-on-year change in %</i>							
Gross domestic product	6.3	9.0	5.1	4.7	7.3	7.6	7.4
Private consumption	-2.9	6.0	9.3	8.7	7.8	8.4	11.8
Public consumption	3.1	4.8	-0.8	2.6	2.2	1.9	2.5
Gross fixed capital formation	6.3	31.1	10.3	3.0	12.9	13.8	14.1
Exports of goods and services	11.3	9.6	4.2	9.6	13.7	16.1	12.6
Imports of goods and services	-17.1	30.5	18.7	14.6	19.5	20.4	24.1
<i>Contribution to GDP growth in percentage points</i>							
Domestic demand	-2.0	11.6	7.3	4.1	6.8	7.0	8.3
Exports	4.7	4.2	1.9	4.2	6.3	7.7	6.3
Net exports	9.1	-1.9	-2.6	0.3	0.5	0.8	-0.9

Source: Eurostat, national statistical office, OeNB.

Industrial restructuring and modernization have been gathering momentum. Despite strong wage increases in industry, the rise in unit labor costs remained below that of producer prices in the first quarter of 2004. The unemployment rate (ILO definition) slightly declined to 7.9 % in June 2004 from 8.0% a year earlier. Given still buoyant increases of official reserves, limited sterilization instruments, swiftly expanding bank loans and periodic adjustments of regulated prices and tariffs, inflation (CPI) has only been declining slowly, reaching 10.5% in July 2004.

Table 53

Productivity, Wages, Prices, Exchange Rate and Key Interest Rate							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Year-on-year change of period average levels in %</i>							
Gross production of industry (real)	11.6	12.0	4.9	3.7	7.0	7.4	7.6
Labor productivity of industry (real)	10.6	14.6	5.7	7.5	13.9	14.3	14.2
Gross average wage of industry (nominal)	46.7	42.1	52.0	27.2	25.4	26.6	24.9
Unit labor cost of industry (nominal)	32.6	24.0	43.8	18.3	10.1	10.8	9.3
Producer price index (PPI) of industry	59.1	46.5	19.1	11.7	15.6	12.6	19.0
Consumer price index (CPI)	85.7	20.8	21.6	16.0	13.6	12.5	10.8
Exchange rate (nominal):							
RUB ¹ per 1 EUR, + = EUR appreciation	137.2	-0.8	0.4	13.5	16.5	9.8	5.4
EUR per 1 RUB, + = RUB appreciation	-57.8	0.8	-0.4	-11.9	-14.2	-8.9	-5.2
<i>Period average levels</i>							
Unemployment rate (ILO definition, %)	12.6	10.5	9.0	8.0	8.3	8.0	8.9
Key interest rate per annum (%)	57.2	33.1	25.0	22.7	17.3	16.0	14.3
Exchange rate (nominal):							
RUB ¹ per 1 EUR	26.24	26.03	26.13	29.65	34.55	34.90	35.83
EUR per 1 RUB	0.0381	0.0384	0.0383	0.0337	0.0289	0.0287	0.0279

Source: Bloomberg, Datastream, national statistical office, national central bank, OeNB, wiw.

¹ RUB: Russian ruble.

While the Central Bank of Russia aims at steadily reducing inflation, it also focuses on stemming appreciation tendencies of the ruble in order to avoid the “Dutch disease.” But the two goals are partly inconsistent, which gives rise to recurring difficulties.

Table 54

Monetary Developments							
	1999	2000	2001	2002	2003	Q4 2003	Q1 2004
<i>Nominal year-on-year change of the annual average stock in %</i>							
Broad money (including foreign currency deposits)	63.6	60.0	44.2	31.2	39.2	39.7	39.9
<i>Contributions to the nominal year-on-year change of broad money in percentage points</i>							
Net foreign assets of the banking system	7.5	58.5	44.3	19.8	21.3	16.5	18.1
Domestic credit (net) of the banking system	120.4	30.5	22.8	30.4	29.6	30.9	25.7
<i>of which: claims on the private sector</i>	43.5	36.7	35.2	28.9	29.5	34.3	32.1
<i>claims on households</i>	..	..	..	..	..	..	..
<i>claims on enterprises</i>	..	..	..	..	..	..	..
<i>net claims on the public sector</i>	76.9	-6.2	-12.4	1.5	0.2	-3.4	-6.4
Other domestic assets (net) of the banking system	-64.4	-29.1	-22.9	-19.1	-11.7	-7.8	-3.9

Source: National central bank, OeNB.

Russia easily maintained its twin surpluses in 2003, with the government budget showing a surplus for the fifth year in a row. The federal government's budget posted a surplus of 1.7% of GDP, the consolidated budget (comprising all three regional levels of government) showed a surplus of 1.4% (2002: 0.9%) and the enlarged government overall balance (used by the IMF) came to a surplus of 1.1%. In the first five months of 2004, the federal government surplus is estimated at 1.8% of GDP. The sustained surplus position can be attributed to high oil revenues and economic growth, but also to successful tax reforms since 2001 (introduction of a personal income flat tax rate at 13%, reduction of corporate income tax rates and scrapping of a number of tax exemptions). In early 2004, the fiscal authorities established a stabilization fund into which oil-related budget revenues flow when the price of Urals grade crude fetches over USD 20 per barrel. This fund is expanding quickly and reached RUB 199 billion (EUR 5.7 billion) at end-May 2004.

Table 55

Government Budget							
	1999	2000	2001	2002	2003	2004	2005
<i>% of GDP</i>							
Federal government							
Revenues	12.5	15.4	17.8	20.3	19.4	17.9	17.2
Expenditures	13.8	13.2	14.8	18.5	17.7	17.4	16.1
<i>of which: interest payments</i>	3.4	2.4	2.6	2.1	1.7	..	..
Balance	-1.3	2.2	3.0	1.8	1.7	0.5	1.0
Primary balance	2.1	4.6	5.6	3.9	3.4	..	..
Gross public debt	..	..	..	..	..	..	..

Note: Data for the period from 2004 to 2005 according to budget law.

Source: Economic Expert Group.

Following a current account surplus of EUR 32 billion or 8.3% of GDP in 2003, on the back of a sizeable trade surplus, the current account surplus came to a preliminary 9% of GDP in the first half of 2004. Given the rather difficult business climate for foreigners, FDI inflows are much lower than the country's enormous economic potential would suggest. Despite the launching of some important oil extraction projects, there was actually a net outflow of FDI in 2003, which continued in the first months of 2004. Foreign investors' reluctance has not been eased by the authorities' unrelenting pursuit of the country's largest oil firm, Yukos, and its founder and what appears to be a selective enforcement of the rule of law. This may weaken property rights.

Table 56

Balance of Payments

	1999	2000	2001	2002	2003	Q1 2003	Q1 2004
<i>EUR million</i>							
Merchandise exports	71,210	114,379	113,843	113,201	120,040	28,963	29,838
Merchandise exports: year-on-year change in %	7.1	60.6	-0.5	-0.6	6.0	16.0	3.0
Merchandise imports	37,168	48,934	60,138	64,278	66,508	14,752	15,360
Merchandise imports: year-on-year change in %	-28.8	31.7	22.9	6.9	3.5	4.7	4.1
Trade balance	34,042	65,444	53,705	48,923	53,532	14,211	14,479
% of GDP	18.6	23.1	15.7	13.4	13.9	16.7	14.4
Services balance	-4,034	-7,254	-10,227	-10,439	-9,773	-1,928	-2,012
Income balance							
(factor services balance)	-7,291	-7,353	-4,756	-6,856	-11,441	-1,310	-2,072
Current transfers	578	65	-912	-808	-333	-144	14
Current account balance	23,295	50,903	37,810	30,821	31,984	10,828	10,408
% of GDP	12.7	18.0	11.0	8.5	8.3	12.7	10.4
Direct investment flows (net)	1,042	-500	250	-49	-2,508	729	-262
% of GDP	0.6	-0.2	0.1	0.0	-0.7	0.9	-0.3

Source: National central bank, OeNB.

Russia's gross external debt slightly grew to EUR 152.9 billion at end-March 2004, but declined to 38.2% relative to GDP. Meanwhile, gross official reserves (excluding gold) rose to EUR 65.2 billion or a comfortable 9.5 import months worth of goods and services.

Table 57

Gross Official Reserves and Gross External Debt

	1999	2000	2001	2002	2003	Q1 2004
<i>End of period in EUR million</i>						
Gross official reserves (excluding gold)	8,387	26,139	37,026	42,291	58,531	65,187
Gross external debt	..	158,775	161,734	143,490	147,073	152,896
<i>% of GDP¹</i>						
Gross official reserves (excluding gold)	4.6	9.2	10.8	11.6	15.2	16.3
Gross external debt	..	56.0	47.3	39.4	38.3	38.2
<i>Import months of goods and services</i>						
Gross official reserves (excluding gold)	2.0	4.7	5.3	5.7	7.8	9.5

Source: National central bank, OeNB, wiiv.

¹ Q1 2004: As a percentage of rolling four-quarter GDP.

In the run-up to the parliamentary and presidential elections in December 2003 and March 2004, respectively, the implementation of structural reforms generally slowed down somewhat. However, banking reforms have seen more dynamics recently. After much hesitation, a deposit insurance law was finally enacted in December 2003. According to this law, all credit institutions were given a deadline until end-June 2004 to apply for participation in the deposit insurance scheme. Now the Central Bank of Russia is engaged in an examination and screening process to determine which banks are “fit” to join. This may be the first serious review Russian banks have experienced in years.

In this situation, two smaller banks’ licenses were revoked in connection with money laundering charges in May 2004, which apparently gave rise to concerns among depositors, who started to withdraw money from credit institutions. Although the Central Bank of Russia reacted in mid-June by easing money market liquidity, a medium-sized bank stopped servicing its clients in early July. The reinforced unrest provoked notable withdrawals even from Russia’s largest private bank, triggering a wider liquidity crisis. The authorities responded by sharply cutting all reserve requirements, promoting the takeover of the insolvent middle-sized bank by a state-owned one and by passing a special law in mid-July providing for a limited interim guarantee of all existing bank deposits of private individuals. The measures appear to have calmed down the situation for the time being. Given the currently robust overall economic situation, banks are far from where they were prior to the 1998 meltdown, but the fragility of confidence has been clearly exposed.

Cutoff date for data: August 30, 2004.

STUDIES

Nonlinear Exchange Rate Dynamics in Target Zones: A Bumpy Road Toward a Honeymoon Some Evidence from the ERM, ERM II and Selected New EU Member States

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This study investigates exchange rate movements in the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) and in the Exchange Rate Mechanism II (ERM II). On the basis of the variant of the target zone model proposed by Bartolini and Prati (1999) and Bessec (2003), the authors set up a three-regime self-exciting threshold autoregressive model (SETAR) with a non-stationary central band and explicit modeling of the conditional variance. This modeling framework is employed to model daily Deutsche mark-based and median currency-based bilateral exchange rates of countries participating in the original ERM and also for the exchange rates of the Czech Republic, Hungary, Poland and Slovakia from 1999 to 2004. Our results confirm the presence of strong nonlinearities and asymmetries in the ERM period, which, however, seem to differ across countries and diminish during the last stage of the run-up to the euro. Important nonlinear adjustments are also detected for Denmark in ERM II and for our group of four CEE economies.

1 Introduction

The seminal paper of Krugman (1991) focused on explaining the exchange rate behavior of a currency with a central parity rate and upper and lower exchange rate bands, the so-called target zone model. The existence of the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS) gave researchers an ideal opportunity to test the target zone model because it provided ample data for empirical analysis. Since the early 1990s, numerous papers have been written on the period preceding the ERM crisis of 1993,⁴ while the period in the run-up to the euro has received less limelight.⁵ However, further analysis of the post-1993 experience would appear to be fruitful for at least two reasons. First, Flood, Rose and Mathieson (1990) and Rose and Svensson (1995) reported only limited nonlinearity in the period prior to 1993. However, the widening of the fluctuation bands from 2.25% to 15% in the post-1993 period may have introduced additional nonlinear behavior to exchange rates. Second, the recent enlargement of the European Union to 25 countries implies that the new Member States will participate, at some point in time, in an ERM II arrangement prior to their adoption of the euro. For them, the behavior of ERM currencies prior to the introduction of the euro in 1999 may contain useful information.

The empirical literature on target zones suffers from a number of problems. First, most studies use monthly or weekly frequencies, which may aggregate “out” the true dynamics of the exchange rate. Second, the frequent jumps in the central parity in the ERM are not adequately accounted for in the pre-1993 period. Finally, either the mean⁶ or variance equation⁷ is investigated in a more sophisticated way instead of being modeled jointly.

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⁴ Examples are Anthony and MacDonald (1998), Bessec (2003), Bekaert and Gray (1998), Chung and Tauchen (2001), and Rose and Svensson (1995).

⁵ See e.g. Anthony and MacDonald (1999), Bessec (2003), and Brandner and Grech (2002).

⁶ E.g. Bessec (2003) models the mean equation by means of a SETAR model.

⁷ Brandner and Grech (2002) use a simple autoregressive (AR) process for the mean equation and use different Generalized Autoregressive Conditional Heteroscedasticity (GARCH) models for the variance equation.

The aim of this study is to shed additional light on exchange rate behavior in ERM, ERM II and CEE (Central and Eastern European) countries. Our modeling framework is based on the target zone models set out in Bartolini and Prati (1999) and Bessec (2003). These models predict the presence of soft bands within the officially announced large bands. More specifically, these models assume that the monetary authorities do not intervene in the proximity of the central parity. In this area, the exchange rate behaves like a random walk. However, the monetary authorities take policy action when the exchange rate is about to leave this corridor. Thus, the exchange rate exhibits mean reversion toward the soft band. However, it should be noted that in reality, such band mean reversion could be the outcome of a number of factors, such as direct and indirect central bank interventions, moral persuasion, communication with the markets and stabilization of market expectations in the face of increased credibility of the monetary authorities or because of an increased stability of the underlying fundamentals. This type of behavior is best captured by a three-regime Self-Exciting Threshold Autoregressive (SETAR) model in which we model conditional variance by means of a GARCH (1,1). The application of this model for daily data from the post-1993 ERM and ERM II not only indicates the presence of a three-regime threshold model but also of considerable asymmetries for the detected upper and lower bounds that delimit the soft band within the announced target zone.

The remainder of the paper is structured as follows: Section 2 overviews the target zone literature and summarizes the principal features of this class of models. Section 3 sets out the econometric framework. Section 4 provides a description and a first analysis of the data used in the paper. Section 5 analyzes the empirical results, and section 6 provides some concluding remarks.

2 Target Zone Models

2.1 The Krugman Model: Perfect Credibility with Marginal Interventions

The baseline target zone model presented in Krugman (1991) is based on a continuous-time representation of the flexible-price monetary model in which the exchange rate (e) is assumed to be a linear function of a set of fundamental variables (f) and the expected change of the exchange rate ($E(de)/dt$):⁸

$$e = f + \delta E(de)/dt \quad (1)$$

The fundamentals explicitly considered by Krugman (1991) are money supply and velocity. Money supply is controlled by the monetary authorities, whereas velocity is exogenous. First, it is assumed that market participants perceive the announced fluctuation band around the central parity as fully credible. Perfect credibility implies that neither the fluctuation bands nor the central parity will be altered and that the exchange rate will remain inside the fluctuation band. Second, it is assumed that the monetary authorities only intervene when the exchange rate hits the upper or lower bound of the officially announced fluctuation band. The implication of the second assumption is that within the fluctuation band the exchange rate behaves like under a free float. Because

⁸ Recall that under the assumption of uncovered interest parity, the standard discrete-time form of the monetary model can be written as follows: $e_t = m_t - m_t^* - \alpha(y_t - y_t^*) + \beta \Delta e_{t+1}^e$, m and m^* denoting domestic and foreign money supply, y and y^* standing for domestic and foreign output and Δe_{t+1}^e representing the expected change in the nominal exchange rate in period $t + 1$.

velocity is assumed to follow a standard Wiener, or Brownian motion, process without drift⁹ and because the money supply is considered constant under a free float (with the expected change in the exchange rate being equal to zero), the nominal exchange rate also follows a Brownian motion process and depends proportionally on the fundamentals, i.e. velocity.

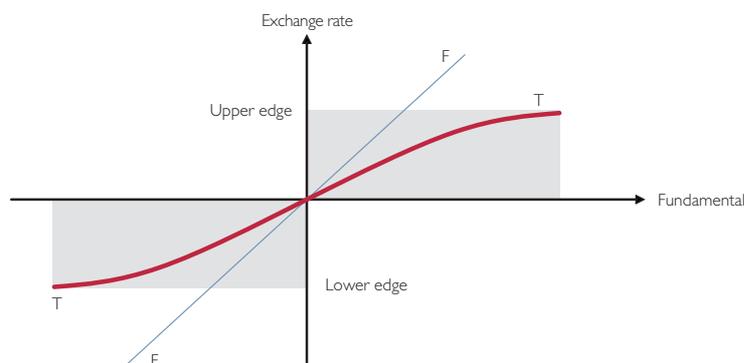
Under the assumptions sketched out above, the general solution of the model becomes the following:

$$e = f + A \cdot \exp(\mu \cdot f) + B \cdot \exp(-\mu \cdot f) \quad (2)$$

where A and B are constants, $\mu = \sqrt{2/\lambda \cdot \sigma_f^2}$, σ_f is the standard deviation of the fundamentals and λ denotes the elasticity of real money supply to the interest rate in the structural form of the monetary model. Equation (2) is composed of a linear and a nonlinear part. The linear part, f , represents the solution for a free float. However, the main results of the model, which came to be known as the *honeymoon effect* and *smooth pasting* are reflected in the nonlinear part, $A \cdot \exp(\mu \cdot f) + B \cdot \exp(-\mu \cdot f)$. The honeymoon effect refers to the phenomenon that if the exchange rate is close to the weaker (stronger) edge of the band, the probability increases that the exchange rate will hit the edge, which automatically leads to interventions by the monetary authorities. As a consequence, the probability that the exchange rate appreciates (depreciates) is higher than the probability that it depreciates (appreciates). This is depicted in chart 1. From this it follows that the exchange rate will be less depreciated (appreciated), given by the line TT, than the one that would be given by the fundamentals alone (linear component of equation 2) under a free float (45-degree line FF). Thus, this type of target zone model stabilizes the exchange rate relative to its fundamentals within the fluctuation band. *Smooth pasting* refers to the phenomenon that the path of the exchange rate smoothes out on its way to the boundaries of the band and that its slope becomes zero when it eventually hits the edge.

Chart 1

The Krugman Model



Source: Based on Krugman (1991).

A crucial implication of the baseline Krugman model is that the exchange rate will spend more time close to the boundaries than inside the target zone. Consequently, the distribution of the exchange rate will be U-shaped between

⁹ This is indeed the continuous-time representation of a random walk.

the upper and lower bounds. Lundbergh and Teräsvirta (2003) demonstrate for the case of Norway from 1986 to 1988 that, provided the two main assumptions are satisfied, i.e. the target zone is perfectly credible and the monetary authorities intervene only at the edges of the target zone, the Krugman model is able to describe surprisingly well the exchange rate behavior in Norway in the period considered.

2.2 Extensions of the Krugman Model¹⁰

Target zone exchange rate regimes may not be fully credible because the central parity may be realigned and the fluctuation bands widened. If realignment causes a shift in the band which does not overlap with the previous band, the exchange rate will jump. This may or may not be the case if there is an overlap between the old and new bands. Numerous realignments took place, for instance, within the ERM¹¹ and also in transition countries such as Poland and Hungary.¹²

Given such discontinuities, a number of attempts have been made to relax the assumption of perfect credibility and to allow for jumps in the central parity. Table 1 summarizes the main features of the different extensions, and chart 2 gives the distribution of the exchange rate within the officially announced fluctuation bands.

Table 1

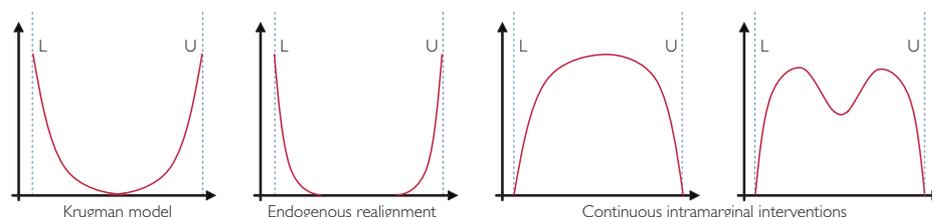
Overview of Different Models and Their Implications

	Prices	Credibility	Intervention	HM	SP	Distribution
Krugman (1991)	flexible	perfect	marginal		K	U-shaped
Bertola and Caballero (1992)	flexible	exogenous realignment risk	marginal		K	U-shaped
Tristani (1994)	flexible	endogenous				
Werner (1995)	marginal	FF	FF	U-shaped		
Delgado and Dumas (1992)	flexible	perfect	continuous intramarginal		K	hump-shaped
Beetsma and Ploeg (1994)	sticky	perfect	continuous intramarginal		K	hump-shaped
Bessec (2003)	flexible	perfect	two regimes			twin peak

Notes: HM = honeymoon effect. K denotes the honeymoon effect and smooth pasting (SP) under the Krugman solution. K (FF) signals that the respective effects are smaller than in the Krugman model (free float).

Chart 2

The Distribution of the Exchange Rate within the Target Zone



Source: Compiled by authors.

¹⁰ For a very detailed presentation of the extensions, see e.g. Svensson (1992) and Kempa and Nelles (1999).

¹¹ Note that no realignment took place for Greece and Denmark in the ERM II.

¹² In Hungary, the central parity was devalued 23 times between 1990 and 1995 (prior to the introduction of the crawling peg system). Within the framework of the crawling band regime in Poland, the central parity was devalued three times between 1991 and 1993 and was revalued in 1996 (independently from the ongoing daily devaluations).

2.2.1 Imperfect Credibility with Exogenous Realignment Risk

Bertola and Caballero (1992) allow for exogenous realignment risk. The central parity (c), set to zero in the Krugman model, is now considered to become part of the aggregate fundamental variable: $f = v - \Gamma + c$, where v is a stochastic term and Γ is the fundamental. The monetary authorities will defend the currency with probability $(1-p)$ when it reaches the edges of the band and will proceed with realignment of the central parity with probability p . Realignment is assumed to be reflected in a shift of the band. The general solution of the model is now as follows:

$$e = f + A \cdot \exp(\mu \cdot (f - c)) + B \cdot \exp(-\mu \cdot (f - c)) \quad (3)$$

The model with exogenous realignment risk implies that under certain circumstances ($p \geq 0.5$) both the honeymoon effect and smooth pasting disappear.

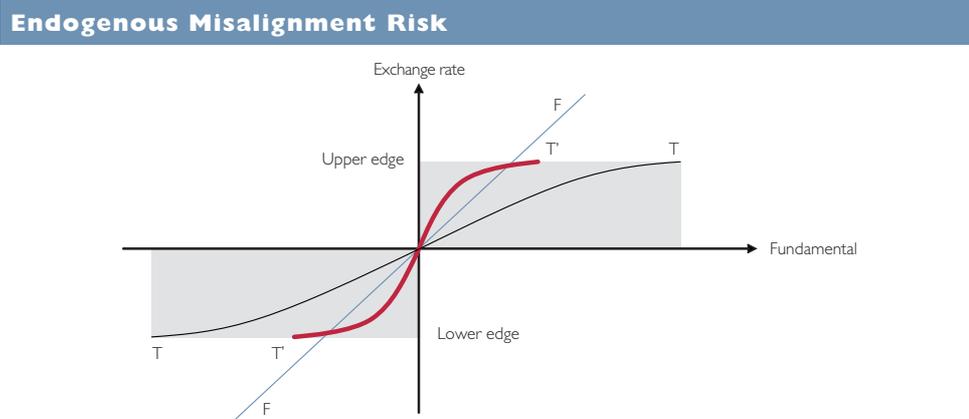
2.2.2 Imperfect Credibility with Endogenous Realignment Risk

Clearly, the fact that realignment risk is modeled as exogenous and that realignment only takes place when the exchange rate is at the edges of the band may be too restrictive and need not apply in reality. Tristani (1994) and Werner (1995) set out to model realignment risk as endogenous by assuming that the probability of realignment is a positive function of how far the exchange rate is located from the central parity – the larger the distance, the higher the probability of realignment. The general solution of their model is given by:

$$e - c = (f - c) \cdot \left(1 \frac{\lambda \eta p}{w} + A \cdot \exp(\mu \cdot (f - c)) + B \cdot \exp(-\mu \cdot (f - c))\right) \quad (4)$$

where η, p and w stand for the size of realignment, the probability of a realignment (which is a function of the deviation from the central parity) and the width of the target zone, respectively. Chart 3 shows that a result of the model is that the S curve becomes steeper (line T'T') when compared to the S curve obtained from the Krugman model (chart 1). This in turn implies an even stronger U-shaped distribution of the exchange rate within the band.

Chart 3



Source: Compiled by authors.

2.2.3 Perfect Credibility with Intramarginal Interventions

The second main assumption of the Krugman model could fail because the monetary authorities may wish to intervene within the band (i.e. intramarginal intervention) and not just in case the exchange rate hits the upper or lower edges of the band (marginal intervention). Mastropasqua et al. (1988) and Delgado and Dumas (1992) argue that about 85% to 90% of total interventions took the form of intramarginal intervention in the ERM before the crises in 1992 and 1993. Regarding the post-crisis period, the exchange rate never hit the upper or lower bound of any of the participating countries, which implies that all interventions were necessarily intramarginal.¹³ As a result, it comes as no surprise that the distribution of the exchange rate is usually found to be hump-shaped for currencies participating in ERM and ERM II, suggesting that the exchange rate spends most of the time in the middle of the band rather than close to the boundaries of the target zone.

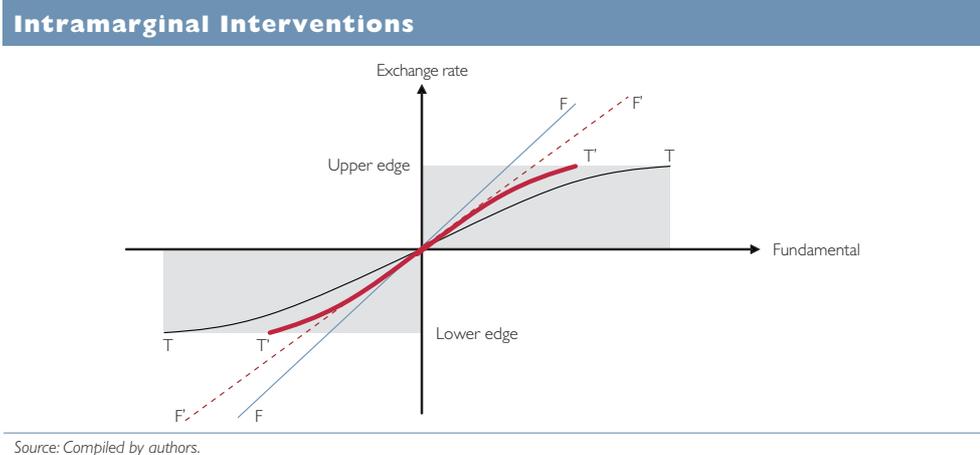
Considerable effort has been made to build target zone models that are able to account for intramarginal interventions. For example, Delgado and Dumas (1992) modify the Krugman model so as to account for intramarginal interventions, which are assumed to take place continuously inside the target zone if the exchange rate deviates from the central parity. The solution provided by Delgado and Dumas (1992) is:

$$e = \frac{f + \alpha p f_0}{1 + \alpha p} + AM\left(\frac{1}{2\alpha p}, \frac{1}{2}, \frac{p(f_0 - f)^2}{\sigma_v^2}\right) + PM\left(\frac{1 + \alpha p}{2\alpha p}, \frac{3}{2}, \frac{p(f_0 - f)^2}{\sigma_v^2}\right) \sqrt{\frac{p(f_0 - f)}{\sigma_v}} \quad (5)$$

where M is the hypergeometric function and f_0 is the fundamental's value when the exchange rate is equal to the central parity. Chart 4 shows the main result of the model: although the honeymoon effect diminishes considerably (line T'T') when compared to the honeymoon effect under perfect credibility and marginal intervention, the exchange rate is nonetheless less volatile than under a free float.¹⁴ Similarly, smooth pasting is also substantially reduced in this setup because market agents know that monetary authorities have already intervened. If A and B are set to zero, the Delgado and Dumas solution collapses to $e = \frac{f + p f_0}{1 + \alpha p}$, which happens to be the case of managed floating without fixed boundaries. In such a setting, all interventions would qualify as intramarginal. The solution shows that the exchange rate is stabilized compared to the free-float position and that interventions induce a mean reversion of the exchange rate toward the central parity (line F'F'). Put differently, even in the absence of a formal target zone-type of exchange rate arrangement, central bank interventions can stabilize the exchange rate relative to the case of a free float.

¹³ Brandner and Grech (2002) provide some summary statistics on the intervention activity of the participating countries' central banks after 1993.

¹⁴ Note that this is not necessarily the case in a multilateral target zone with intramarginal interventions. For example, Serrat (2000) shows that in such a setting, exchange rate volatility can be larger than under a free float.



Source: Compiled by authors.

2.2.4 Sticky Prices with Intramarginal Interventions

A major drawback of the models presented above is that they are based, without exception, on the flexible-price monetary model, which assumes that purchasing power parity (PPP) holds continuously. However, it is a well-established fact that PPP does not hold continuously;¹⁵ therefore some kind of rigidity should be introduced into the modeling framework. Following the example of the Dornbusch overshooting model, Miller and Weller (1991) introduce sticky prices into the Krugman model. Beetsma and Ploeg (1994) complete the sticky price model with intramarginal interventions and show that sticky prices coupled with intramarginal interventions lead to a hump-shaped distribution of the exchange rate within the target zone.

2.2.5 Unofficial Bands within the Target Zone

Bessec (2003) proposes that it is unlikely that monetary authorities would be willing to intervene continuously, independently of the distance of the exchange rate from the central parity. She argues that it is more likely instead that monetary authorities do not intervene in the immediate neighborhood of the central parity and that they allow the exchange rate to fluctuate in a given corridor around the central parity. Only if the exchange rate exits this corridor do the monetary authorities step in to intervene. This kind of regime can be described by the combination of the Krugman model with the Delgado and Dumas model. For example, consider e_U and e_L , which denote, respectively, the upper and lower bounds within the band beyond which the monetary authorities intervene in order to bring back the exchange rate to the central parity. The solution is thus a combination of the free-float Krugman solution, if $e_L \leq e \leq e_U$, and the Delgado and Dumas solution in case the exchange rate is below the lower bound ($e < e_L$) or above the upper bound ($e > e_U$):¹⁶

¹⁵ See e.g. Rogoff (1996) and MacDonald (1995, 2004).

¹⁶ Bartolini and Prati (1999) develop a different model that may be able to capture such behavior. In particular, they argue that there is a narrow, unofficial band within the officially announced band. The narrow band is soft in that its boundaries are not only not publicly announced but also in that they change given that a moving average rule based on past values of the exchange rate is assumed. This setup is indeed very close to reality given that the European Monetary Institute and the ECB evaluated the criterion on exchange rate stability on the basis of a 10-day moving average.

$$e = \begin{cases} \text{DELGADO-DUMAS solution} & \text{if } e > e_U \\ \text{KRUGMAN free - float solution} & \text{if } e_L \leq e \leq e_U \\ \text{DELGADO-DUMAS solution} & \text{if } e < e_L \end{cases} \quad (6)$$

Note that the upper and lower regimes need not have equal parameters because the monetary authorities may have asymmetric preferences. Table 1 summarizes the main features of the different models, and the corresponding exchange rate distributions are plotted in chart 2.

Although the theoretical model suggests that it is only intramarginal intervention by the monetary authorities that creates a band of inaction, it is worth noting that in practice, a large number of other factors may also be responsible. Such factors are the ability of the monetary authority to stabilize the national currency by other policy actions. Second, moral persuasion and appropriate communication towards the markets are also likely to influence the exchange rate. More particularly, market expectations and the credibility of the monetary authorities are likely to play a big role. If the monetary authorities are credible, it may suffice to intervene in very small amounts in the market to persuade agents that the exchange rate will remain stable. Or, even better, the possibility of market intervention and a well-established track record of the monetary authorities may bring about relative exchange rate stability. Finally, expectations may also be stabilized because fundamentals become increasingly stable or because of expected future developments of the fundamentals. This may have played a special role in the run-up to the euro in the late 1990s, when the markets expected a high degree of macroeconomic convergence to occur across countries. Therefore, the band of inaction could be viewed as a band where the exchange rate dynamics resemble a random walk process whereas outside the band, the above factors can result in the exchange rate mean reverting. In the remainder of the paper, when using the expression “band of inaction,” we have this broader interpretation in mind.

3 Econometric Issues: The SETAR-GARCH Model

In this section, we propose a simple nonlinear time series model with local non-stationary behavior but overall ergodic characteristics, which is a discrete-time representation of the mixed-solution model proposed by Bessec (2003). The model aims to detect the nonstationary behavior of the exchange rate within an official band (ψ_2, ψ_1) when it stays within the band of inaction¹⁷ around the officially announced central parity while allowing for global mean reversion toward the band of inaction contemplated by the monetary authorities. The specification we propose is a simple three-regime Self-Exciting Threshold Autoregressive (SETAR) model with a central band in which the variable behaves like a unit root process.¹⁸ The errors in the specification have a simple GARCH (1,1) structure in order to account for the time-varying variance and volatility clustering observed in the data.

¹⁷ In practice, there are a number of factors that may lead to the emergence of a band of inaction, as explained in section 2.

¹⁸ The SETAR-GARCH model proposed presents a more parsimonious specification than the STAR (smooth transition autoregression) parametrization in Lundbergh and Teräsvirta (2003), and appears as a special case of the latter if the thresholds correspond to the official target zone bands. In our modeling strategy, however, we allow for an intramarginal band of inaction whose limits need not correspond to the officially stated ones, and that is actually estimated.

The specification of the model is the following:

$$\Delta y_t = \begin{cases} \chi_0 + \lambda_1 y_{t-1} + \sum_{k=1}^K \chi_k \Delta y_{t-k} + \varepsilon_t & \text{if } y_{t-1} \geq \phi_1 \\ \delta - 0 + \sum_{k=1}^K \delta_k \Delta y_{t-k} + \varepsilon_t & \text{if } \phi_1 \geq y_{t-1} \geq \phi_2 \\ \pi_0 + \lambda_2 y_{t-1} + \sum_{k=1}^K \pi_k \Delta y_{t-k} + \varepsilon_t & \text{if } \phi_2 \geq y_{t-1} \end{cases} \quad (7)$$

where the error term, ε_t , is assumed to follow a GARCH (1,1) process, $\varepsilon_t | I_t \sim N(0, \sigma_t)$,

$$\sigma_t^2 = \gamma + \alpha \cdot \varepsilon_{t-1}^2 + \beta \cdot \sigma_{t-1}^2, \quad (8)$$

where I_t refers to the information set available in period t . Note that if $\lambda_i \in (-1, 0)$, $i = 1, 2$ for suitable values of χ_0 and π_0 , y_t will present overall mean reverting features to the band (ϕ_1, ϕ_2) which is assumed to be contained in the official band (ψ_2, ψ_1) . Inside the band, however, the variable behaves as a unit root process with GARCH errors. A homoscedastic version of this model is used in Bessec (2003) to assess the dynamics of the exchange rate of selected countries within ERM.

We intend to estimate the model given by (7) – (8) in the following way. For a given series y_t , the model is estimated setting the values of ϕ_1 and ϕ_2 to actual realizations of y_t in the sample (say starting with the 10th and 90th percentile of the empirical distribution of y_t). The process is repeated for all combinations of ϕ_1 and ϕ_2 corresponding to realized values (after ensuring that a minimal percentage of the observations falls in the central band), and the pair (y_1, y_2) corresponding to the model with a minimal sum of squared residuals is chosen as the estimator of ϕ_1 and ϕ_2 . Given the estimates of the threshold values, which are constant over time and which delimit the band, the estimation of the full model is straightforward using maximum likelihood methods.¹⁹

In our analysis, we obtain the estimates for the thresholds that define the band using a grid search over the realized values of y_t after trimming 10% in the extremes of the empirical distribution of y_t . The grid search was carried out at 5% steps, ensuring that at least 20% of the observations fall in the non-stationary regime defined by the band.²⁰

An important issue that needs to be taken into account explicitly is how to test the significance of the simple unit root against the nonlinear model.²¹ Due to the fact that the threshold parameters ϕ_1 and ϕ_2 are not identified under the null hypothesis of a linear unit root process with GARCH errors, the usual likelihood ratio test statistic for testing this hypothesis against the alternative of a SETAR model such as (7) – (8) does not have a standard limiting distribution (for literature on this problem see Andrews and Ploberger, 1994 and Hansen, 1996, 2000; Caner and Hansen, 2001, consider the problem when the underlying stochastic process has a unit root). We therefore intend to carry out the test using a bootstrap procedure in the spirit of Hansen (2000) and

¹⁹ The optimal lag length for the autoregressive component is determined using the Schwarz information criterion.

²⁰ This means that for both the lower and the upper bound threshold, the search is performed from the 10th percentile to the 90th percentile of the distribution. This is much more general than what is done, for instance, in Bessec (2003), who searches from the 5th to the 35th percentile of the distribution for the lower bound threshold and from the 70th to the 95th percentile for the upper bound threshold.

²¹ To a certain extent, the choice of the unit root model as the null hypothesis could be considered arbitrary, but it appears as a natural model to which the SETAR-GARCH model should be compared if we consider the time series properties of the exchange rate series.

Caner and Hansen (2001). Let T be the sample size. First, we compute the standard likelihood ratio (LR) test statistic,

$$LR = 2(\log L_{TAR} - \log L_{UR}),$$

where L_{TAR} is the likelihood of the model given by (7) – (8) and L_{UR} is the likelihood of the linear unit root model given by

$$\Delta y_t = \theta_0 + \sum_{k=1}^K \theta_k \Delta y_{t-k} + \varepsilon_t, \quad (9)$$

where the error term is assumed to follow a GARCH (1,1) process such as the one given in (8). With the estimated parameters of model (9) (including the estimated GARCH parameters), we simulate T observations of y_t under the null of linearity. A linear unit root model and a SETAR model are estimated using these simulated data, and the likelihood ratio test statistic, LR_n^S , is computed.²² This procedure is repeated N times and the bootstrap p-value for the null of a unit root process against the alternative of a SETAR model such as (7) – (8) is given by

$$p_{LR} = \sum_{n=1}^N I(LR > LR_n^S) / N, \quad (10)$$

where $I(\cdot)$ is the indicator function that takes the value of one if the argument is true and of zero otherwise. That is, the p-value corresponds to the proportion of simulated likelihood ratio test statistics that exceed the value of the test statistic computed with the actual data.²³ The bootstrap test was carried out using $N = 500$ replications.

4 Data Issues

4.1 Data Description

The dataset contains average daily deviations of nominal exchange rates from the prevailing central parity.²⁴ The currencies considered are of countries which participated in the system: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal and Spain. Although the ECU was the official currency of the ERM, it is widely acknowledged that the ERM was centered around the Deutsche mark. Therefore, we use exchange rate series vis-à-vis the Deutsche mark using data obtained from the Deutsche Bundesbank.²⁵ In its convergence report of 1998, published in the run-up to the euro, the European Commission used the median currency²⁶ as the benchmark

²² Given that it is not ensured that the replicated data will actually cross the estimated thresholds, the SETAR models for the simulated data are estimated setting the thresholds at the quantiles of the replicated series corresponding to the estimated thresholds obtained with the actual data.

²³ Note that the bootstrap test used is a simple example of the nonpivotal bootstrap testing procedures described in Pesaran and Weeks (2001) for nonnested model testing.

²⁴ Note that the central parity of the Spanish and the Portuguese currencies were devalued vis-à-vis the Deutsche mark on March 6, 1995, by 7% and 3.5%, respectively. That is, the deviations from the central parity are obtained using the central parity prevailing prior to March 6, 1995, and the devalued central parity from March 6, 1995, onwards. The Irish pound was revalued by 6% on March 16, 1998. This realignment is, however, beyond the period investigated in this paper.

²⁵ See annex for Datastream codes.

²⁶ "(...) median currency is (the currency) which has an equal number of currencies above and below it within the grid at the official ecu fixing on any given day" (European Commission, 1998, p. 123). In more practical terms, for each participating country, the deviation of the bilateral exchange rate against the ECU from its official ECU central parity is determined. Subsequently, the countries are ranked and the 6th out of the 11 participating currencies is chosen in the ranking. It should be noted that the median currency is chosen on a daily basis, implying that the currency chosen as the median currency could have changed day by day.

currency for the assessment of the criterion on exchange rate stability. To our knowledge, the median currency has not been used in any previous study aimed at testing target zone models. Thus, we also look at the deviations from the median currency.²⁷ For the Deutsche mark, the time period is the post-1993 crisis period: it begins on September 1, 1993, and ends on February 28, 1998. Although Austria officially entered the ERM after its entry to the EU in 1995, the period from 1993 is investigated for this country because it maintained a tight peg to the Deutsche mark during this period.²⁸ Using the extended data for Austria allows us to investigate whether or not ERM entry provoked a change in exchange rate behavior. The series are shorter for Finland and Italy, which joined or reentered ERM, respectively, on October 15 and November 25, 1996. For the median currency,²⁹ the series runs from March 1, 1996, to February 28, 1998.

For ERM II, only Denmark is considered, and deviations from the central parity against the euro are taken for the period January 4, 1999, to April 28, 2004.³⁰ The source of the data is the ECB.³¹

Finally, we also analyze the exchange rate behavior of four CEECs. The exchange rate against the euro is studied for the Czech Republic, Hungary, Poland and Slovakia. For the Czech Republic and Slovakia, the period starts on January 1, 1999, when the euro was introduced. For these two currencies, the deviation against the period average is used because they adhere to managed floating. The period begins on March 1, 2000, (close to the outset of free floating on April 12, 2000) for Poland and on May 4, 2001, (the widening of the bands to $\pm 15\%$) for Hungary. On June 4, 2003, the central parity was devalued by some 2.26%. Similarly to the case of Portugal and Spain, the deviations from the pre- and the post-devaluation parities are determined. For all four countries, the sample runs to April 28, 2004. Data are drawn from the ECB for the Czech Republic and Poland, from Magyar Nemzeti Bank for Hungary and from Datastream for Slovakia.

4.2 A Preliminary Analysis of the Data

The distribution of the exchange rate within the target zone is estimated using the Epanechnikov kernel density function for 1993 to 1998 (and 1996 to 1998 for Finland and Ireland) vis-à-vis the Deutsche mark, for 1996 to 1998 for the median currency and for 1999 to 2004 for the euro. The figures reported in the annex reveal two important features of the data.

First, a considerable part of the distributions exhibit a double-hump shape. This is especially the case for the Austrian schilling, the Danish krone, the Dutch guilder, the French franc, the Irish pound and the Portuguese escudo vis-à-vis the Deutsche mark. With the exception of the Spanish peseta and the Dutch

²⁷ In addition to the ECU, the Deutsche mark and the median currency, three other benchmarks could, in theory, be used: (1) the strongest currency of the system, (2) bilateral exchange rates with no benchmark currency, and (3) the synthetic euro.

²⁸ As a matter of fact, Austria had a pegged exchange rate regime vis-à-vis the Deutsche mark from the late 1970s. Austria entered the ERM at the fixed peg exchange rate regime it unilaterally maintained before.

²⁹ We are grateful to André Verbanck from the European Commission (DG ECFIN) for providing us with these data series.

³⁰ Greece is excluded because of its ephemeral stay in the ERM and ERM II.

³¹ See annex for Datastream code.

guilder, all currencies have a hump-shaped distribution vis-à-vis the median currency.

Brandner and Grech (2002)³² report kernel density estimations for Deutsche mark purchases and sales for six countries, namely Belgium, Denmark, Spain, France, Ireland and Portugal. Although the period investigated includes some of the turmoil in August 1993,³³ the authors' graphs match remarkably well with our kernel estimates reported in the annex for the period from 1993 to 1998. For Belgium, they show increased Deutsche mark sales at the central parity, whereas Deutsche mark purchases occurred at a deviation of about 0.2% to 0.3% from the stronger side of the fluctuation band. For Denmark, the monetary authorities proceeded with increased Deutsche mark purchases at 2% from the central parity at the weaker side and sold Deutsche mark at the central parity. For France, Deutsche mark purchases and sales are reported to have taken place respectively at about 5% and 1% away from the parity on the weaker side. The Irish monetary authorities reportedly sold Deutsche mark at 5% from the parity on the weaker side and bought Deutsche mark at 10% from the parity on the stronger side. For Portugal, the interventions at about 4% from the central parity on the weaker side and at 2% from the parity on the stronger side are also broadly in line with exchange rate developments. Spain made Deutsche mark sales mostly at 10% from the central parity on the weaker side. A reason for this finding is that Brandner and Grech (2002) start the period in August 1993 during the crisis.

For the series against the euro, a marked twin peak distribution is to be observed for the Czech koruna and a somewhat less pronounced twin peak distribution for the Danish and Slovak currencies. This provides us with some preliminary evidence on the presence of nonlinearity of the type described by the SETAR model.

The second characteristic of the data is the asymmetric distribution. For the ERM, a large part of the distribution of the Austrian, Danish, French and Portuguese currencies is located on the weaker side of the band. By contrast, the exchange rate was most often on the stronger side of the band for Denmark, Finland and the Netherlands. This holds true, in particular, for the end of the period under study. Regarding the euro series, both countries with formal target zone arrangements, namely Denmark and Hungary, had their currencies predominantly on the stronger side of the band.

5 Empirical results

The SETAR-GARCH (1,1) model described earlier was applied first to the exchange rate series vis-à-vis the Deutsche mark for countries participating in the ERM. We first took the whole post-1993 period (after the ERM crisis) up to the announcement of the final conversion rates in early 1998. Then, the estimations were repeated by decreasing the period by one year in each step until the beginning of the reference period taken for the convergence report of the European Commission and the European Monetary Institute is reached.³⁴

³² Brandner and Grech (2002), p. 23.

³³ Their sample covers August 2, 1993, to April 30, 1998, while our period spans September 1, 1993, to February 28, 1998.

³⁴ The following three periods were considered: September 1, 1994, to February 28, 1998; September 1, 1995, to February 28, 1998; March 1, 1996, to February 28, 1998.

Subsequently, the period was shortened by one-year steps keeping the starting date fixed.³⁵ Finally, the two subperiods divided by the devaluation of the central parity are analyzed for Portugal and Spain.³⁶

From the results reported in tables 2a and 2b, a number of interesting points emerge:

First, the analysis of the estimated upper and lower bounds of the band of inaction shows that there are two groups of countries. The first group consists of countries which have very narrow bands for the entire period. For instance, for the whole period, the absolute bandwidth is 0.05% for Austria, 0.35% for Belgium and 0.15% for the Netherlands.³⁷ The scale of these ranges remains largely unchanged for the subperiods. This is not surprising given the fact that these countries shadowed very narrowly the monetary policy of the Deutsche Bundesbank and sought to stabilize their currencies relative to the Deutsche mark accordingly. The results for Austria deserve special attention. Notwithstanding the fact that Austria formally joined the ERM only in 1995, the estimated upper and lower bounds are very stable over time, lending support to the fact that exchange rate behavior was not affected by Austria's ERM entry.

The second group comprising the rest of the countries has considerably larger bands. The absolute width of the estimated band was 3.66% for Portugal, 1.28% for France, 3.46% for Denmark, about 4% for Spain and roughly 10% for Ireland for the period from 1993 to 1998. With the exception of Ireland, the estimated bandwidth decreases toward the end of the period to below 1% for Denmark, France and Spain, and close to 2% for Portugal. For Ireland, the estimated bandwidth rises from about 4% from 1993 to 1995 to nearly 8% from 1993 to 1997 and then drops to 2% at the end of the period (1996 to 1998). Note that Italy and Finland, which entered the ERM only in 1996, had bandwidths comparable to those in Belgium and the Netherlands.³⁸

Second, the position of the estimated band of inaction relative to the officially announced central parity is analyzed. Regarding the narrow-band countries, the estimated effective fluctuation band is mostly located symmetrically on either side of the central parity for Austria and mainly on the stronger side for Belgium. In the Netherlands, the whole band is always located on the stronger side. Note that the Italian and Finnish currencies are also found to be situated on the stronger side. For the second group of countries, we note that the boundaries of the estimated exchange rate bands are mostly located on the weaker side of the official target zone for Denmark and France. For both countries, the narrowing down of the band manifested itself with the estimated weaker threshold moving closer to the central parity. Although the Portuguese escudo was located on the weaker side at the beginning of the period, the

³⁵ The following three periods were considered: September 1, 1993, to September 1, 1997; September 1, 1993, to September 1, 1996; September 1, 1993, to September 1, 1995.

³⁶ September 1, 1993, to March 5, 1995, and March 6, 1995, to February 28, 1998.

³⁷ Note that the estimation method ensures that at least 20% of the observations fall in the band of inaction.

³⁸ Our results can be directly compared with those reported in Bessec (2003), who uses monthly data for the Belgian, Danish, French, Irish and Dutch currencies against the Deutsche mark. Bessec (2003) estimated a time-varying threshold model for the period from 1979 to 1998, with the threshold changing in 1993 when the fluctuation band widened. The comparison of the threshold obtained for the post-1993 period shows that our method for searching the thresholds, coupled with the use of daily data, gives more precise threshold values. Although the thresholds are very similar for Belgium, our thresholds differ greatly from the ones reported in Bessec (2003), table 5, for the other countries.

estimated band had shifted entirely to the stronger side by the last period. For Ireland, Portugal and Spain, the estimated band was on the weaker side of the official parity and had moved to the stronger side of the official fluctuation band by the end of the period.³⁹

Third, the estimated autoregressive terms ($\lambda_{upper}, \lambda_{lower}$), indicating mean reversion to the upper and lower edges ($\phi_{upper}, \phi_{lower}$), have the expected negative sign in the majority of cases, but they are not statistically significant in a number of cases. Generally, they are more significant for the entire period and then become less so toward the end of the period. However, a more detailed look at the results indicates considerable heterogeneity across countries. For Austria, the mean reversion to the band detected for the whole period seems to be unstable because the estimated coefficients are systematically insignificant for the subperiods. Similarly, no significant band mean reversion could be found for Italy.

For the Netherlands and Spain, both coefficients are negative and significant for most of the subperiods. With regard to Spain, two different regimes are hidden behind the band mean reversion behavior detected for the whole period if the time of the devaluation of the central parity is considered as the dividing line for the two subperiods. The estimated band is situated from 4.04% to 8.34% away from the official central parity on the weaker side before the devaluation and is located from 0.99% on the stronger side of the official parity to 1.74% on the weaker side of the official parity.

For some countries, the mean reversion to the band seems to be one-sided. For instance, there is mean reversion only toward the estimated upper (stronger) bound in Belgium, Denmark and Finland, and only toward the lower edge of the estimated band for France and Portugal. This could be an indication of the presence of different pressures for different countries. In Belgium and Finland, the estimated upper and lower bounds are mostly on the stronger side. Thus, the market situation may have been one to avoid excessive appreciation. By contrast, in France, the estimated lower boundary to which the mean reversion occurs happens to be on the weaker side. The analysis of the subperiods shows, however, that there is two-sided mean reversion from 1993 to 1997, and one-sidedness is the feature of the period from 1996 to 1998. Hence, counteracting depreciation pressures and bringing the lower bound closer to the central parity may have been typical for these countries. The fact that the coefficients become insignificant for the period from 1996 to 1998 could suggest that by that time, nonlinearity had diminished and the exchange rate had started behaving like a linear process in the face of increased credibility during the run-up to the euro. The decrease in nonlinearity is also confirmed by the p-values, which show that in some cases the three-regime SETAR model is no better than the linear unit root specification.

Fourth, the ARCH and GARCH terms (α and β) of the conditional variance equation are correctly signed ($\beta > 0$ and $\alpha > 0$) and statistically significant at the 1% level for almost all cases. At the same time, the sum of these two parameters is very close to or larger than unity, implying that the error terms are integrated

³⁹ Our results are at odds with the findings of Bessec (2003), table 5, since she finds that both the upper and lower mean reversion coefficients are always significant for all countries and because her estimated coefficients are much larger in absolute terms than ours.

GARCH processes for most of the series. Interestingly, the α coefficient is found to be insignificant for the Austrian schilling against the Deutsche mark for 1996 to 1998 and for the Spanish peseta vis-à-vis the median currency. The fact that β is very close to unity, especially for Spain, may lend support to the hypothesis of constant conditional variance (for insignificant estimates of γ) or linearly changing variance (if γ is significant) in a deterministic fashion.

The results obtained on the basis of the median currency for the period from 1996 to 1998 are reported in table 3. They appear similar to those noted for the Deutsche mark. The estimated upper and lower bounds, the width and the location of the band for the median currency are comparable to those obtained using the Deutsche mark. However, it is possible to detect more nonlinearity than when using the Deutsche mark. This is especially the case for Austria and Belgium. Also, the median currency approach allows us to look at Germany, for which the SETAR model performs remarkably well.

Table 2a

Model Estimates Using the Deutsche Mark									
period	k	ϕ_{upper}	ϕ_{lower}	λ_{upper}	λ_{lower}	α	β	p-values	
ATS_DEM	1993–1998	1	0.02%	−0.03%	−0.0703***	−0.0785**	0.0383***	0.9527***	0.002
ATS_DEM	1994–1998	2	0.02%	−0.03%	−0.1307***	−0.0826**	0.0399***	0.9383***	0.000
ATS_DEM	1995–1998	1	0.02%	−0.03%	−0.1235**	−0.1075	0.0505***	0.9131***	0.000
ATS_DEM	1996–1998	1	0.00%	−0.03%	0.0308	−0.1056	0.0341	0.8711***	0.000
ATS_DEM	1993–1995	1	0.04%	0.02%	−0.0036	−0.0118	0.0465*	0.9073***	0.002
ATS_DEM	1993–1996	1	0.04%	0.00%	−0.0276	−0.0544**	0.0582***	0.9074***	0.000
ATS_DEM	1993–1997	1	−0.02%	−0.04%	−0.0101	0.0021	0.0408***	0.9474***	0.000
BEF_DEM	1993–1998	7	0.30%	−0.05%	−0.126***	−0.011	0.0931***	0.903***	0.038
BEF_DEM	1994–1998	1	0.26%	−0.06%	−0.0924***	−0.0016	0.0771***	0.9161***	0.002
BEF_DEM	1995–1998	1	0.29%	−0.07%	−0.0847**	0.0808	0.0172***	0.9711***	0.066
BEF_DEM	1996–1998	1	0.17%	−0.07%	0.0167	0.039	0.0144*	0.9728***	0.078
BEF_DEM	1993–1995	7	0.13%	−1.12%	−0.0667*	0.0423	0.446***	0.5866***	0.004
BEF_DEM	1993–1996	8	0.27%	0.04%	−0.0834**	−0.0001	0.1259***	0.8795***	0.014
BEF_DEM	1993–1997	7	0.27%	−0.04%	−0.1021***	−0.0152	0.1082***	0.8949***	0.058
DKK_DEM	1993–1998	1	0.09%	−3.55%	−0.0856*	0.0193**	0.1323***	0.8794***	0.002
DKK_DEM	1994–1998	1	0.01%	−2.46%	−0.0905**	−0.0736***	0.135***	0.8767***	0.000
DKK_DEM	1995–1998	1	−0.06%	−1.21%	−0.0703**	−0.0347	0.0649***	0.924***	0.000
DKK_DEM	1996–1998	1	−0.33%	−1.19%	−0.0723***	−0.0677	0.053***	0.9448***	0.000
DKK_DEM	1993–1995	1	−2.61%	−3.27%	0.0149	0.0011	0.1669***	0.846***	0.018
DKK_DEM	1993–1996	1	−2.06%	−3.55%	−0.0309**	0.0207**	0.1579***	0.8605***	0.004
DKK_DEM	1993–1997	1	−0.03%	−3.27%	−0.1429**	−0.0024	0.136***	0.8767***	0.004
NGL_DEM	1993–1998	3	0.52%	0.37%	−0.0745***	−0.0029	0.073***	0.9307***	0.002
NGL_DEM	1994–1998	1	0.54%	0.31%	−0.0824***	−0.0191**	0.0986***	0.9066***	0.000
NGL_DEM	1995–1998	1	0.57%	0.01%	−0.0675**	−0.1395**	0.1178***	0.8917***	0.008
NGL_DEM	1996–1998	1	0.45%	0.24%	0.0432**	−0.0289***	0.1274***	0.8828***	0.002
NGL_DEM	1993–1995	3	0.60%	0.37%	−0.0988*	−0.1278**	−0.0056	0.9981***	0.006
NGL_DEM	1993–1996	1	0.65%	0.60%	0.0233	−0.0119	0.0577***	0.9302***	0.000
NGL_DEM	1993–1997	1	0.52%	0.25%	−0.0693***	−0.0341	0.0647***	0.9159***	0.002
FRF_DEM	1993–1998	1	−0.69%	−2.01%	0.0016	−0.0219***	0.1014***	0.9066***	0.032
FRF_DEM	1994–1998	1	−0.74%	−1.88%	−0.0002	−0.0122	0.1048***	0.9058***	0.006
FRF_DEM	1995–1998	1	−0.76%	−2.71%	−0.0009	−0.0599	0.0759***	0.9244***	0.028
FRF_DEM	1996–1998	1	−0.73%	−1.61%	0.0008	−0.1815**	0.07***	0.9304***	0.004
FRF_DEM	1993–1995	1	−2.22%	−4.33%	−0.003	−0.0831	0.1032***	0.9024***	0.010
FRF_DEM	1993–1996	1	−2.20%	−4.74%	0.0017	−0.1561**	0.0974***	0.9011***	0.010
FRF_DEM	1993–1997	1	−0.90%	−3.86%	−0.0796***	−0.0777***	0.1012***	0.8989***	0.014

Notes: k is the lag length used in the AR process and represents the upper (stronger) and lower (weaker) limits of the band of inaction, toward which the exchange rate exhibits mean reversion. Positive (negative) figures refer to a position on the stronger (weaker) side of the officially announced band and stand for the autoregressive coefficients, which capture mean reversion and are the ARCH and GARCH coefficients from the conditional variance equation. *, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively. The p-value stands for the null of an AR against the alternative of a SETAR.

Table 2b

Model Estimates Using the Deutsche Mark									
	period	k	ϕ_{upper}	ϕ_{lower}	λ_{upper}	λ_{lower}	α	β	p-value
IEP_DEM	1993–1998	1	4.75%	-5.35%	-0.0655***	-0.0346	0.1018***	0.8012***	0.000
IEP_DEM	1994–1998	1	5.99%	-4.49%	-0.0756***	-0.0612*	0.132***	0.7986***	0.004
IEP_DEM	1995–1998	1	9.03%	6.60%	0.1883***	0.0059	0.1923***	0.7628***	0.000
IEP_DEM	1996–1998	4	8.90%	6.55%	0.0595	0.0052	0.2956***	0.6569***	1.000
IEP_DEM	1993–1995	1	-0.39%	-4.47%	-0.0055	-0.0828*	0.0545***	0.9239***	0.006
IEP_DEM	1993–1996	1	-0.37%	-3.04%	-0.0114	-0.0336*	0.0541***	0.9321***	0.004
IEP_DEM	1993–1997	1	3.89%	-4.06%	-0.059***	-0.0488*	0.0288***	0.9566***	0.006
ESP_DEM	1993–1998	1	-0.99%	-3.72%	-0.0473***	-0.0805***	0.0942***	0.9186***	0.000
ESP_DEM	1994–1998	1	0.83%	-5.70%	-0.0628***	-0.102***	0.1257***	0.8968***	0.004
ESP_DEM	1995–1998	1	1.04%	0.21%	-0.0223	-0.0103	-0.0017***	0.9986***	0.038
ESP_DEM	1996–1998	1	1.16%	0.84%	-0.024	-0.0125	0.1015***	0.9016***	0.000
ESP_DEM	1993–1995	1	-1.75%	-7.99%	-0.0664	-0.5411***	0.1319***	0.8391***	0.010
ESP_DEM	1993–1996	1	-1.60%	-6.44%	-0.0237*	-0.1449***	0.2226***	0.7174***	0.018
ESP_DEM	1993–1997	1	0.70%	-4.03%	-0.0665***	-0.078***	0.1081***	0.8963***	0.000
ESP_DEM	Pre-devaluation	1	-4.04%	-8.34%	-0.0988***	-0.4876***	0.2962***	0.7747***	0.004
ESP_DEM	Post-devaluation	1	0.99%	-1.74%	-0.0461**	-0.0815***	0.0138***	0.9813***	0.000
PTE_DEM	1993–1998	1	-0.08%	-3.74%	-0.0031	-0.2597***	0.104***	0.9069***	0.002
PTE_DEM	1994–1998	1	-0.32%	-3.32%	-0.0023	-0.1757***	0.1092***	0.9024***	0.008
PTE_DEM	1995–1998	1	1.76%	1.14%	-0.0553	-0.0112*	0.0734***	0.927***	0.018
PTE_DEM	1996–1998	1	1.89%	-0.26%	-0.0694*	0.0016	0.0821***	0.9204***	0.016
PTE_DEM	1993–1995	1	-3.69%	-4.52%	-0.0088	-0.7588***	0.1594***	0.8379***	0.000
PTE_DEM	1993–1996	1	-0.79%	-3.88%	-0.1195	-0.3029***	0.1065***	0.8947***	0.000
PTE_DEM	1993–1997	1	0.09%	-3.88%	-0.0328**	-0.3086***	0.1037***	0.8937***	0.000
PTE_DEM	Pre-devaluation	1	-3.28%	-4.62%	-0.0145	-0.0916	0.209***	0.8215***	0.000
PTE_DEM	Post-devaluation	1	-0.31%	-1.86%	-0.0019	-0.0977***	0.0649***	0.9354***	0.010
ITL_DEM	1996–1998	1	1.37%	0.99%	-0.0615	-0.0306	0.1771***	0.8302***	0.040
FIM_DEM	1996–1998	1	1.97%	1.60%	-0.2884***	-0.005	0.2269***	0.7971***	0.008

Notes: See table 2a.

Table 3

Model Estimates Using the Median Currency, March 1, 1996, to February 28, 1998									
	k	ϕ_{upper}	ϕ_{lower}	λ_{upper}	λ_{lower}	α	β	p-value	
ATS_MED	2	-0.02%	-0.28%	-0.5608***	-0.0903	0.4342***	0.701***	0.002	
BEF_MED	2	0.00%	-0.29%	-0.0712***	-1.2519***	0.3596***	0.4464***	0.004	
NLG_MED	2	0.39%	0.00%	-0.55%	0.0005	0.4888***	0.4986***	0.004	
DKK_MED	8	-0.29%	-1.23%	0.81%	-0.2593	0.208***	0.8211***	0.000	
DEM_MED	3	-0.04%	-0.26%	-0.7665***	-0.3688***	1.0702***	0.3854***	0.000	
FRF_MED	1	-0.74%	-1.02%	-0.0186**	-0.0137	0.2769***	0.769***	0.002	
ESP_MED	1	1.09%	0.59%	-4.24%	-0.0195	-0.0043	1.0006***	0.000	
PTE_MED	1	1.73%	0.58%	-6.33%	-0.0694***	0.1447***	0.8717***	0.002	
IEP_MED	1	9.18%	6.80%	0.2163***	0.0001	0.197***	0.7524***	0.000	
ITL_MED	1	0.94%	0.35%	-10.91%	-0.0812	0.1682***	0.8416***	0.010	
FIM_MED	1	1.28%	0.86%	-0.0866***	-0.0659	0.2005***	0.8262***	0.004	

Notes: See table 2a. The period begins on October 4, 1996, for Finland and on November 15, 1996, for Italy.

Finally, we turn to the estimation results for the currencies expressed against the euro for the period 1999 to 2004. During the period when the Danish krone was in ERM II, the estimated bandwidth decreased further from the 0.8% figure, reported above in the original ERM period, to 0.4%. However, the mean reversion coefficient bears the correct sign and is significant only for the lower bound.

For the CEE countries we find the following development against the euro. Hungary is an interesting case because on May 4, 2001, it widened the fluctuation bands around the central parity.⁴⁰ From May 2001 to April 2004, the esti-

⁴⁰ Note that the crawling peg system was abandoned only on October 1, 2001. However, at the time of the widening of the fluctuation band from $\pm 2.25\%$ to $\pm 15\%$, the rate of crawl was already very low, 0.00654% a day, amounting to a total devaluation of the central parity of around 1.12% until October 1, 2001. Therefore, we believe that this did not have an impact on the behavior of the exchange rate within the band.

mated upper and lower thresholds were located, respectively, 11% and 6.76% away from the central parity (both on the stronger side of the official fluctuation band of $\pm 15\%$). The mean reversion coefficients have a negative sign and are significant. This would seem to give strong support to the fact that exchange rate policymakers targeted a narrow band which was judged compatible with the inflation target. However, this is only part of the story. On June 4, 2003, the central parity was devalued by some 2.26%, which triggered considerable depreciation of the currency inside the band. Looking at the period from May 4, 2001, to June 3, 2003, reveals that until the devaluation of the central parity, mean reversion was significant only on the upper (stronger) threshold. So, mean reversion to the lower threshold detected for the whole period may refer to the post-devaluation period.

According to the statement of the Monetary Council of Magyar Nemzeti Bank of August 18, 2003, “the Monetary Council puts the equilibrium exchange rate, which fosters rapid economic growth without endangering price stability in the range of 250 to 260 forints per euro.⁴¹” Relative to the then prevailing central parity of 282.36 forint per euro, this means a band of 7.92% to 11.46% on the stronger side of the official fluctuation margins. Thus, the estimated band for the whole period from 2001 to 2004 (upper bound at 11%, lower bound at 6.76%) is broadly in line with the implicit target of the Hungarian monetary authorities.

Table 4

Model Estimates Using the Euro								
	period	ϕ_{upper}	ϕ_{lower}	λ_{upper}	λ_{lower}	α	β	p-value
DKK_EUR	1999–2004	0.38%	-0.01%	0.0051	-0.2474***	0.1368***	0.8464***	0.004
CZK_EUR	1999–2004	1.70%	-5.73%	-0.0109**	-0.0134	0.0808***	0.8599***	0.038
SKK_EUR	1999–2004	2.30%	-4.16%	-0.0025	-0.0779**	0.1678***	0.7223***	0.018
ZTY_EUR	2000–2004	10.26%	-7.14%	-0.0445**	-0.0045	0.1259***	0.8204***	0.006
HUF_EUR	2001–2004	11.00%	6.76%	-0.1165***	-0.3748**	0.4443***	0.5412***	0.000
HUF_EUR	2001–2003	12.35%	11.00%	-0.2249***	0.0125	0.5858***	0.5473***	0.000

Notes: See table 2a.

As shown earlier, a special case of the Delgado-Dumas solution is tantamount to managed floating without officially announced target zones, which could also induce some nonlinear behavior in the exchange rate. In particular, if the monetary authorities are targeting an implicit target zone, the SETAR model should be particularly useful to detect such a zone because in such a case, interventions would be undertaken only if a depreciation or appreciation of the nominal exchange rate exceeded a given pain threshold of the monetary authorities. This may be the case of the Czech Republic and Slovakia, which have de jure and de facto managed floating. Notwithstanding the official free-floating regime of the Polish zloty vis-à-vis the euro, we may still expect some mean reversion behavior toward a band of inaction. Results reported in table 4 confirm our suspicion about the presence of nonlinear behavior. However, the mean reversion appears to be one-sided. There are signs of significant mean reversion only on the strong side for the Czech Republic and Poland, and only on the weak side for Slovakia. The mean reversion of the Czech koruna and the Polish zloty

⁴¹ Retrieved in August 2004 from http://english.mnb.hu/engine.aspx?page=mnben_monet_kozlem.

may actually reflect the recent switch from huge nominal appreciation to a large depreciation of the two currencies. The width of the estimated band is close to 7% for the Czech Republic and Slovakia, which is in sharp contrast with the detected wide band of more than 17% for Poland, lending more empirical support to more active exchange rate policies in the two preceding countries.

Like for the period preceding the introduction of the euro, there appears to be strong integrated GARCH effects in the conditional variance for all cases.

7 Conclusions

In this paper, we have applied a three-regime SETAR model with GARCH errors to daily exchange rate data for countries participating in the post-1993 ERM and ERM II and for selected CEE economies. The underlying idea of the theoretical model is that the monetary authorities do not intervene in the proximity of the central parity where the exchange rate behaves like a random walk. However, the exit of the exchange rate from this band of inaction on either side triggers policy action by the monetary authorities, which forces the exchange rate to return to the band. However, it should be noted that mean reversion to the band could be the outcome of a range of factors, such as direct and indirect central bank interventions, moral persuasion, communication with the markets and stabilization of market expectations in the face of increased credibility of the monetary authorities or because of an increased stability of the underlying fundamentals. However, large and coordinated interventions may be able to impact on the market exchange rate.

We have argued that such a modeling framework is better suited to capturing exchange rate dynamics in a target zone, particularly the ERM variant of a target zone, than the frameworks used in previous research because it captures mean reversion to a band of inaction within the official target zone and gives a more realistic description of the behavior of ERM currencies. A further novelty of our work is that in addition to using Deutsche mark-based bilaterals, we also use median currency-based bilaterals for the original ERM period. Given the way in which the ERM was supposed to work, the latter are the more appropriate bilaterals in any target zone modeling of this system.

For the ERM experience we are able to place the countries in two groups depending on the size of the bandwidth. For Austria, Belgium and the Netherlands, we find very narrow and very stable thresholds delimiting the band of inaction. This holds true for Italy and Finland for the period when they reentered or joined the ERM in 1996. Also, for these countries, the estimated bands are usually located on the stronger side of the official band. For the second group of countries – Denmark, France, Ireland, Portugal and Spain – the estimated bandwidth is substantially higher for the whole period but decreases toward the end of the period. Simultaneously, we observe a shift of the bands either toward the central parity or into the stronger part of the official fluctuation bands. Although we find evidence in favor of reversion toward the band, this reversion partly disappears by the end of the period. In the paper, we divide the whole period into subperiods to account for time-varying threshold values. A future avenue for research would be to estimate time-varying break points.

For Hungary, we detect a narrow band of 7% to 11% on the stronger side of the official band. We also show that reversion to the band occurred to the upper threshold before June 4, 2003, when the central parity was devalued, and mean reversion happened to the lower and the upper threshold for the whole period. For the other CEE countries which have not been pursuing a policy of explicit exchange rate bands we find evidence of nonlinear exchange rate behavior, and the observed mean reversion is one-sided.

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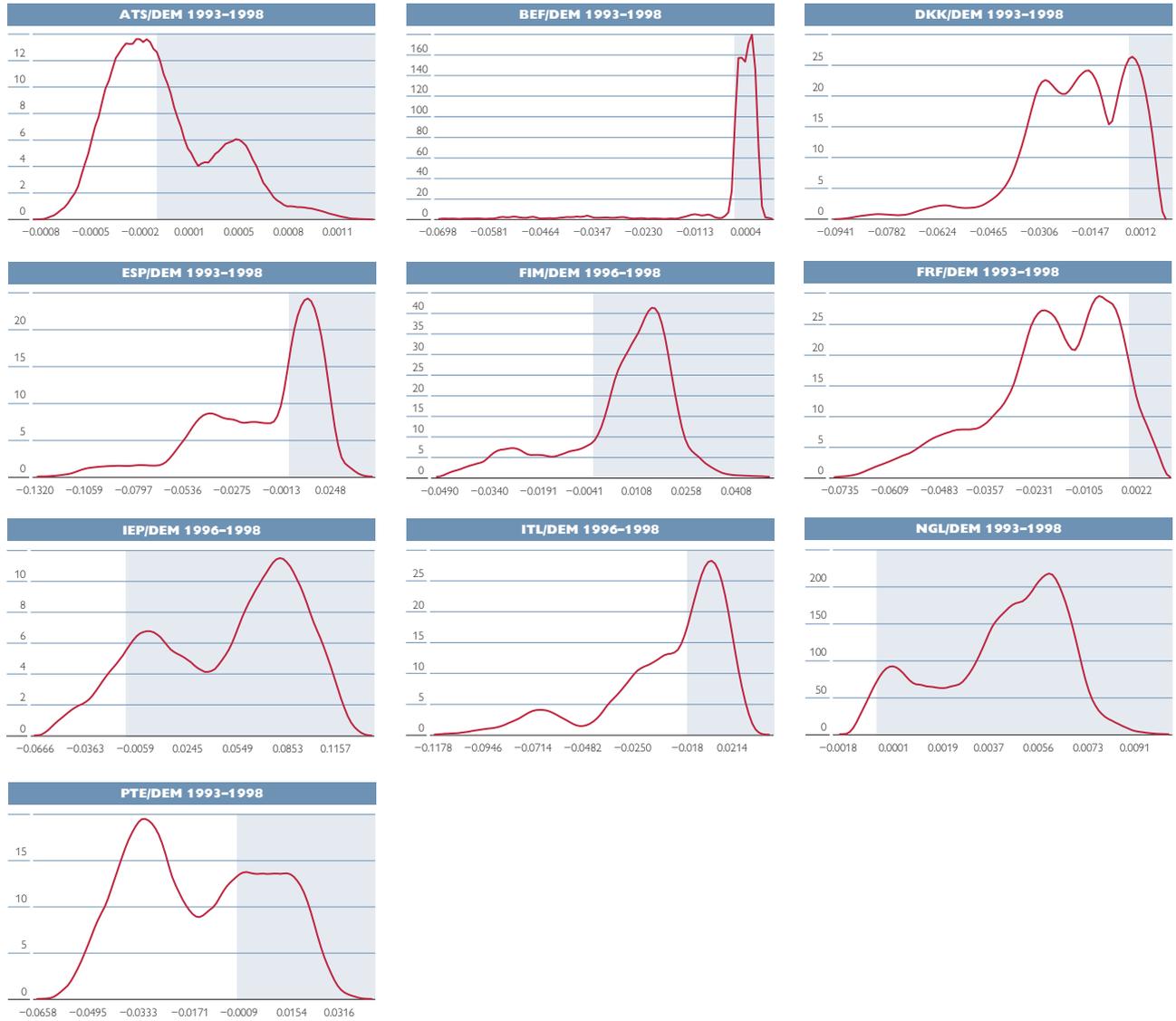
Annex

I Datastream Codes

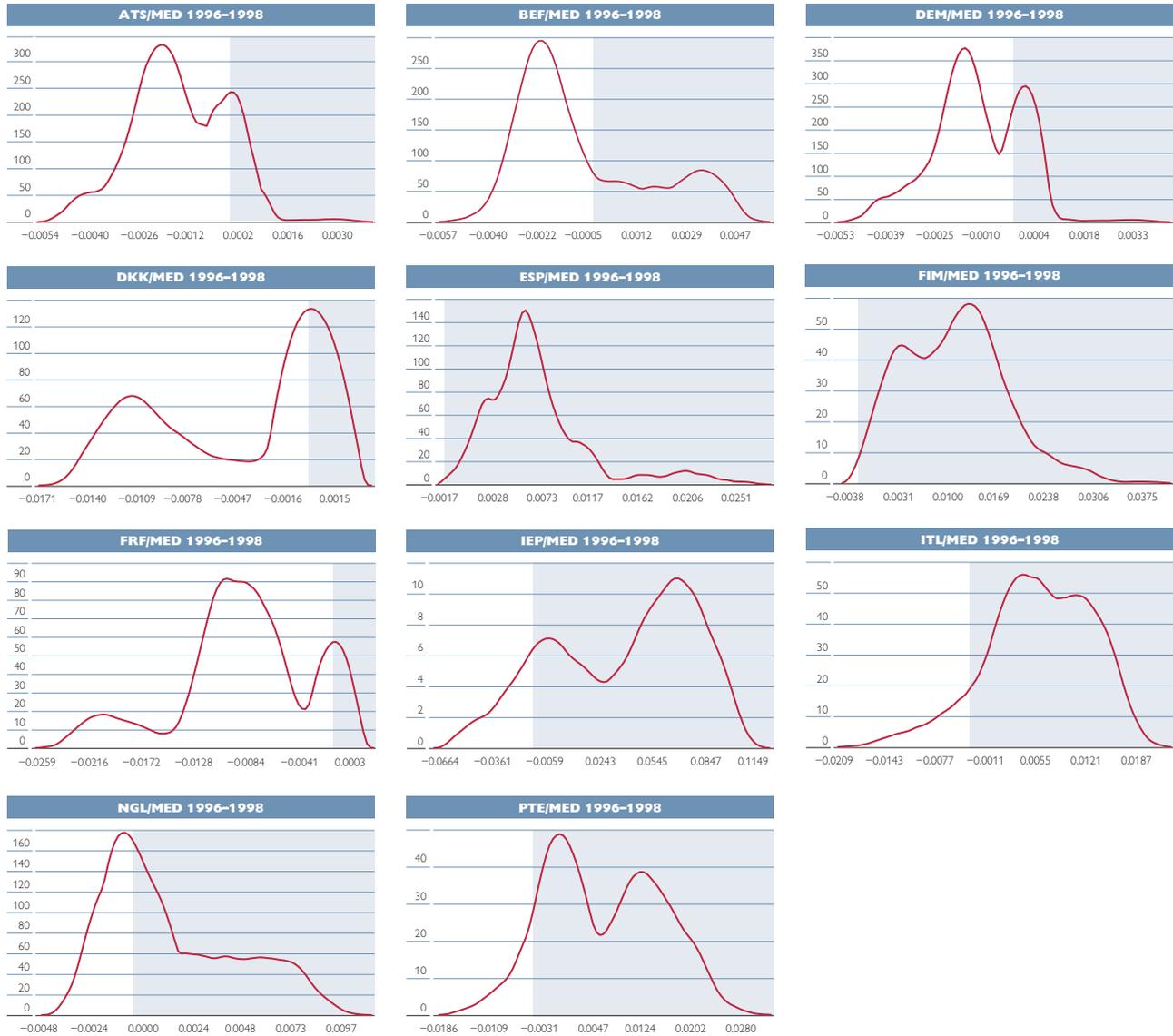
Datastream Codes					
	Source	DEM		Source	EUR
Austria	Deutsche Bundesbank	DMATSSP	Denmark	European Central Bank	DKECBSP
Belgium	Deutsche Bundesbank	DMBECSP	Czech Republic	European Central Bank	CZECBSP
Denmark	Deutsche Bundesbank	DMDKKSP	Hungary	European Central Bank	HNECBSP
Finland	Deutsche Bundesbank	DMFIMSP	Poland	European Central Bank	POECBSP
France	Deutsche Bundesbank	DMFRFSP	Slovakia	European Central Bank Datastream	SXEURSP
Ireland	Deutsche Bundesbank	DMIEPSP			
Italy	Deutsche Bundesbank	DMITLSP			
Netherlands	Deutsche Bundesbank	DMNLGSP			
Portugal	Deutsche Bundesbank	DMPTESP			
Spain	Deutsche Bundesbank	DMESPSP			

II Distribution of Exchange Rate Deviations from the Central Parity

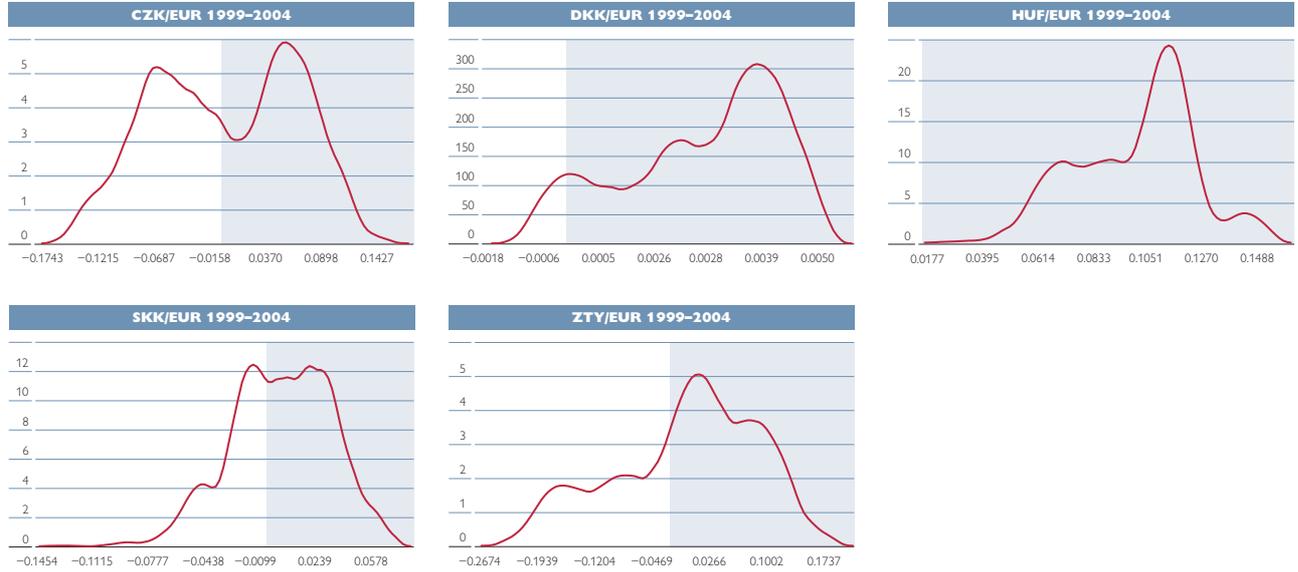
Distribution vis-à-vis the Deutsche Mark, 1993 to 1998



Distribution vis-à-vis the Median Currency, 1996 to 1998



Distribution vis-à-vis the Euro, 1999 to 2004



Determinants of Geographical Concentration Patterns in Central and Eastern European Countries

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The authors investigate the determinants of the location of industries in Central and Eastern European countries. Using output and employment data for thirteen manufacturing industries over the years 1993 to 2000, the authors find the concentration of industrial activity to have increased in these ten countries in contrast to the general trend prevailing in Western Europe in the same period. Further, the authors observe differences with respect to absolute and relative concentration as well as output and employment. In the analytical part, these developments are explained with factors derived from traditional trade theory (differences in endowments or technologies), new trade theory (expenditure patterns, scale economies) and new economic geography (backward and forward linkages, transport costs). Relative concentration is found to have been driven by differences in FDI levels, productivity differentials and expenditure patterns, absolute concentration to have been determined mainly by differences in human capital levels.

1 Introduction

The process of European integration has naturally raised concerns about the impact of integration on the location of industry. The substantial reduction of trade barriers and transport costs in Europe due to the single market program inside the EU-15 and following the Europe Agreements in the East-West European context increased the mobility of goods and factors of production, allowing factors to move to the locations where their returns are highest. Consequently, a higher degree of concentration of industrial activity inside Europe than ever before is to be expected.

Given the reorientation of Central and Eastern European countries' external relations towards Western Europe, which took place during their transition from centrally planned to market economies over the past decade, we would expect these countries to join into a European pattern of specialization according to comparative advantage. The purpose of this paper is to examine the changes in industrial specialization and concentration patterns in Central and Eastern European countries (CEECs) that took place during the transition period. We chose to confine our attention to the industrial sector, as this sector experienced a more radical opening up to international competitors through trade and investment flows than other sectors (e.g. agriculture).

A vast number of studies has been devoted to the research of patterns of industrial location and their developments in Europe (e.g. Amiti, 1999; Brühlhart, 1998; Haaland et al., 1999). Two things become immediately apparent when looking at this large and still growing body of literature: First, the literature focuses largely on the incumbent Member States of the European Union and does not include the new member countries in Central and Eastern Europe. Second, the results of individual studies are often inconclusive or even contradictory. The latter observation can be explained by two factors: On the one hand, there is still a lack of strong and comprehensive theoretical foundations for the empirical work that has been carried out in this area. Both traditional (mostly trade) theories and economic geography models may become inconclusive with respect to their predictions concerning specialization patterns as soon

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as the number of regions included in these models is greater than two.³ On the other hand, developments seem to have been quite diverse over the past few decades, with alternating periods of increasing specialization or concentration and diversification. Consequently, different studies will arrive at different conclusions depending on the specific time period under consideration. Our aim here is not to improve on this point; rather, we aim to extend the coverage of the current literature to Central and Eastern European countries. In this paper, we want to give an overview of the determinants of the location of industry in this part of Europe and compare these developments with those in Western Europe as well as assess the likely impact of further integration on future developments.

The fall of the Iron Curtain implied the collapse of the Council for Mutual Economic Assistance (CMEA), which was formally dissolved in 1991. Under the CMEA system, industrial specialization patterns were more or less predetermined and sustained through the accordance of the central plans of all countries under Soviet hegemony. The rapid reorientation towards Western European trading partners that was observed immediately after 1991 resulted on the one hand from the strong interest in reducing economic dependence on the former Soviet Union and on the other hand from the desire to catch up with the economically far more advanced Western European countries (Richter, 1997, 2001). Given these motivations, it does not seem surprising that CEECs first engaged in contracts with partners in Western Europe and the European Union before cooperating with each other. Thus, the far-reaching bilateral Europe Agreements⁴ between individual CEECs and each member of the European Union as well as the EU itself were signed in the first half of the 1990s and pre-date the Central European Free Trade Agreement (CEFTA), again on a bilateral basis. This makes clear that during the 1990s no integration process inside the CEECs could be observed. On the contrary, each country was pursuing a policy of integration with the Western world while being reluctant towards their former communist partners. As an example, roughly 90% of industrial goods have been freely tradable inside CEFTA since 1997. Moreover, since 1998 the CEECs' industrial exports to the EU have been free from tariffs.⁵ Thus, the impact of integration on industry location in the Eastern European context has to be seen as bilateral East-West integration rather than as a regional Eastern European integration process.

During the preparation of enlargement, fears were raised that enhancing competition between individual countries would lead to an uneven distribution of production in the EU, where some industries, especially those offering a high potential for productivity growth, would concentrate in already prosperous central regions while others, usually labor-intensive industries, would move to more peripheral regions. Likewise, incumbent EU members were afraid of losing exactly those labor-intensive industries to the new Eastern members because of the wage differential. From a static trade theoretical point of view,

³ *With only two regions, specialization in one country automatically implies less production of the same good in the other country. With more than two countries and many goods, however, the situation becomes much less tractable.*

⁴ *The Europe Agreements are not restricted to economic issues and include political, financial and cultural cooperation as well as general regulations, the movement of workers and the like.*

⁵ *The asymmetric nature of the Europe Agreements implied that EU exports to CEECs were tariffed up to 2000.*

such a pattern of specialization according to existing comparative advantages would also be optimal, as it implies the most efficient allocation of resources, thus maximizing total output.⁶ However, in a dynamic setting where demand patterns as well as production processes and with them comparative advantages are subject to change, there is a risk that peripheral regions will eventually end up in a deadlock situation of slow growth and outdated production structures.

The aim of this paper is to shed some light on the empirical evidence about industrial relocation patterns in CEECs. The paper is organized as follows: Section 2 gives a short summary of the theoretical background. Section 3 describes the patterns of industrial specialization in the Central and Eastern European countries and compares these developments to those in the EU-15. Section 4 first explains how the variables that are used in the analytical part are derived. Next, industrial concentration inside the region is explained using a panel of 13 industries and 8 years. Finally, this section also looks at the factors that drive specialization inside individual industries, again using a panel data set of ten countries and eight years for each industry. Section 5 concludes.

2 Theoretical Background

The question of the concentration of industrial activities cannot be addressed without entering the field of trade theory. Geographically concentrated production structures imply that output will be traded between regions or countries in order to serve demand in all regions. Thus, a prerequisite for concentration patterns to emerge is that transport costs are not prohibitive and that trade takes place. Looking at various trade theories, a number of factors influencing patterns of specialization across countries or patterns of concentration across industries can be derived. Traditional trade theories assume constant returns to scale and perfect competition. When trade costs are not prohibitive, countries will specialize according to their comparative advantages. Relative differences in production costs thus drive specialization patterns. In a Ricardian model, comparative advantages stem from differences in labor productivity and are thus determined exogenously by technological differences. In a Heckscher-Ohlin model, relative cost differences arise from differences in the endowment structure between trading partners. Together with the relative intensity of each factor's use in the production of the respective good, they determine the pattern of specialization. In these models, technologies do not differ between countries. The ultimate determinants of specialization are again exogenous to the model and will not change unless production factors are mobile across international borders.

In contrast to traditional trade theories, new trade theory adopts entirely different assumptions, allowing for increasing returns to scale, preference for variety and imperfect competition (Krugman, 1980; Helpman, 1981; Ethier, 1982). Further, in addition to explaining specialization solely by supply-side factors, this strand of literature accords an important role to demand characteristics. The interaction of economies of scale together with home market effects (i.e. size, demand bias for a certain product) can lead to the evolution of distinct

⁶ *The above argument disregards problems that may arise due to insufficient mobility and flexibility of workers and from external (congestion and pollution) effects resulting from transport, especially road transport.*

specialization patterns even for countries with identical endowment structures and identical technologies. Thus, this strand of literature can lead to predictions opposed to those of traditional trade theories. For instance, a demand bias in favor of a certain good will lead to net imports of this good according to traditional trade theories, whereas new trade theory would predict net exports, resulting from the home market effect together with scale economies.

Given their genuine focus on explaining the location of industry (inside national borders) rather than international trade, economic geography models further allow for factor mobility and put strong emphasis on transport (transaction) costs (Fujita et al., 1999). Ongoing economic integration, not only in Europe but worldwide, seems to assign an increasingly important empirical role to these assumptions. Again, endowments and technologies are identical across regions, while there are increasing returns to scale in production. Competition is imperfect due to a love of variety, and demand structures may differ across countries. Specialization is determined endogenously through the interaction of forward (i.e. larger input variety) and backward (i.e. larger markets) linkages in a process of cumulative causation. Agglomeration economies, stemming from self-reinforcing location decisions of firms, consumers and workers, can result in a core-periphery pattern, where weakly linked industries that are characterized by constant returns to scale and low transport costs move to the periphery while strongly linked, increasing returns-to-scale industries remain in the core. However, this specialization pattern will change along with changes in transport costs. The relationship between the level of transport costs and the concentration of production is nonlinear and depends on developments in relative factor prices. In general, concentration will be highest at intermediate levels of transport costs. Prohibitively high transport costs imply that each country produces both goods, while negligible transport costs raise the attractiveness of peripheral regions (due to the absence of congestion costs and low relative wages), which again implies a low level of concentration.

In the attempt to structure the above-outlined determinants of industrial concentration patterns, one may relate their importance to different stages of development. For a given economic activity, comparative advantages and factor endowments may play the most important role initially. The introduction of an entirely new product in itself implies a comparative advantage as long as no other country has the ability to produce it. Once production becomes standardized and common knowledge, it will move to the country which offers the best conditions for its production (i.e. an abundance of appropriate or relatively cheap production factors). Personal computers provide a good example of such a process. Initially, they were mainly produced in the U.S.A., where they had been developed. Due to favorable conditions in East Asia (skilled but cheap labor force), the production of personal computers moved to these countries.⁷ For countries at more similar stages of development where differences in endowments or technologies no longer play an important role, new trade and economic geography models can offer explanations for the existence of distinct specialization patterns. Thus, it may be asserted that traditional factors play a stronger role in countries at an earlier stage of development than their

⁷ This is described in the product-cycle theory by Posner (1961).

trading partners, whereas new trade theory and economic geography explain specialization patterns in countries at more advanced and equal stages of development.

3 Evolution of Geographical Concentration in Central and Eastern European Countries

3.1 Measuring Geographical Concentration

Our database contains data for ten CEECs (Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia) from 1993 to 2000. This period allows us to analyze the impact stemming from the transitional change and from the stronger trade integration of the CEECs with the European Union. Our starting point – 1993 – has the clear advantage that the data are not blurred by the transformational recession, which was largely over in most transition countries by 1993. We use data for output, employment, wages, exports and imports (total and to the EU), and FDI inward stocks for 13 manufacturing industries from the wiiw Industrial Database.⁸ Industries are classified according to NACE, revision 1, subsections DA to DN.⁹ All values are in euro, converted at current exchange rates. The database contains 1,040 observations across three dimensions: industries, countries and years. The measures of the degree of geographical concentration are based on output data at current prices¹⁰ as well as on employment data.

Until the start of the transition process in the late 1980s, production and employment patterns in CEECs strongly deviated from those of Western European economies. In the late 1980s, they were basically dominated by the manufacturing sector in general and heavy industry in particular. Then, transition set in motion a process of catching-up of CEECs towards current EU Member States that triggered per capita income and structural convergence.

On a broader level, the sectoral allocation of production and labor resources among the three main sectors (agriculture, industry and services) has become more similar to the sectoral allocation prevailing in EU countries. Generally, in the CEECs the shares of value added and of employment in agriculture¹¹ and in the industry sector¹² declined, whereas the service sector gained importance. These fundamental structural changes can be traced – among other factors – to the stronger integration with the EU that has taken place. Intensified trade and an increased inflow of FDI have changed the competitive environment of the CEECs' firms and have modified the patterns of geographic concentration.

In the period under review, the structure of manufacturing changed broadly in the CEECs. In 1993, the three largest countries in terms of output – Poland,

⁸ wiiw Industrial Database Eastern Europe, July 2003.

⁹ In some countries, the manufacturing of coke, refined petroleum products and nuclear fuel and manufacturing n.e.c. were not reported separately. Thus, we aggregated these industries in all countries.

¹⁰ There are various other ways to measure the size of an industry (for instance employment or value-added data). Apart from the fact that value-added data are not available for all CEECs, production output data are less affected by structural shifts from outsourcing to other sectors than value-added data (Midelfart-Knarvik, 2002).

¹¹ Remarkable exceptions are Bulgaria and Romania, where the share of the labor force in agriculture has increased.

¹² The industry sector comprises the manufacturing industry, mining, water and electricity supply, and construction. Today, the contribution of the manufacturing sector to GDP in the CEECs is only slightly larger than the average in the current EU Member States.

the Czech Republic and Romania – accounted for 67% of manufacturing production in the region. By 2000, Romania had fallen behind and Hungary had advanced to the third rank, with the share of the three largest countries having increased to 72%. Poland, Romania and the Czech Republic also ranked first to third in 1993 in terms of employment. At the time, 68% of all manufacturing employees of the region worked in these three countries; their share was virtually unchanged in 2000.

How has the degree of geographical concentration changed in Central and Eastern Europe? Let us first explain our measure of concentration in more detail. To start with, the issue of specialization versus concentration should be set out clearly. While the two concepts are strongly linked – both describe convergence or divergence of industrial structure in terms of output, employment, trade patterns and the like – they do not describe exactly the same developments. Specialization is measured across countries and relates to increasing differences in industrial structure between individual countries. Concentration is measured with respect to individual industries and refers to the question whether certain industries locate only in certain regions or countries contrary to a pattern where output is homogeneously dispersed across all countries. The two often coincide such that increasing specialization is observed together with increasing concentration. However, if countries differ in size, they need not coincide. If one country were twice the economic size of its trading partner, one industry could be completely concentrated in this country, while the country itself would remain unspecialized.

This leads us to our measure of concentration. In the literature on geographical concentration, a variety of approaches to measure the degree of concentration can be found. We decided to use a measure of concentration in accordance with Haaland et al. (1999), which is a modified form of the Hoover-Balassa index. Haaland et al. distinguish between absolute and relative concentration (or specialization) measures. Absolute concentration measures the spread of industrial activities across countries. An industry is said to be absolutely concentrated if its output is generated in only one or a few countries. Relative concentration measures the difference between an industry's spread of production and the average spread of production. Thus, an industry is relatively concentrated if its output is more concentrated than total manufacturing (or economy-wide) output in the area. Consequently, a high relative concentration implies also a high degree of country specialization. The above example of high concentration without specialization is only possible when using the concept of absolute concentration. Again, relative country size matters crucially. If all countries are of equal size, the two measures are identical. Analyzing both concentration indices, relative and absolute, has the advantage of providing a comprehensive picture of the localization of industries in the CEECs. While the measure of relative concentration allows us to draw conclusions on the ongoing specialization process in CEECs, absolute concentration can be seen as being important in a broader pan-European perspective.

The absolute concentration index (CIP_i^A) is defined as:

$$CIP_i^A = \sqrt{\frac{1}{c} \sum_j \left(\frac{X_{ij}}{\sum_j X_{ij}} \right)^2}$$

The value of production is denoted by X_{ij} ,¹³ the indices i refer to industries and j to countries. Total industrial production in the CEECs is depicted by $\sum_j X_{ij}$, and the share of production in industry i carried out in country j by $\frac{X_{ij}}{\sum_j X_{ij}}$. The term c indicates the number of countries in our sample.

The relative concentration index CIP_i^R adjusts for country size and is defined as:

$$CIP_i^R = \sqrt{\frac{1}{c} \sum_j \left(\frac{X_{ij}}{\sum_j X_{ij}} - \frac{\sum_i X_{ij}}{\sum_i \sum_j X_{ij}} \right)^2}$$

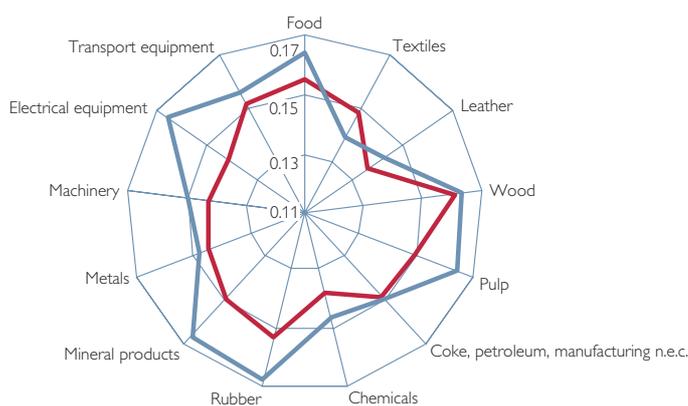
where $\frac{\sum_i X_{ij}}{\sum_i \sum_j X_{ij}}$ reflects country j 's share in total manufacturing production of all ten countries.

3.2 The Evolution of Concentration Based on Output Data

Comparing the beginning and the end of our time series (1993 and 2000), we observe an increase of absolute concentration in terms of production in all industries, except for the textile industry (see chart 1). However, the intensity of changes varies strongly across industries.

Chart 1

Evolution of Absolute Concentration (Production) in the CEECs



■ 1993
■ 2000

Source: wiiw, OeNB.

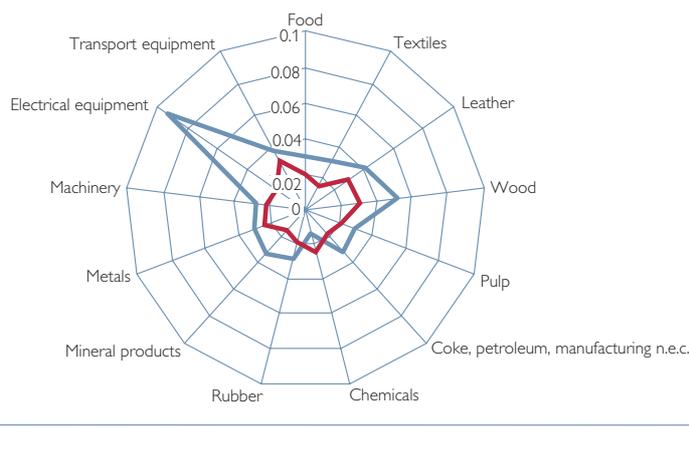
The ranking of individual industries (see table 1 in the appendix) indicates that the production of electrical and optical equipment underwent the most striking change. Whereas in 1993 this industry was one of the least concentrated

¹³ For the concentration indices based on employment data, X_{ij} refers to the number of people employed in sector i in country j . Then, absolute concentration is denoted by CIE_i^A , relative concentration by CIE_i^R , respectively.

industries, it ranked among the most concentrated ones in 2000. This significant shift is attributable to the fact that the electrical and optical equipment industry became strongly concentrated in Hungary in the period under review (within our sample, the latter accounted for more than 40% of production activity in this industry in 2000¹⁴). Furthermore, the degree of concentration of the manufacturing of nonmetallic mineral products and the production of pulp, paper and paper products increased considerably. Both industries are concentrated predominantly in the Czech Republic and in Poland, the two largest producing countries in our sample. The pulp, paper and paper products industry also gained importance in the Baltic states. In absolute terms, the manufacturing of textiles and textile products became less concentrated. This can be explained by the fact that this labor-intensive industry became less important in several countries, including Hungary, Poland and the Czech Republic, resulting in a more dispersed production across countries.¹⁵

Chart 2

Evolution of Relative Concentration (Production) in the CEECs



Source: wiw, OeNB.

Similar to the developments in absolute concentration, the geographical concentration of production also increased in relative terms, which – according to our measure of relative concentration – implies that the CEECs became more specialized.¹⁶ Again, there is one exception: Concentration decreased in the chemical industry, causing the latter to rank last in 2000 (see table 2 in the appendix). This reflects a general decline of the chemical industry, which led to a more dispersed production structure. Again, the concentration of the man-

¹⁴ The four largest companies of the Hungarian electrical and optical equipment sector are IBM Storage Products Kft., Philips Group, GE Lighting Tungstam Rt. and Flextronics International Kft. (Hanzl, 2001).

¹⁵ The textile sector is strongly affected by competition from cheap products coming from Asia and by relocation to countries with lower costs, especially to China (Hanzl, 2002).

¹⁶ At first glance, this observation of increasing specialization stands in contrast to the observation of increasing intraindustry trade between the CEECs and the EU-15 during the same period (Fidrmuc and Djablik, 2003). Increasing intraindustry trade clearly implies decreasing specialization. This apparent discrepancy may be explained on the one hand by the fact that we are looking at intra-CEEC patterns of specialization, while Fidrmuc and Djablik analyze trade between the EU-15 and the CEECs. On the other hand, the level of disaggregation used in the two analyses is different. We use manufacturing data for only 13 industries whereas the study mentioned above uses data on a much more disaggregated level.

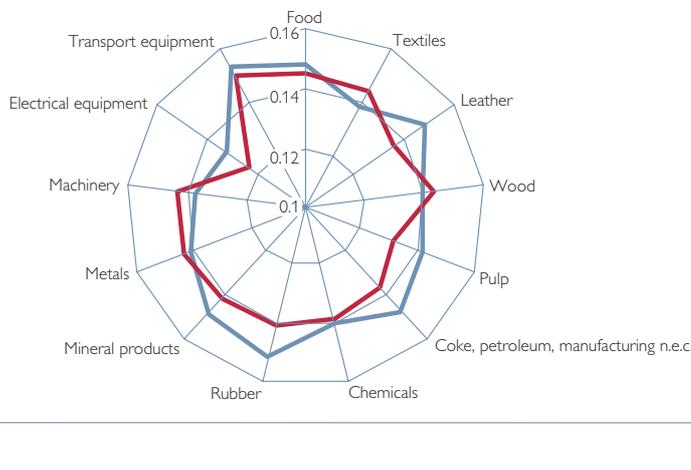
ufacturing of electrical and optical equipment increased most, reflecting Hungary's stronger specialization in this field (in 2000 the electrical and optical equipment industry accounted for almost 30% of Hungarian manufacturing). In addition, the concentration level of the wood and wood product industry rose significantly, given that the Baltic states, especially Latvia, specialized more strongly in this industry. Mirroring the development of absolute concentration, the production of mineral products became more strongly concentrated also in relative terms.

3.3 The Evolution of Concentration Based on Employment Data

Employment data also show the concentration of the labor force to have increased in general. Particularly employment concentrated in the leather and leather product industry both in absolute and relative terms (see also tables 3 and 4 in the appendix). Romania and Poland, the two largest countries,¹⁷ are the dominant employers; some smaller countries, e.g. Bulgaria, have increased the share of employees in this sector. In 2000, the transport industry was the industry with the highest degree of employment concentration in absolute terms (because a mere three countries – Poland, Romania and the Czech Republic – account for the bulk of employees in this industry).

Chart 3

Evolution of Absolute Concentration (Employment) in the CEECs



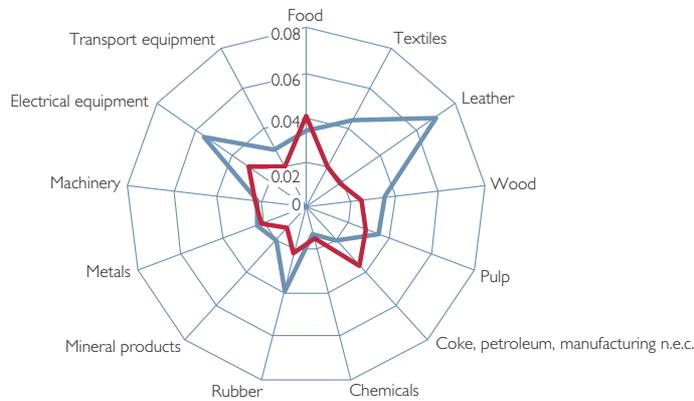
Source: wiiw, OeNB.

In terms of relative concentration, the coke, refined petroleum and manufacturing n.e.c. industry underwent the strongest decrease of concentration of the labor force, which contrasted with its increasing concentration in absolute terms. The decrease in the relative concentration level reflects the fact that the largest country, Poland, became the main employer in this industry (in our sample, more than 36% of all people working in this industry were employed in Poland in 2000), whereas smaller countries, such as Bulgaria and Slovakia, employed relatively fewer people in this industry in the year 2000 than in 1993. In addition, the degree of concentration also dropped in the food produc-

¹⁷ Based on employment data.

Chart 4

Evolution of Relative Concentration (Employment) in the CEECs



■ 1993
■ 2000

Source: wiw, OeNB.

tion industry, in the manufacturing of machinery and equipment n.e.c. as well as in the chemical industry.

The leather industry, by contrast, recorded the strongest increase in the degree of labor force concentration; in 2000, employment was most concentrated in this industry in relative terms. This can be traced to an increase of employment in this industry in the Bulgarian and Romanian economy, whereas the leather industry lost its important role for employment in all other sample countries.

3.4 A CEEC-EU Comparison

The analysis of the above-described structural changes raises the question whether the development in the CEECs corresponds to production and employment patterns in the EU-15.

We calculated corresponding geographical concentration indices, both in relative and absolute terms, for the EU-15 for the years 1985, 1993 and 2000. The time period allows us to draw some conclusions on the extent to which stronger economic integration has influenced geographic concentration in the EU.

From 1985 to 1993, which can be considered the pre-single market period, geographic concentration with regard to employment data increased in all industries in absolute terms and in 11 out of 13 industries in relative terms. In 1985 the three most concentrated industries in absolute terms were the following: the manufacturing of leather and leather products, the machinery industry and the manufacturing of electrical and optical equipment. A slightly different picture emerges with regard to relative concentration. Here the textile industry replaces the electrical industry in the group of the three most concentrated industries. The least concentrated industries in absolute terms were coke and refined petroleum products, food products and wood, and in relative terms chemicals, rubber and plastic products, and basic and fabricated metals.

The period from 1993 to 2000, which may be called the single market period and which corresponds to our observation period for the Central and Eastern European sample, was marked by a general decrease of concentration. Based on employment data, concentration decreased in absolute terms within all 13 industries and in relative terms within 7 industries. The ranking of industries according to their degree of concentration changed as well. Most strikingly, the production of transport equipment ranks among the most concentrated industries both in absolute and in relative terms. Notably, this industry became especially widespread in Germany. The manufacturing of leather and leather products is in both cases the most concentrated industry, because Italy is strongly specialized in this industry.

The evolution of concentration is less clear-cut with regard to indices based on production data. Over the period 1985 to 1993, concentration increased in only five (measured in absolute terms) and in nine (measured in relative terms) industries. From 1993 to 2000 there was a decrease in concentration within ten (measured in absolute terms) and an increase within nine (measured in relative terms) industries. The ranking of the most and least concentrated industries is almost equal to the concentration ranking based on employment data.

What are the most striking similarities and differences between the evolution of geographical concentration in the CEECs and in the EU, and what conclusions can be drawn?

Overall, Central and Eastern Europe has experienced a substantial amount of structural change since the start of the transition process, which has led to greater similarities both among the individual countries in the region and vis-à-vis the current EU Member States. Convergence results from the relative decline of initially important labor-intensive and low value-added activities. From 1993 to 2000, the concentration of the manufacturing industries in the CEECs increased both to higher levels and by a higher percentage than in the EU during the pre-single market period.

However, the ranking of industry types according to the degree of concentration in the CEECs deviates to a large extent from the structure which can be found in the current EU member countries.

Furthermore, in the EU the correlation between concentration indices based on employment and on production data is very high, whereas this correlation is very low in the CEECs. This can possibly be ascribed to the time lag between the adjustment of output and employment and relates to the prevalent lower level of productivity in Central and Eastern Europe compared to the EU countries.¹⁸ Initially low levels of productivity allowed for rapid catching-up. This productivity boost implied increased concentration in output levels that was not accompanied by increased employment in the same industries.

¹⁸ In 2001, labor productivity for the manufacturing industry (converted with 1996 purchasing power parities for gross fixed capital formation) ranged between 10% (Bulgaria) and 41% (Hungary) of the productivity level reached in Austria (wiiw, 2003).

4 Econometric Analysis

4.1 Theoretical Determinants

Given the brief review of the literature in section 2, we can identify a range of factors behind empirically observed patterns of industrial concentration. We use proxies for individual factors below to assess their importance in determining the structure of industrial production in CEECs.¹⁹ As our observation period corresponds more or less to the transformation phase of these countries, we expect different factors to play an important role in shaping the industrial landscape as compared to Western Europe. For instance, traditional Ricardian and Heckscher-Ohlin factors are expected to still play a relatively strong role. In the following we discuss each variable and its calculation in turn.

Comparative advantages are at the heart of traditional Ricardian trade theory. *Technological differences* are captured by differences in productivity levels; more specifically we will use labor productivity, given our lack of good capital stock data. Large differences in technology levels between countries are expected to have a positive influence on the concentration of an industry after adjusting for country size (i.e. relative concentration). The variable is calculated as labor productivity in relation to the average labor productivity in each industry, adjusting for the country's overall productivity level.

In a Heckscher-Ohlin model, relative cost differences arise from *endowment structure* differences between trading partners. Greater differences will again induce a higher degree of relative concentration. As we are only interested in whether industries are concentrated or not, all that matters is whether an industry is intensive in the use of a certain factor or not. Thus, we only look at deviations in factor use from the mean regardless of the direction. We include the following factors in our analysis: labor, human capital and foreign-owned physical capital. Domestic physical capital is then implicitly captured by assuming that output is produced using only these four factors. With this, we assert a qualitative distinction between foreign-owned and domestically owned physical capital. *Labor intensity* is measured as absolute deviations in employment per unit of output from the sample mean. When explaining absolute concentration, we refine this measure and use the industry average employment level in relation to output. *Human capital intensity* is proxied for by deviations from the average labor compensation. If an industry's wage level lies above the average wage level of the region, it is said to be relatively human capital intensive, assuming that wages reflect employee qualification and education. We further include a measure of *foreign capital intensity* for the following reason: Economic development in all transition economies was naturally heavily influenced by privatization in those countries. Although privatization and FDI are distinct issues, they are closely related, especially in our sample countries. Privatization has dominated FDI inflows to a large extent (Kalotay and Hunya, 2000). However, privatization policies have been very distinct in individual CEECs. While Hungary pursued a policy of early privatization via the capital market, thus attracting large FDI inflows into all sectors, the voucher privatization in e.g. Romania and Bulgaria implied that foreign capital

¹⁹ Our analysis is similar to the one in Haaland et al. (1999), but in contrast to their paper, which analyzes structural developments in incumbent Member States of the EU, our paper puts the regional focus entirely on the Eastern European countries (including Bulgaria and Romania).

was kept out of the country for a relatively long time. Poland delayed the privatization of state-owned firms, and therefore FDI inflows occurred at a later stage. Consequently, the timing and industrial spread of privatization-induced foreign capital inflows into individual CEECs differed according to FDI policies. Thus, FDI inflows can be seen as exogenous in this analysis. We measure FDI intensity as deviations of FDI inward stock over output from the mean; in the regressions for absolute concentration we use the average FDI stock.

In contrast to traditional trade theories, new trade theory adopts entirely different assumptions, allowing for increasing returns to scale, preference for variety and imperfect competition (Krugman, 1980; Helpman, 1981; Ethier, 1982). Industries with strongly increasing returns to scale in production can realize efficiency gains if they concentrate in certain locations. *Scale economies* can explain both absolute and relative concentration patterns. With the data we have at hand, we are unable to measure scale economies directly. To our knowledge, no recent study exists that has estimated scale economies for the industries we are looking at. Thus, we take scale elasticities from Forslid et al. (2002, table 5, p. 104), which are themselves based on estimates of scale economies by Pratten (1988). According to these figures, the transport industry realizes the greatest economies of scale in production, followed by chemicals, machinery (including electronics) and metals. The smallest efficiency gains from a larger scale of production are found to prevail in the textiles, leather and food industry.

The effect of *expenditure* patterns on concentration has been acknowledged by all of the theories outlined here: traditional and new trade theories as well as economic geography. Traditional trade theory predicts net imports of a good toward which home demand is biased. According to new trade theory, a home market bias for a specific product will induce concentration of production of this good in the home country. Finally, new economic geography models state that a larger demand for a certain product implies stronger backward linkages and hence induces an industry to concentrate absolutely. Thus, the location of demand (for an industry's output, regardless of whether it is used as an intermediate good elsewhere or for final consumption) matters for the concentration of industries and we expect a positive impact from a higher concentration of demand or expenditure on output concentration. The expenditure variable is calculated as output plus imports minus exports; the variable is constructed analogously to the concentration measure.

Traditional and new trade theories imply a negative relationship between *trade costs* and concentration. The more expensive it is to move goods around, the less likely it is that they will be produced in only one or a few locations. New economic geography models stress the existence of a nonlinear, inverse U-shaped relationship between trade costs and location decisions in industries with increasing returns to scale. At high levels of trade costs, production will be dispersed in order to serve all markets at low costs. Falling transport costs first induce a concentration of production, as this allows exploiting scale economies while it is still possible to serve all markets at reduced costs. Consequently, firms realize higher efficiency levels. However, increasing concentration also produces agglomeration costs (rising wages in the center, congestion, etc.). With further decreasing transport costs it becomes profitable to shift produc-

tion to the periphery again, taking advantage of low wage costs while transport costs no longer play any role at all. Transport costs are again taken from Forslid et al. (2002) and measured as the percentage of trade costs to Western Europe in producer prices, averaged by each industry over the region. We assume that we are still in the part of the curve where lower transport costs lead to an increase in concentration of industrial activity, as predicted also by traditional and new trade theory.²⁰ The empirical evidence confirmed this choice, as a linear specification of the transport cost variable gave a better fit of the regression than specifying a quadratic term.

Economic geography models put heavy emphasis on the role of forward (i.e. with intermediate input producers) and backward (i.e. with consumers) *linkages*. The strength of forward linkages in an industry is captured by the share of inputs in total costs that originate in the same industry. Again, we use estimates from Forslid et al. (2002), based on data from Central and Eastern European input-output matrices. From this data, textiles, chemicals, metals and the wood industry emerge as having strong intraindustry linkages. The expected sign of this variable is again positive; stronger forward linkages inside the same industry should *ceteris paribus* lead to more concentration in an industry. Thus, we would expect these industries to be more clustered than for instance the food, transport or leather industries, which show weak intraindustry forward linkages. Backward linkages measure the extent to which closeness to one's customers (who can be either purchasers of intermediate goods or final good consumers) creates positive spillovers and enhances efficiency. This effect can be proxied by the demand in the region for output of the respective industry and is captured by our expenditure variable.

4.2 Explaining Concentration inside CEECs

All the above measures are calculated as averages across all 10 countries for each industry, resulting in a panel of 13 industries over 8 years. We estimated a random effects model, using an instrumental variables estimator proposed by Hausman and Taylor (1981). We chose this estimator because it allows us to make best use of our knowledge of individual (i.e. industry) specific fixed effects (like scale economies, trade costs, forward linkages) that would be lost in a fixed effects regression, as the fixed effects estimator removes all individual specific time-invariant effects. A random effects model, however, would lead to inconsistent estimates in the presence of those fixed effects. In contrast to traditional instrumental variables estimation procedures, the Hausman-Taylor estimator assumes that a subset of the explanatory variables in the model is correlated with the individual-level random effects μ_i (i.e. the error component that varies across individuals but not over time), but none of the explanatory variables is correlated with the idiosyncratic error component.

The estimator requires discrimination between exogenous and endogenous (i.e. correlated with μ_i) as well as time-varying and time-invariant right hand-side variables. We identified labor intensity, wages and expenditure levels as endogenous and time-varying regressors and forward linkages as time-invariant

²⁰ Thus, the transport cost variable does not allow us to distinguish between different theories. The purpose of the analysis is, however, to investigate the determinants of industrial location in CEECs rather than scrutinizing different theories.

endogenous variables. Applying more or less the same model as Haaland et al. (1999) to Central and Eastern European data yields the results given in table 1. We find that relative concentration patterns are determined by comparative advantages (differences in technology), expenditure patterns and the location of FDI. In line with the observations in the descriptive part, differences between relative concentration in employment and output can be identified. These differences in concentration between output and employment data by themselves hint toward different developments in productivity levels between individual industries in Central and Eastern Europe as mentioned previously. This has not been observed between individual industries in Western European data and is as such an interesting observation. However, the differences in underlying factors driving these concentration patterns suggest that different mechanisms are at play in shaping the industrial landscape with respect to output and with respect to the allocation of the labor force.

Output patterns are more strongly influenced by expenditure patterns than employment. The coefficient on our variable for expenditure is more than twice as high and significant at a much higher level in the output equation as compared to the employment equation. Thus, the location of demand matters, which also implies a role for backward linkages. Also, the FDI variable turns out to be more significant in the output equation than in the employment equation, although the coefficient is of the same magnitude in both regressions. Consequently, FDI-intensive industries tend to be clustered in few locations. Moreover, the observation that FDI intensity spurs output (but not employment) concentration provides some indirect evidence of the productivity-enhancing impact of FDI. Industries with a high share of FDI produce more output in the same location with a less than proportional increase in labor.

Certain industries could be identified as driving the overall results. The strong increase in output concentration was heavily influenced by developments in the electrical equipment industry. Since 1997, strong increases in output levels in this industry have been observed. The fact that employment has not increased to the same extent suggests especially strong improvements in labor productivity inside the electrical equipment industry in the CEECs. As will be discussed below, high FDI inflows especially in Hungary play an important role in this context. Apart from the electronics industry since 1997, we also controlled for the general trend of increasing concentration, given our descriptive results. Although this is already captured by the time dimension in our panel specification, we further included a quadratic time trend, which greatly improved the fit of the regression. One may also assign an economic meaning to this exogenous time trend: It can control for changes in relative factor endowments that are endogenous to relative concentration. For instance, a sufficiently high degree of factor mobility would enable skilled and unskilled workers to relocate according to where demand for them is greatest. This actually describes exactly the picture drawn by new economic geography models and supports the idea that such models are relevant in explaining industry location in CEECs. However, there are few other indications of the empirical importance of these factors. Apart from the expenditure variable, the variables designed to capture explicitly new economic geography explanations – scale economies, trade costs and input-output linkages – remain insignificant.

Table 1

Regression Results for Relative Concentration Indices

	Output	Employment
FDI	0.0686 <i>0.002</i>	0.0682 <i>0.014</i>
Technological differences	0.0279 <i>0.000</i>	0.0371 <i>0.000</i>
Labor intensity	-4.01E-05 <i>0.430</i>	-1.26E-06 <i>0.986</i>
Human capital intensity	-5.45E-05 <i>0.045</i>	-5.05E-05 <i>0.132</i>
Expenditure	0.2652 <i>0.000</i>	0.1254 <i>0.055</i>
Scale economies	-0.0214 <i>0.198</i>	-0.0062 <i>0.876</i>
Trade costs	-7.99E-05 <i>0.319</i>	2.04E-04 <i>0.349</i>
Linkages	0.0014 <i>0.960</i>	-0.0304 <i>0.580</i>
Trend	0.0001 <i>0.003</i>	
Dummy 2000		0.0033 <i>0.048</i>
Industry dummy ¹	1.78E-06 <i>0.000</i>	0.0254 <i>0.000</i>
Constant	0.0161 <i>0.059</i>	0.0190 <i>0.227</i>
Wald-chi (square)	724.33	150.59
Probchi (square)	0.00	0.00
Number of observations	104	104

¹ In the first regression for the electronics industry, in the second regression for the leather industry. *p-values in italics.*

The negative coefficient on the human capital intensity measure presents a puzzle. By construction, both the dependent variable and the endowment variables measure deviations from the average. Thus, we clearly expect clustering or concentration of industries which are especially intensive in the use of human capital (or use relatively little human capital). In either case, the sign of the endowment variable should be positive. The negative coefficient on the human capital variable implies that industries with an average use of human capital as measured by labor compensation concentrate in a few countries only. This result could also reflect the fact that differences in human capital intensity, as measured here, are in general rather small across industries. The reason might lie in the tradition of strong central wage bargaining, a heritage from the communist past that ruled out large differences between labor compensation for individual activities.

Like the concentration of industrial output, employment concentrates in industries with relatively high productivity levels, controlling for the average productivity level in each country. FDI levels again play an important role for relative employment levels, as do expenditure levels, though to a lesser extent than for output levels. Concentration in employment also shows a time trend, but it is much weaker than in output levels. A pronounced increase in relative concentration could only be observed very recently and is influenced strongly by developments in the leather industry. The leather industry, which is a typical labor-intensive industry, delivers especially high employment shares in a few

small countries, most notably so in Latvia. This is controlled for by a dummy variable for this industry that takes the value one from 1998 onward.

Again, the typical new economic geography variables remain insignificant, and apart from FDI stocks, relative factor endowments cannot explain employment patterns across industries either. Thus, employment is distributed according to comparative advantages and concentrates in relative terms in industries whose productivity levels differ most strongly from the average. Industries which produce at similar productivity levels in different countries are more dispersed across the region. This observation refers to both output and employment levels.

In contrast to Haaland et al. (1999), we include the same exogenous variables in our model for relative and absolute concentration. Although technological differences and differences in endowment structures cannot explain absolute concentration patterns, we view these characteristics as industry-specific fixed effects. Given our knowledge of these industry characteristics – such as the labor intensity of an industry, human capital intensity, etc. – we decided to include them in our regressions. The regression results for absolute concentration are given in table 2.

First of all, whereas technological differences and FDI determine relative concentration patterns, absolute concentration is driven by differences in human capital. The more human capital-intensive industries have experienced a stronger trend toward high concentration than industries whose use of human

Table 2

Regression Results for Absolute Concentration Indices		
	Output	Employment
FDI	-0.0056 <i>0.543</i>	-0.0093 <i>0.159</i>
Productivity	-0.2329 <i>0.063</i>	0.0473 <i>0.593</i>
Labor intensity	5.02E-07 <i>0.992</i>	9.39E-05 <i>0.001</i>
Human capital intensity	7.78E-05 <i>0.003</i>	3.22E-05 <i>0.015</i>
Expenditure	0.3797 <i>0.000</i>	0.0411 <i>0.320</i>
Scale economies	0.0261 <i>0.409</i>	0.0383 <i>0.114</i>
Trade costs	0.0003 <i>0.142</i>	0.0003 <i>0.047</i>
Linkages	0.0417 <i>0.428</i>	-0.0299 <i>0.349</i>
Trend	-0.0008 <i>0.250</i>	
Dummy 1993		-0.0026 <i>0.014</i>
Industry dummy ¹	0.0093 <i>0.000</i>	0.0049 <i>0.010</i>
Constant	0.0646 <i>0.000</i>	0.1186 <i>0.000</i>
Wald-chi (square)	127.49	53.06
Probchi (square)	0.00	0.00
Number of observations	104	104

¹ In the first regression for the electronics industry, in the second regression for the leather industry. p-values in italics.

capital deviates less from the average. The results again suggest pronounced differences between the absolute concentration in output and in employment. Output concentration is driven primarily by absolute expenditure, i.e. the home market effect matters, as might backward linkages. Scale economies, inputs from the same industry (forward linkages) and transport costs do not turn out to be significantly related to concentration. Again, electrical equipment accounts to a large extent for increases in output concentration due to the fact that this industry has become very concentrated in Hungary. Because Hungary is among the larger economies in the region, the relative and absolute concentration have both increased significantly.

From our descriptive analysis we know that the concentration of employment has in general risen, with some exceptions (wood, textiles, machinery, metals). Not surprisingly, this development results from increased concentration in labor-intensive industries, notably so in the leather industry. Our observation that formerly strongly concentrated industries were the ones which experienced decreases in concentration levels turns out to be a significant trend, as the significant coefficient on the dummy variable for 1993 in the second column of table 2 indicates. It is interesting to note that the location of demand (i.e. the concentration of demand for a certain industry's output in one or a few countries) has no influence on employment patterns, while trade costs show up with a weakly significant positive sign.

4.3 Developments in Individual Industries

Let us now turn to developments in individual industries. By calculating our concentration indices, all country-specific information is lost through averaging. To avoid this, it seems appropriate to take a closer look at specialization patterns of individual industries across countries. Thus, for each industry we now use a panel of all ten countries from 1993 to 2000. The dependent variable we look at is each country's share of output in the respective industry's total output in CEECs. We control for country size by including total manufacturing output on the right-hand side. Because of severe endogeneity problems we did not use a measure reflecting the labor abundance of each country.

Human capital is captured by the wage differential in the respective industry to the average wage level in each country. Under the assumption that qualified labor receives a higher wage than unskilled labor, those industries which require a higher share of skilled workers in production (i.e. human capital-intensive industries) should show a higher wage level than those with a less skilled (average) labor force. Consequently, we expect a positive coefficient on this variable for human capital-intensive industries (i.e. electronics, chemicals, etc.), as these industries would locate where human capital is abundant.

Technological differences are expressed through industry- and country-specific productivity levels. FDI also enters in the same way. We further included the share of exports to the EU over total exports as well as the import share from the EU to account for the amount of trade reorientation. As outlined before, the transition from communist to market economies implied a rapid and substantial reorientation of trade flows away from Eastern European partners and CIS countries toward the EU-15. This is likely to have had an impact also on location decisions of firms, albeit a different one in different industries.

Table 3 presents the results obtained from a fixed effects, two-way error component regression for the industries where we observed the greatest changes in absolute or relative concentration measures in section 2. Table 4 reports the results for all remaining industries. The results are well in line with our descriptive results: Country size does not matter for the industries with a high degree of relative concentration, such as electronics, wood, transport and leather. The first striking observation from both tables is that differences in productivity levels are the most important determinant for the location of industries across countries. The variable for technological differences is always highly significant, with the exception of the food industry.

Table 3

Regression Results for Individual Industries (I)						
	Wood industry	Pulp and paper industry	Coke and petroleum	Rubber and plastics industry	Mineral products	Electronics
FDI	0.0001 <i>0.510</i>	-0.0003 <i>0.208</i>	0.0001 <i>0.134</i>	0.0003 <i>0.170</i>	0.0003 <i>0.000</i>	0.0004 <i>0.002</i>
Technological differences	1.4244 <i>0.002</i>	1.3392 <i>0.000</i>	0.4859 <i>0.000</i>	1.5024 <i>0.000</i>	0.7207 <i>0.000</i>	1.7903 <i>0.000</i>
Human capital intensity	1.8368 <i>0.027</i>	0.0580 <i>0.803</i>	0.2672 <i>0.275</i>	-0.6783 <i>0.257</i>	0.6818 <i>0.039</i>	-0.6724 <i>0.223</i>
Size	3.80E-07 <i>0.238</i>	9.33E-07 <i>0.000</i>	6.06E-07 <i>0.001</i>	1.03E-06 <i>0.001</i>	3.60E-07 <i>0.004</i>	2.46E-07 <i>0.395</i>
Exports to the EU	0.7447 <i>0.009</i>	-0.9382 <i>0.000</i>	0.0971 <i>0.179</i>	-0.2721 <i>0.482</i>	0.0095 <i>0.971</i>	0.8800 <i>0.005</i>
Imports from the EU	-0.9166 <i>0.004</i>	0.3661 <i>0.267</i>	-0.1747 <i>0.178</i>	-0.4321 <i>0.198</i>	-0.2741 <i>0.221</i>	-0.6022 <i>0.066</i>
Constant	-5.3850 <i>0.000</i>	-4.8781 <i>0.000</i>	-4.4336 <i>0.000</i>	-5.0096 <i>0.000</i>	-4.3909 <i>0.000</i>	-4.5327 <i>0.000</i>
R (square)	0.584	0.604	0.628	0.803	0.687	0.813
Number of observations	80	80	80	79	80	80

Note: Year dummies are included.
p-values in italics.

When looking at the industries that experienced the strongest increases in concentration (or decrease in the case of chemicals), we find a rather diverse picture. It is surprising to note that relative human capital levels have no significant impact on concentration in the electronics industry, while they show a positive effect on concentration tendencies in the wood and mineral products industries. FDI plays a strong role in only two industries: electronics and mineral products, which have both become more concentrated in absolute terms. Not surprisingly, this increase in concentration in the electronics industry has occurred along with a reorientation of exports toward the EU-15. The export orientation toward the EU turns out to be highly significant in three out of the six industries. It increases concentration tendencies in the electronics and the wood industries, while the correlation is negative for the paper and printing industry. The share of EU imports is hardly ever significant, and if it is, its sign is opposed to that of EU exports. This hints toward interindustry trade, where inputs are sourced from one country and output is sold to another. This observation may reveal a successful price competition of CEECs in those industries that turn out to be highly concentrated. It is conceivable that inputs are purchased from other Eastern European partners or also from (Central or East) Asia at relatively low costs due to lower wages, while final products are sold into the EU-15 market, where higher prices can be achieved.

Table 4

Regression Results for Individual Industries (II)

	Food and beverages	Textile industry	Leather industry	Machinery	Transport equipment
FDI	4.48E-05 <i>0.174</i>	-5.47E-04 <i>0.212</i>	6.30E-03 <i>0.085</i>	2.80E-04 <i>0.097</i>	1.48E-04 <i>0.098</i>
Technological differences	0.0457 <i>0.587</i>	2.7136 <i>0.000</i>	2.7764 <i>0.000</i>	1.5095 <i>0.000</i>	0.6926 <i>0.000</i>
Human capital intensity	-0.4249 <i>0.16</i>	1.0287 <i>0.080</i>	-0.2006 <i>0.824</i>	-0.2237 <i>0.412</i>	1.2886 <i>0.010</i>
Size	2.11E-07 <i>0.102</i>	5.92E-07 <i>0.001</i>	-1.16E-07 <i>0.572</i>	8.39E-07 <i>0.000</i>	6.32E-08 <i>0.824</i>
Exports to the EU	-0.4619 <i>0.020</i>	-0.2887 <i>0.406</i>	-0.2948 <i>0.149</i>	0.2198 <i>0.132</i>	-0.1172 <i>0.327</i>
Imports from the EU	0.0113 <i>0.907</i>	0.3125 <i>0.391</i>	0.2684 <i>0.191</i>	-0.2884 <i>0.028</i>	-0.2547 <i>0.201</i>
Constant	-2.6179 <i>0.000</i>	-5.4225 <i>0.000</i>	-3.8522 <i>0.000</i>	-4.3637 <i>0.000</i>	-5.0504 <i>0.000</i>
R (square)	0.204	0.584	0.675	0.735	0.699
Number of observations	80	80	80	80	80

Note: Year dummies are included.
p-values in italics.

Among the industries which experienced more modest changes in their concentration patterns (table 4), FDI induced concentration in the leather, machinery and transport industries. However, the coefficients are only weakly significant. Human capital plays a significant role in textiles and transport equipment, and EU export orientation is never significant (with the exception of the food industry). This is an interesting observation in contrast to table 3: Exports to the EU turned out to be a determining factor in many of those industries that experienced strong increases in concentration. Trade reorientation toward Western Europe has increased concentration, which implies that integration into those markets has a strong impact on industrial restructuring in the CEECs.

Thus, there are differences across industries with respect to the factors that determine industrial location patterns. Apart from the general importance of having an appropriate technology level, expressed here by productivity levels, some industries locate where they find high human capital levels, while others are attracted by high FDI stocks. Export orientation toward the EU always accompanies high concentration levels. Thus, the amount of trade reorientation toward the West clearly had a positive impact on the location of industry in Eastern Europe.

5 Conclusions

The aim of this paper was to shed new light on the determinants of the patterns of regional concentration and specialization in CEECs. Central and Eastern European countries have experienced a massive reallocation of production and the labor force, which strongly affected the patterns of regional concentration of manufacturing firms. If we compare the beginning and the end of our time series, we find that concentration – both in terms of production and employment – generally increased in the CEECs. This is in clear contrast to the trend inside the EU-15 during the same period. However, the recent deconcentration of industrial activity in Western Europe was preceded by a rise in

concentration in the pre-single market period from 1985 to 1992, albeit to a lesser degree than observed for CEECs. This suggests that economic integration initially induces a more efficient allocation of resources with an increase in concentration as predicted by traditional trade theories. However, ongoing economic integration will bring about higher factor mobility (especially for capital) and technology spillovers, thus eroding traditional Ricardian or Heckscher-Ohlin factors. This leads to a stronger role for intraindustry trade with a consequent decline in concentration patterns and less pronounced specialization of individual countries. The deepening of integration among the EU-15 and CEE (and consequently also among individual CEECs) following these countries' joining the common market thus leads us to expect a turning point in the concentration trends observed up to date. In the medium term, concentration of industrial activity inside CEECs is expected to decrease rather than increase further, along with an increased role for intraindustry trade. This view is based on the expectation that technology spillovers between Western and Eastern Europe are going to gain in scale and scope. Further, investment ratios (and especially foreign investment) are already higher in the new Member States than in incumbent members. FDI has been identified as one of the important determinants in shaping the industrial landscape in CEECs.

In our attempt to identify the driving forces behind the patterns of concentration in the CEECs, we referred to traditional and new trade theory as well as to the new economic geography models. We used a data set for ten Central and Eastern European countries and thirteen industries covering the period from 1993 to 2000. To explain the location of manufacturing activities in the CEECs, we used a random effects model employing an instrumental variables estimator proposed by Hausman and Taylor (1991) and two different measures of geographical concentration (relative and absolute concentration) as well as two measures of the size of an industry (production and employment).

Our results for relative concentration showed that relative concentration is strongly influenced by comparative advantages and by the location of demand and of FDI. However, we identified some differences between the relative concentration of output and employment: While the former is more strongly affected by expenditure patterns, the latter is driven by technological differences. We found that variables reflecting new economic geography models had very little impact on the evolution of concentration patterns in the CEECs. Furthermore, the electronics industry, probably the most typical high-skill, high-tech industry in this classification, accounts to a large extent for the strong increase in output concentration, while a typical labor-intensive, low-tech industry (namely leather) strongly influenced concentration in the location of the labor force.

In contrast to the determinants of relative concentration, our results provided support for the argument that absolute concentration was crucially driven by differences in human capital. Differences can again be found between the results of absolute concentration of output and of employment. Once again, the absolute concentration of production was mainly influenced by absolute expenditure. As was already the case for relative concentration, scale economies, forward linkages and transport costs had no significant impact on absolute concentration either.

In a further step we investigated the location of industries across CEECs by closely looking at specialization patterns inside individual industries. In doing so, we tried to explain the location of industries across countries. Our results suggest that differences in productivity levels – and thus traditional Ricardian factors – are the determining factor for a country’s share of output in the respective industry’s total output, whereas the influence of FDI was only important for two industries. The same applied to export orientation toward the EU, which plays a role in just a few industries. Thus, while FDI had a significant impact on relative concentration in production, its influence was confined to two industries, electronics and minerals. The concentration of the electronics industry in Hungary was certainly policy driven to a great extent. FDI was attracted to Hungary by distinct policies and a general attitude toward early and comprehensive capital market liberalization. The concentration of the mineral industry in Poland is more likely to be connected to the general importance of the construction industry in this country.²¹

As a prerequisite for accession, Central and Eastern European countries need to ensure the capacity to withstand competitive pressure and market forces within the European Union. In this respect, the question of the evolution of concentration and specialization patterns is highly relevant, e.g. countries are expected to specialize according to their comparative advantages. In this paper we provide some evidence that this development could be observed during the 1990s. Differences in productivity levels, which are themselves an expression of underlying differences in technology levels, have to date shaped the location of different industries in Eastern Europe. The accession to the EU of eight out of the ten countries that are included in this study is bringing about major institutional shifts in those countries and in their relations to incumbent Member States. These changes are expected to have implications on the factors that drive localization patterns, such as FDI flows, technology and technological spillovers, wage levels, etc. Consequently, in contrast to past developments, a turning point in the observed pattern of increasing concentration can be expected to occur in the near future. Along the same lines, it can be said that leaving out some countries would most likely help to reinforce existing differences in technology levels with consequent long-lasting effects on the industrial landscape in Eastern Europe. A distinct specialization pattern between “ins” (high-tech, high-skill production) and “outs” (labor-intensive, low-tech) can be expected to develop. The envisaged accession of the two Southeastern European countries Bulgaria and Romania as early as in 2007 is certainly to be welcomed and may in the longer term induce an upgrading of production structures away from the current specialization in labor-intensive industries toward more sophisticated activities with a higher long-term growth potential. This would then also lead to a more homogeneous production structure in the whole of Europe. All these predictions are at the moment speculative. However, similar developments were also observed in Western Europe.

In this paper, we tried to shed some light on the determinants of the ongoing concentration and specialization processes in the Central and Eastern European countries and to indicate existing differences between individual countries and

²¹ *The importance of construction in Poland also shows up in its service trade balance with Austria.*

industries. For forthcoming research, and given the altered political landscape in Europe from 2004 onward, it would be interesting to integrate CEECs into a wider European context. Future research should certainly look at the EU-25 rather than analyze CEECs separately in order to give a comprehensive picture of the evolution of specialization and concentration patterns of incumbent and new members. Our study can serve as a basis for future studies by giving a good picture of the CEECs' industrial structures prior to accession.

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Appendix

Table 1

Ranking of Absolute Concentration Indices (Production)

for the years 1993 and 2000

Industry	1993		2000	
	Rank	Index	Rank	Index
Wood and wood products	1	0.1599	6	0.1636
Food, beverages, tobacco	2	0.1553	5	0.1643
Rubber and plastic products	3	0.1535	1	0.1678
Transport equipment	4	0.1523	7	0.1558
Pulp, paper and paper products	5	0.1495	4	0.1650
Mineral products (nonmetallic)	6	0.1491	3	0.1659
Coke, petroleum, manufacturing n.e.c.	7	0.1485	9	0.1489
Textiles and textile products	8	0.1483	13	0.1386
Basic and fabricated metals	9	0.1442	10	0.1476
Machinery and equipment n.e.c.	10	0.1423	8	0.1491
Electrical and optical equipment	11	0.1408	2	0.1664
Chemicals and chemical products	12	0.1378	11	0.1460
Leather and leather products	13	0.1356	12	0.1422

Source: *wiiw, OeNB.*

Table 2

Ranking of Relative Concentration Indices (Production)

for the years 1993 and 2000

Industry	1993		2000	
	Rank	Index	Rank	Index
Transport equipment	1	0.0315	4	0.0376
Wood and wood products	2	0.0298	2	0.0506
Leather and leather products	3	0.0290	3	0.0407
Chemicals and chemical products	4	0.0246	13	0.0129
Basic and fabricated metals	5	0.0244	8	0.0302
Machinery and equipment n.e.c.	6	0.0222	12	0.0275
Pulp, paper and paper products	7	0.0206	10	0.0296
Electrical and optical equipment	8	0.0202	1	0.0931
Food, beverages, tobacco	9	0.0198	9	0.0298
Rubber and plastic products	10	0.0185	11	0.0284
Coke, petroleum, manufacturing n.e.c.	11	0.0182	7	0.0307
Mineral products (nonmetallic)	12	0.0156	5	0.0329
Textiles and textile products	13	0.0151	6	0.0310

Source: *wiiw, OeNB.*

Table 3

Ranking of Absolute Concentration Indices (Employment)

for the years 1993 and 2000

Industry	1993		2000	
	Rank	Index	Rank	Index
Transport equipment	1	0.1500	1	0.1532
Food, beverages, tobacco	2	0.1453	5	0.1483
Textiles and textile products	3	0.1441	11	0.1385
Basic and fabricated metals	4	0.1435	8	0.1413
Machinery and equipment n.e.c.	5	0.1426	12	0.1371
Wood and wood products	6	0.1426	10	0.1388
Rubber and plastic products	7	0.1416	2	0.1517
Mineral products (nonmetallic)	8	0.1410	4	0.1486
Chemicals and chemical products	9	0.1391	9	0.1405
Coke, petroleum, manufacturing n.e.c.	10	0.1371	6	0.1471
Leather and leather products	11	0.1362	3	0.1489
Pulp, paper and paper products	12	0.1317	7	0.1418
Electrical and optical equipment	13	0.1232	13	0.1326

Source: *wiiw*, OeNB.

Table 4

Ranking of Relative Concentration Indices (Employment)

for the years 1993 and 2000

Industry	1993		2000	
	Rank	Index	Rank	Index
Food, beverages, tobacco	1	0.0407	7	0.0334
Coke, petroleum, manufacturing n.e.c.	2	0.0360	12	0.0195
Electrical and optical equipment	3	0.0308	2	0.0549
Pulp, paper and paper products	4	0.0286	6	0.0342
Wood and wood products	5	0.0246	5	0.0348
Machinery and equipment n.e.c.	6	0.0225	10	0.0212
Rubber and plastic products	7	0.0217	4	0.0388
Basic and fabricated metals	8	0.0216	9	0.0237
Textiles and textile products	9	0.0210	3	0.0431
Transport equipment	10	0.0205	8	0.0294
Leather and leather products	11	0.0183	1	0.0695
Chemicals and chemical products	12	0.0140	13	0.0120
Mineral products (nonmetallic)	13	0.0124	11	0.0197

Source: *wiiw*, OeNB.

Employment and Labor Market Flexibility in the New EU Member States

Thomas Gruber¹

On May 1, 2004, ten new Member States (NMS) entered the European Union (EU). Since the NMS are still in the midst of a transition and catching-up process, not only will they face asymmetric shocks, but these shocks will be largely uncorrelated with those prevailing in EMU. Upon EU accession the NMS also entered the monetary integration process, which ends with the adoption of the euro. This implies that the NMS will relinquish autonomy over monetary policy and exercise restrictions on fiscal policy. According to optimum currency area theory, in the absence of a national monetary policy flexible labor markets become central to accommodating idiosyncratic shocks. This paper takes a look at the labor markets in the NMS, focusing especially on labor market flexibility. The analysis shows higher labor cost flexibility in the NMS than in the EU in general. Supply-side flexibility, notably occupational and regional mobility, seems to be lower. However, overall flexibility seems to be small or even insignificant. Thus, the paper suggests that the NMS have to make further efforts to enhance labor market flexibility, especially improving regional mobility and applying active labor market policies. With a view to further monetary integration, early participation in the euro area may not be the optimal choice for some of the NMS.

1 Introduction

On May 1, 2004, ten new Member States entered the European Union (EU): eight Central and Eastern European countries (CEECs) and the two Mediterranean islands Cyprus and Malta. From the very first day of accession, the monetary integration process toward the adoption of the euro will take place in three subsequent steps. In a first step, upon entering the European Union, the new Member States become members of Economic and Monetary Union (EMU) as “members with a derogation.” This means that after joining the EU, the new Member States (NMS) will not take part in EMU to the full extent, as they cannot immediately join the euro area. Nonetheless, they are required to observe a number of obligations embodied in the EMU architecture. Thus, the NMS have to bring their economic and monetary policies in line with the overall goals of EMU, and they are obliged to pursue the adoption of the euro as a goal to which their policies have to be oriented. Moreover, they must treat their exchange rate policies as a matter of common interest, as the functioning of the single market must not be weakened by real exchange rate misalignments or excessive nominal exchange rate fluctuations. The second step is participation in the exchange rate mechanism, ERM II. During this stage, the NMS have to fulfill, *inter alia*, the convergence criterion on the exchange rate so that they will be able to adopt the euro and participate in the euro area in a third step marking the final stage of monetary integration.

The degree of freedom for national monetary policymaking will decrease step by step and will be fully relinquished upon entry into the third stage of monetary integration. At the same time the NMS still have to complete their transition and long-term catching-up process and therefore may face asymmetric shocks (see Égert et al., 2003). Empirical evidence (Horvath, 2002) suggests substantial asymmetries of shocks between the EU and the NMS. Participation in the euro area entails, in general, certain costs and risks once countries can no longer use an independent monetary policy to accommodate adverse (asymmetric exogenous) shocks. Against this background and in the absence of national monetary policy standards, the optimum currency area theory (Mundell, 1961) outlines the importance of flexible labor and goods markets

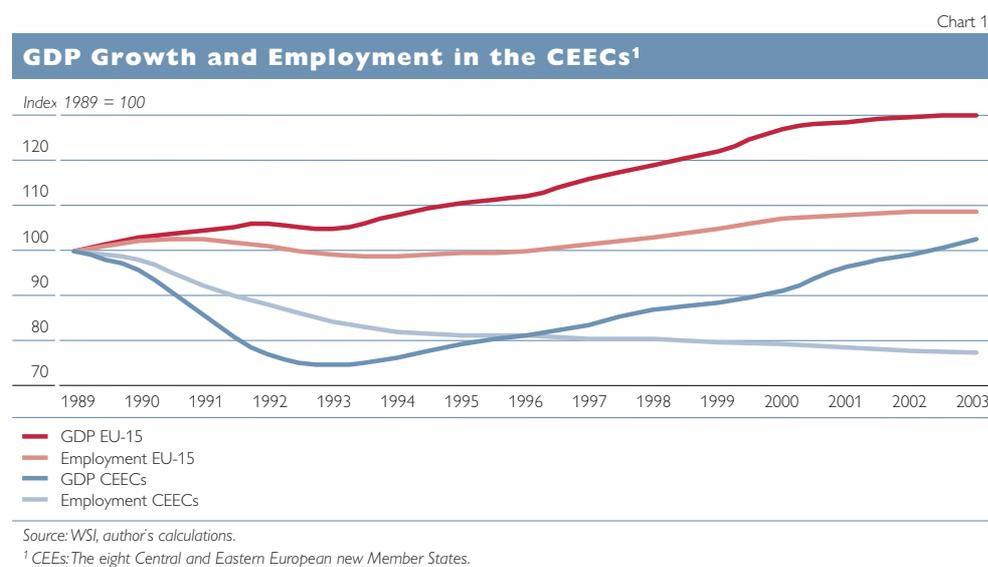
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that a country requires to adjust to idiosyncratic shocks. Since the degree of freedom for independent monetary policymaking is affected immediately upon accession, the subject of flexible labor markets is of vital interest.

This paper therefore takes a look at labor market developments and labor market flexibility in the NMS, with a special focus on the countries in Central Europe.² The labor market developments and situations of the NMS are compared with those of the other Member States.

2 Labor Market Developments

The early years of transition were characterized by declining real output attributable to several factors, such as the tremendous and sudden slump in trade with Russia, inherited economic structures typical of a planned economy, mass privatization and the like. As GDP declined, so did employment. It followed that in many countries unemployment quickly rose to double-digit levels. In 1993–94 GDP started to pick up when growth turned positive. With some exceptions, the NMS have seen a period of high GDP growth since then. However, despite strong GDP growth, *employment* has continued to decline on average in the whole region (see chart 1), reflecting high productivity growth partly stemming from huge inflows of foreign direct investment (FDI).³



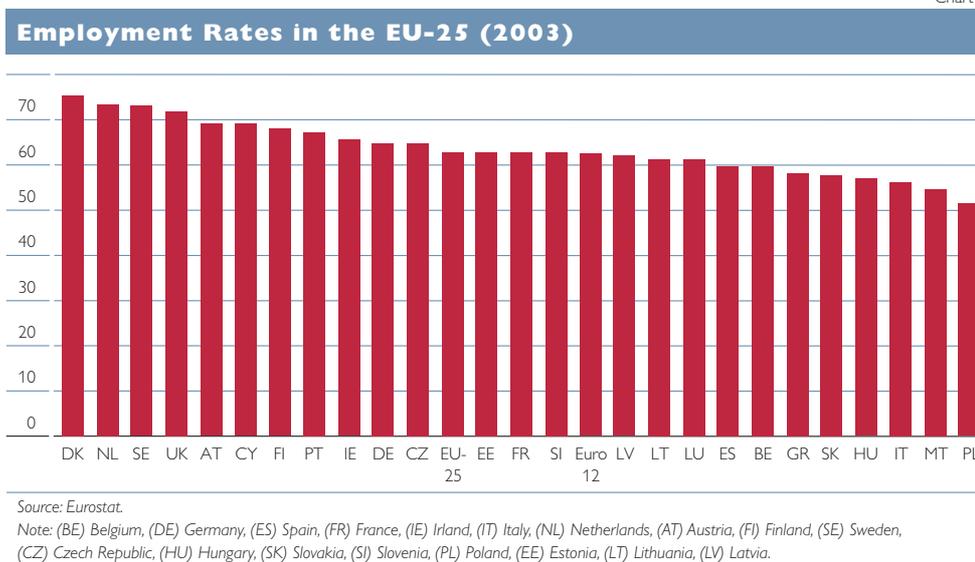
Today's average employment rate of 55.8% in the NMS is well below the euro area average of 62.4%. But employment rates among the NMS differ markedly. In the Czech Republic and in Slovenia the employment rate is above euro area average at 64.7% and 62.6%, respectively. Hungary and the Slovak Republic, by contrast, have employment rates of around 55%, whereas in Poland only around half of the working age population is employed (see chart 2).

² The Czech Republic, Hungary, the Slovak Republic, Slovenia and Poland.

³ High inflows of foreign direct investment mainly from Germany, Austria, the Netherlands and France as well as new private ownership introduced new technologies aimed at raising labor productivity and hence contributed to decreasing overall employment figures. Nonetheless, FDI also created new and more competitive jobs in many industries. Most of the FDI was directed toward manufacturing (almost 40% of all FDI in the NMS), followed by foreign investments in the banking sector (18%), trade and retail (14%), transport and communications (10%) and real estate (9%) (WIFO database, OeNB).

Among the NMS only Hungary has posted positive employment growth in the last years (on average). But the Slovak Republic also showed strong employment growth in 2003. Overall, there are signs that the contraction of employment has bottomed out and that in the near future we may see positive employment growth in the NMS on average. It has to be noted that much of the decrease in overall employment is attributable to the development in Poland. Looking at the other NMS reveals that employment in the NMS-4 (the Czech Republic, Hungary, the Slovak Republic and Slovenia) has started to increase slightly since 2000, while at the same time it has continued to fall significantly in Poland, thus (due to the size of Poland) leading to an overall decline in employment in the NMS-5. Nonetheless, 2003 was marked by a relatively stable employment development. The decline in 2003 was only marginal in Poland, the Czech Republic and Slovenia and was almost offset by increases in Hungary and the Slovak Republic.

Chart 2



It is important to stress that the difference in employment rates between the NMS and the European Union as a whole is less pronounced when considering employment rates in full-time equivalent (FTE) terms. Since people in the NMS work longer hours on average than people in the other EU Member States and since there is very little part-time employment in the NMS, the FTE employment rate in the European Union is only about 58.7% compared to 55% in the NMS.

Part-time employment arrangements are not yet very common in the NMS. Part-time employment in the Slovak Republic is only about 2.4%. In the Czech Republic, Slovenia and Hungary this rate is around 5%, and in Poland every tenth person is working part-time. Conversely, in the euro area 17% of total employment is on a part-time basis. And while part-time work increased by 13% in the euro area between 1997 and 2003, the average growth rate in part-time employment in the NMS has been slightly negative since 1997.

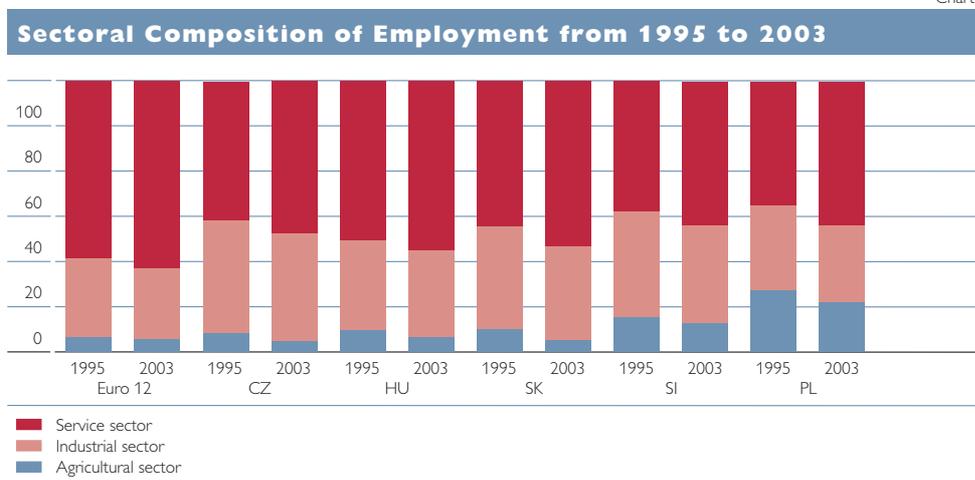
Self-employment is significantly higher in the NMS on average than in the euro area. However, the development of self-employment varies across the

NMS. In the Slovak Republic and in the Czech Republic self-employment is increasing continuously and markedly both in absolute terms and in percent of total employment. In 2003, 10.2% of the workforce in the Slovak Republic and 17.1% in the Czech Republic were self-employed. By contrast, in Slovenia (16.9%) and Hungary (13.2%) self-employment is decreasing both in percent of total employment and in absolute terms. In Poland, however, although growth in self-employment is negative in line with the general negative trend in the labor market, the share of self-employment in total employment has remained stable over the past years and has hovered around 27.5%, which is by far the highest rate within the EU-25. This high self-employment rate is mainly due to the high share of agricultural employment.

Since the beginning of the transition process the NMS have seen a pronounced shift in the *sectoral composition of employment*. The share of employment in the industrial and in particular in the agricultural sector declined sharply and has thus led to increasing shares of employment in the service sector. But a closer look at how the sectoral shifts took place in the various NMS provides some interesting insights. The ways in which these sectoral shifts were achieved vary significantly across the NMS. Hungary, for instance, has managed to create more than 300,000 new jobs in the service sector since 1997, while the losses in the other two sectors totaled no more than 65,000 jobs. Thus employment rose on balance. The development in Poland is completely different. Poland has faced job losses in all three sectors. The share of service-sector employment increased from 47.5% in 1997 to 53% in 2003 only because job losses in the other two sectors were accordingly higher. In Slovenia the number of jobs lost in the primary and secondary sectors equals the number of new jobs in the service sector. The Czech Republic and even more so the Slovak Republic succeeded in creating new employment in the tertiary sector but faced higher losses in industry and agriculture, which led to a decline in employment and further boosted the share of the service sector in the overall composition.

For the NMS as a whole it can be concluded that the notable increase in service employment could not offset the sharp decline in employment in the industrial and agricultural sectors.

Chart 3



Source: Eurostat, author's calculations.

Note: Country abbreviations are listed in the note to chart 2.

Although there has been a rather pronounced shift in the sectoral composition of employment, the employment share of the service sectors in the NMS is still far below the euro area average. In terms of employment and compared to Western European standards, enterprise-related services, social and financial services, and tourism are still very underdeveloped.

On the other hand, the share in industrial employment is still significantly higher in the NMS than in the euro area. In the primary sector the employment share in the Slovak Republic, Hungary and the Czech Republic has already declined nearly to the euro area level, whereas in Slovenia it still stands at 10.7% and in Poland even at 18.4%.

All in all, substantial economic reallocation within the sectors has yet to come about hand in hand with further pronounced shifts in the sectoral composition of employment and possibly short- and medium-term negative effects on employment growth and unemployment.

It is a matter of concern that the job opportunities for *young people* are scarce throughout the NMS and are becoming even scarcer. In recent years employment of persons aged 15 to 24 has declined in absolute terms and as a percentage of the respective population. In Hungary, where overall employment had been increasing over the past years, youth employment levels have declined. On average the youth employment rate in the NMS is about 24% compared to the euro area, where the rate is nearly 38%. This would be less of a problem if instead educational attainment were high. But educational attainment of the respective age group in the NMS is on average even lower than in the euro area (European Commission, 2002).

In most NMS the situation of *people aged 55 and older* is not much better, although – with the exception of Poland – the employment rate of this age group is continuously increasing in the NMS. However, employment rate figures in the NMS for this age cohort exhibit a wide spread ranging from 23.5% in Slovenia to 42% in the Czech Republic. By comparison, the average employment rate of this age group in the euro area is also continuously increasing and currently stands at about 38%.

Looking at employment data broken down by *gender* reveals that in principle, conditions in the NMS are similar to those in the old Member States, that is women face more disadvantages and discrimination on the labor market than men, higher unemployment, youth unemployment and long-term unemployment rates. At the same time, relatively fewer women participate in the labor market, although the differences in employment rates between women and men are less pronounced in the NMS than in the rest of the EU. Finally, more women work part-time than men in both the NMS and the EU, though in the NMS part-time work is more equally distributed between sexes. In the NMS three out of five part-time jobs are held by women, whereas in the EU the ratio is four out of five.

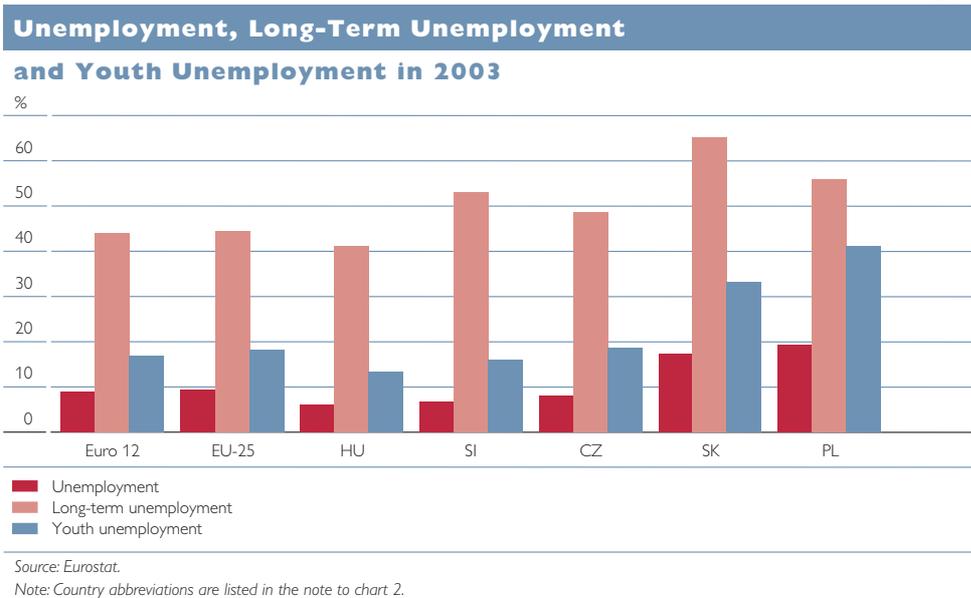
The decline in employment resulted in a rise in unemployment and at the same time in a decrease in labor market participation, thus leading to a drop in the activity rate. The latter smoothed unemployment levels, increasing the problem of hidden unemployment. However, the activity rates in some NMS have already reached a kind of threshold level (Schuettepelz, 2003), so that a further reduction in employment would result in higher unemployment. The level

and development of *unemployment* (based on labor force surveys) vary substantially across the NMS, ranging from 5.8% in Hungary to 19.2% in Poland, where unemployment almost doubled from 1997. As chart 4 shows, unemployment in the Czech Republic and Slovenia is also below the EU and euro area average.

Much of the unemployment is *long-term unemployment*, which accounts for more than half of total unemployment. In the Slovak Republic long-term unemployment even comes to about 65%. High long-term unemployment in the NMS indicates a higher and stronger persistence of unemployment than in the rest of the EU.

Another problem is *youth unemployment* among people aged 15 to 24, which averages nearly 32% in the NMS as a whole. This is double the euro area average. However, this high youth unemployment is only attributable to unfavorable figures in Poland and in the Slovak Republic, where the youth unemployment rates are 41% and 33%, respectively. In the other NMS, youth unemployment rates are clearly below the euro area average.

Chart 4



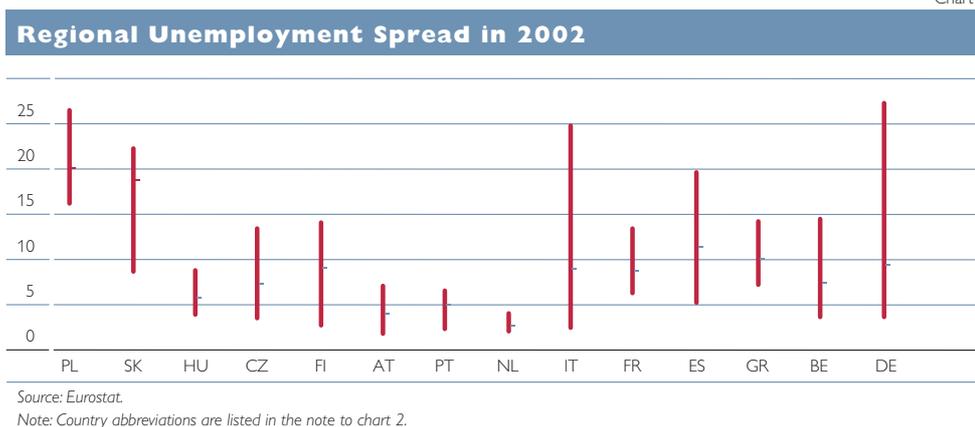
Unemployment data also vary considerably across *regions* (see chart 5). The regional mismatch is high in some of the NMS, such as in the Czech Republic and the Slovak Republic,⁴ whereas in Poland, high unemployment seems to be more equally distributed (when the difference is measured in percent).

Large regional disparities are reflected by the regional distribution of FDI, large income differentials and labor market situations. Economic activities are concentrated in the western parts of each country, reflecting the distribution of economic power across Europe. The peripheral and rural regions exhibit deficiencies in infrastructure (traffic, education) and a lack of innovation networks (Schuettpelz, 2003), which lowers the potential for economic modern-

⁴ The high regional differences in unemployment in the Slovak Republic (and to a certain extent in the Czech Republic) may be explained partly by discrimination against the Roma (see *Monitoring Reports by the European Commission of November 2003*), who represent up to 10% of the Slovak population. The Roma live mainly in the poorest rural regions and are practically excluded from the labor market in many places (see press release of March 2003, European Roma Information Office).

ization in these regions. It may be assumed that the regional disparities will increase (European Commission, 2002), since further industrial restructuring and reallocation will boost unemployment in rural and traditional industrial areas and at the same time increase employment in larger cities with a fast-developing service sector (Schuettpelz, 2003).

Chart 5



To sum it up, the NMS have observed tremendous development on the labor markets, from full employment before 1989 to partial mass unemployment and continuously declining employment figures. Nonetheless, in some NMS employment growth has gained some momentum and is now on the threshold of turning positive. Looking at unemployment data reveals a diverse picture among the NMS. While unemployment is extremely high in Poland and the Slovak Republic (and to some extent in the Baltic countries), unemployment rates in the other NMS are at or below the EU average. Looking at employment rates, with the exception of the Czech Republic and Slovenia, employment rates in the NMS are below 60% and in Poland come to only 51%. The difference is less pronounced when comparing FTE employment rates between the NMS and the European Union. However, in the NMS significantly fewer people are involved in the production process, with all the negative consequences this has for society and income distribution.

Future restructuring of the labor market following structural changes in the NMS may even worsen this situation. Since the NMS still have to complete their transition process, the structural changes will have a greater impact than in the rest of the European Union. Structural change will lead to further shifts in the sectoral composition, both between and across sectors. In addition, regional disparities are likely to increase. Both structural change and labor market restructuring require a flexible workforce in terms of occupational and regional mobility to prevent negative effects on the labor market, i.e. an increase in unemployment.

3 Labor Market Flexibility

In line with the *acquis communautaire*, the NMS are obliged to strive for euro area membership, which in most of the NMS could occur between 2006 and 2010. As was the case for the current euro area members, the adoption of the euro in the NMS and the relinquishment of autonomy over independent

monetary and exchange rate policy will put much pressure on the labor markets to adapt to economic developments. In the absence of price and wage flexibility, and as a result of the lack of occupational and regional mobility, the likelihood increases that such shocks will affect the labor market. The accession to ERM II will already enhance the importance of labor market adjustability, meaning that the labor market will have to be able to absorb possible shocks or adapt to major economic changes. Although the bandwidths are relatively broad so that major repercussions on the labor markets are not to be expected (Huber et al., 2002), compliance with the Maastricht criteria is certainly more of an issue for labor market flexibility, especially compliance with the exchange rate criterion. According to the optimum currency area theory, the more flexible wages are and the more occupational and regional mobility production factors exhibit, the lower the need for exchange rate adjustments is.

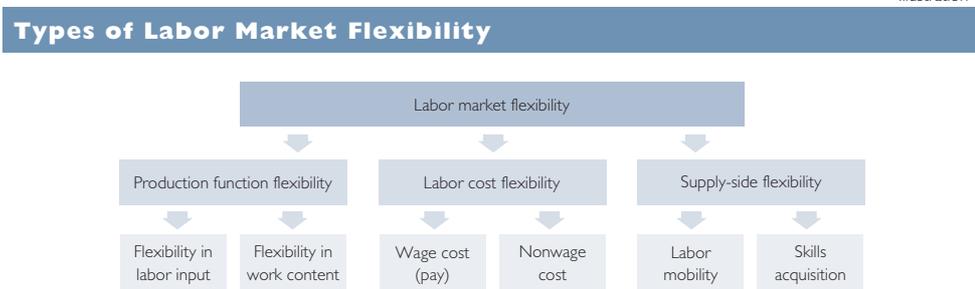
How efficiently labor markets facilitate the adjustment to asymmetric shocks depends on the specific labor market structures. In order to operate as a “shock absorber,” the labor market should be sufficiently flexible. This indeed represents the core of a problem, since “sufficiently flexible” cannot be defined clearly. According to Monastiriotis (2003), if labor market flexibility is defined as the extent to which profit- and utility-maximizing labor market forces determine labor market outcomes, it follows that in a totally flexible labor market there are no institutional, political, cultural or other impediments. In reality, however, such impediments do of course exist. The most prominent ones are labor market regulations. The purpose of such regulations is to organize the operation of the labor market and to establish commonly accepted rules from which both employees and employers should benefit. In addition, labor market regulations aim at neutralizing the impact of other sources of labor market rigidity, e.g. the existence of market power exercised by firms or some types of labor monopoly power (e.g. an insider-outsider situation), which produces inflexibilities and suboptimal outcomes for employment, output, prices and wages. Therefore, one cannot simply equate labor market deregulation with labor market flexibility. Deregulation is neither a sufficient nor a necessary condition for flexibility (Monastiriotis, 2003). Many other measures supporting labor market flexibility come to mind, such as education and training or the promotion of regional mobility.

The degree of labor market flexibility is particularly difficult to assess or quantify. Neither a generally accepted taxonomy for classifying economies into different (labor market-specific) institutional groupings nor a scale to measure the distance between these institutional settings is available. However, as Riboud et al. (2002) pointed out, “it is nevertheless possible to take into consideration a set of indicators and classify countries on the basis of existing knowledge of the policy relevance of these indicators.” In this context, several indicators may be useful, such as the degree of labor turnover, the strictness of employment protection legislation, unemployment benefit replacement ratios, the centralization of wage bargaining, the level of minimum wages, the flexibility of nominal wages, union density or the coverage of collective agreements.

Illustration 1 represents a typology of labor market flexibility indicators. Here, labor market flexibility is composed of three subtypes of flexibility: production function, labor cost and supply-side flexibility. In this model, produc-

tion function flexibility splits up on the one hand into flexibility in labor input, e.g. flexible working hours, shift work, the use of overtime, employment protection, and on the other hand into flexibility in work content, which relates to multitasking or broadened job definitions. The second group is broken down into wage cost flexibility and nonwage cost flexibility. Finally, the third group is divided into labor mobility (occupational and regional mobility) and skills acquisition, which is the stock of human capital and the flexibility in worker training, including e.g. active labor market policies. The types of labor market flexibility considered here and their arrangements and composition are not exclusive. Rather, significant overlapping exists among these various types. However, these types and groupings serve to facilitate the organization of the analysis.

Illustration 1



Source: Monastiriotis (2003).

The literature describes indices that have been developed to measure the various types of flexibility indices. The following example shows different intermediate indices which sum up to specific aggregate indices according to the types of labor market flexibility shown in illustration 1. The intermediate indices themselves are a composite of various basic indices as listed below. The composition of each index is not exclusive, and overlapping cannot be avoided, e.g. between union flexibility and wage bargaining structures.

Table 1

Labor Market Flexibility Indices		
Aggregate index	Intermediate index	Basic indices (examples)
Production function flexibility	internal numerical	work time, shift work home working, part-time workers, employment protection
	external numerical	
Labor cost flexibility	internal functional	labor standards, multitasking
	unemployment flexibility	replacement rate, minimum wage
	wage flexibility	wage bargaining, wage elasticity
Supply-side flexibility	union flexibility	union density, union coverage
	labor mobility	regional and occupational mobility
	skills-input flexibility	training, educational attainment

Source: Monastiriotis (2003).

The further analysis concentrates on labor cost flexibility, for which an aggregate index is developed. Following a valuation of labor cost flexibility, a brief look is taken at labor mobility, a supply-side indicator of flexibility. In addition, employment protection legislation will be examined to capture some aspects of production function flexibility.

3.1 Labor Cost Flexibility

The following analysis compares labor cost flexibility in the NMS and in selected EU Member States and evaluates the result. For this purpose, three intermediate indices are used, i.e. unemployment flexibility, wage flexibility and union flexibility.

Unemployment flexibility is measured by unemployment benefit replacement ratios, minimum wage ratios and the duration of benefits. Wage flexibility is estimated based on the structure of wage bargaining and – most commonly – on wage elasticity, measuring the responsiveness of wages to changes in unemployment. Finally, union density and union coverage are taken into consideration to assess union flexibility.

3.1.1 Unemployment Flexibility

Unemployment flexibility will be discussed as a composite of benefit replacement ratios calculated for different durations and some kind of minimum wage ratio. Unemployment benefit replacement ratios are expressed as the ratio of the net income (under national social and unemployment compensation schemes) available to individuals of working age (15 to 64) who are out of work with respect to the net income they would get if they were working.⁵

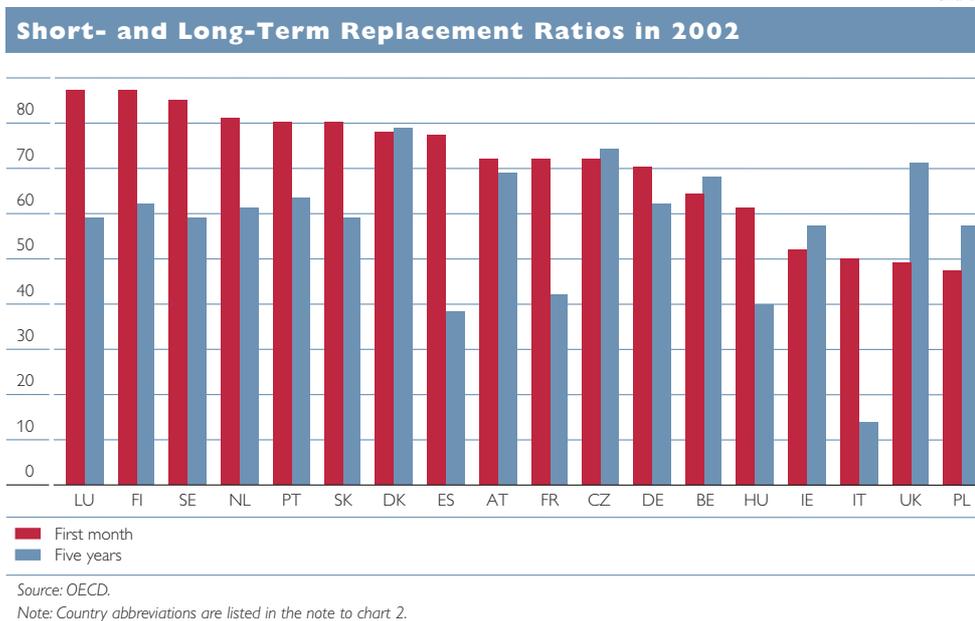
If unemployment benefits are too high, unemployed persons have few incentives to reenter employment. This may lead to what may be called an unemployment trap (Mira d'Ercole and Salvani, 2003), which occurs when workers' skills decline in lockstep with the duration of their unemployment (hysteresis), so that the potential earnings that an unemployed person can realistically hope to achieve when taking a new job decrease concurrently. Looking at replacement ratios across the European Union and in particular in the NMS (see chart 6), one can see that these ratios vary significantly across countries. At 47%, Poland has the lowest replacement ratio of all Member States. Hungary also belongs to the group of countries (including Italy, the U.K. and Ireland) that provide relatively low unemployment benefits. The Czech Republic has unemployment benefit ratios similar to those of Austria, Germany and France. Conversely, the Slovak Republic has replacement ratios of 80% and thus ranks among high-ratio countries including the Scandinavian countries, Luxembourg and the Netherlands.

However, the picture changes if one looks at long-term replacement ratios. Here, Denmark, the Czech Republic and, somewhat surprisingly, the U.K. have the highest ratios, followed by Austria and Belgium. Hungary and to a lesser extent Poland find themselves at the lower end of the scale together with Italy, Spain and France. Nonetheless, these results are largely in line with the unemployment benefit duration index developed by Nickell et al. (2002)⁶ for some OECD countries, where Denmark and the U.K. have the highest indices, followed by Belgium, Ireland, Germany and Austria.

⁵ The replacement rates are calculated for a 40-year-old unemployed worker (for the first month and for five years) who has made contributions for 22 years and who has two children and a nonworking spouse who is not receiving unemployment benefits (OECD, 2003).

⁶ Nickell, Nunziata and Ochel (2002) calculate the index based on the following ratio: $[0.6 \text{ (replacement ratio in the 2}^{nd} \text{ and 3}^{rd} \text{ year of a spell averaged over three family types)} + 0.4 \text{ (replacement ratio in the 4}^{th} \text{ and 5}^{th} \text{ year of a spell)}] / \text{(replacement ratio in the 1}^{st} \text{ year of a spell)}$.

Chart 6



It may be concluded that Poland and Hungary are clearly quite restrictive with unemployment benefits and replacement payments. The Slovak Republic provides relatively high payments at the beginning of a spell of unemployment, which facilitates job seeking and the reallocation of employment, and then lowers the replacement ratio significantly over time. The Czech Republic, by contrast, does not distinguish between short- and long-term payments and thus provides a kind of time-invariant replacement ratio of 73% on average, the second-highest long-term replacement ratio in the European Union.

All in all, after formerly generous eligibility conditions were tightened (Mira d’Ercole and Salvani, 2003), today’s replacement ratios in the NMS are relatively low compared to those of the other EU Member States. Their unemployment benefit system can be characterized as relatively restrictive and on average less generous than that of the European Union (Mickiewicz and Bell, 2000; Boeri and Terrel, 2002). Taking longer unemployment periods into consideration, however, the data show that the average replacement ratio of the NMS is close to the EU average.

The maximum duration of benefit payments is also comparable to EU standards, though the eligibility is a bit shorter in the NMS (Schroeder, 2003). It may therefore be assumed that the current levels of unemployment replacement ratios are not a specific obstacle to more employment creation in the NMS.

Whereas high unemployment benefit replacement ratios may be a disincentive for an unemployed person to look for a job, high minimum wages may keep employers from hiring additional (low-skilled) workers.⁷ On the other hand, low minimum wages may also – like high unemployment benefits – keep job seekers away from the official labor market to offer their skills on the black market instead.

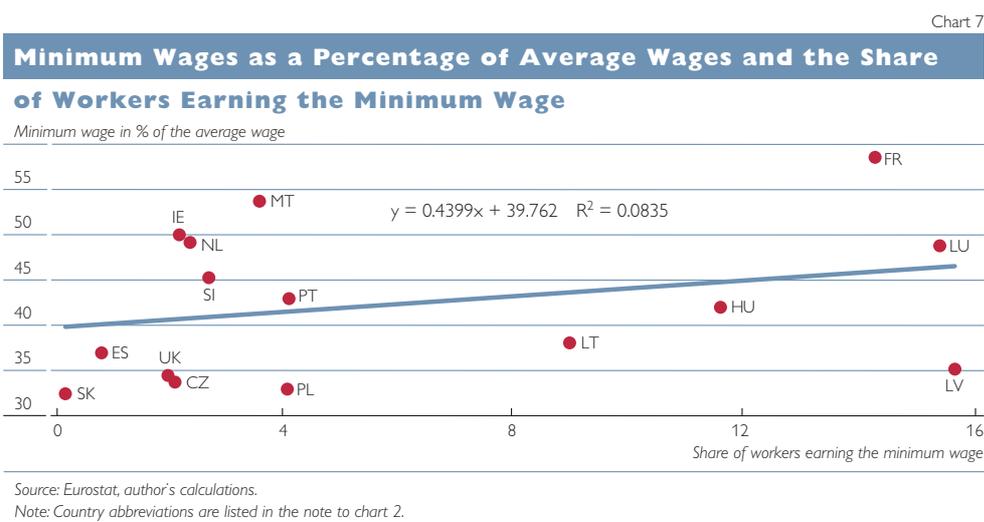
⁷ On the other hand, Card and Krueger (1997) find a battery of evidence showing that increases in the minimum wage lead to increases in pay, but not to a loss of jobs.

Recent empirical studies could not, however, find significant increases in shifts from unemployment to employment after unemployment benefits were sharply reduced (Schuettpelez, 2003). Rather, these studies show an inelasticity of unemployment to changes in unemployment benefit replacement ratios and duration (Huber et al., 2002).

With the exception of Cyprus, general minimum wages exist in all NMS, whereas only two-thirds of the older EU Member States have introduced minimum wages. In the European Union minimum wage ratios, defined as the share of average wages, range from 32% in the Slovak Republic to 58% in France. In general, compared to the other EU Member States, minimum wages in the NMS in percent of average wages are at the lower end of the scale. In addition, these minimum wages have declined both in real terms as well as relative to real average wages (Mickiewicz and Bell, 2000). Two groups may be distinguished: the NMS on the one hand, which display the lowest ratios, and the old Member States on the other hand. Only Spain and the U.K. have minimum wage ratios comparable to the NMS average.

The picture becomes quite diverse when regarding the share of workers whose income is near the minimum wage level. While in the Czech Republic 2% of employees work for the minimum wage and in the Slovak Republic minimum wages are not applied in practice, in Hungary, which has relatively low minimum wages, the share of workers earning minimum wages is rather high. This may reflect regional deficiencies, as the minimum-wage share of average wages which are paid in some parts of Hungary, e.g. northeast Hungary, is relatively high. In addition, income is often at the minimum wage level in some industries, such as tourism or social and health services.

Chart 7 shows that there is a positive correlation between minimum wage ratios and the share of workers earning the minimum wage, though this correlation is less clear in the NMS than in the other EU member countries shown.



Boeri and Terell (2002) argue that in the transition economies, where trade unions are weak, minimum wages may often not be enforceable at all. Instead, minimum wages merely serve as a benchmark for social benefits, since many of these benefits are connected to minimum wage regulations. Thus, it is mainly

the battery of subsidies available to unemployed persons that acts as a floor for wage levels. Evidence for EU Member States shows that benefit levels have an important impact on unemployment. As discussed above, in some NMS unemployment benefit ratios are rather low compared to those in other EU Member States. But even for countries with higher benefit ratios, such as the Czech Republic and the Slovak Republic, Boeri and Terell (2002) find that up to a certain level, “constraining wage flexibility from below may foster structural change, rather than hinder it.”⁸ This adds another dimension to the whole discussion on the determination of labor market flexibility, which should be kept in mind when drawing conclusions from the analysis.

3.1.2 Wage Flexibility

From 1999 nominal wages rose steadily in the EU as a whole. This acceleration came to an end in 2002, however, reflecting the downturn in economic activity. In all NMS (except Lithuania), nominal wage increases during this period were on average three times higher than in the other EU Member States (European Commission, 2003a). In some countries, such as Hungary and Slovenia, this increase was quite substantial, mainly due to high inflation and the concurrent sharp rise in wages in the public sector, e.g. in Hungary.

Real wage increases in the European Union as a whole fell from 2% at the end of 1999 to levels of 1% to 1.5%. In the NMS, despite generally higher inflation rates until 2002, real wages increased more strongly than in the EU, with growth rates nearly six times higher (European Commission, 2003a). The increase was most pronounced in Hungary and Estonia. These sharp boosts in real wages exceeded the labor productivity growth in these countries and thus led to increasing unit labor costs (ULC). In the Czech Republic real ULC augmented, which may be attributable to very low inflation and low labor productivity. All other NMS observed declining ULC over the same period.

With respect to nominal wage increases, in recent years the NMS – unlike the other EU members – have stayed largely below the threshold described by the so-called “distributive margin,” which equals real wage and labor productivity growth.

The figures in table 2 also show that nominal wage growth in the NMS, with the exception of Hungary, has moderated alongside disinflation. This suggests that there is some degree of nominal wage flexibility. Although until now there has been little need in the NMS for downward flexibility of nominal wages (due to the catching-up process and higher inflation in most countries), with the NMS approaching a low-inflation environment, the need for downward flexibility of nominal wages may become more important, in particular in the case of strong output fluctuations (ECB, 2003).

According to Schuettpelz (2003), taxes payable by the employer on the wage bill as well as employers’ social contributions play a decisive role in employment dynamics. In some NMS these wage costs are relatively high compared to the rest of the EU, notably in Hungary, the Czech Republic and the Slovak Republic. Nonetheless, without prejudice to their decisive role,

⁸ See also Card and Krueger (1997). Although the authors primarily discuss the issue of minimum wages, their findings with respect to wage constraints from below are very similar.

Table 2

The Distributive Margin in the EU

Country	Nominal wage increase (labor cost)		Inflation (HICP)		Labor productivity growth		Distributive margin ¹	
	1997-99	2000-02	1997-99	2000-02	1997-99	2000-02	1997-99	2000-02
BE	2.4	3.9	1.2	2.2	1.6	0.7	-0.4	1.0
DE	1.7	2.7	0.9	1.5	1.1	0.7	-0.3	0.5
ES	3.2	2.8	2.0	3.3	0.6	0.6	0.6	-1.1
FR	2.5	4.4	0.9	1.8	1.7	0.6	-0.1	2.0
IE	4.8	7.5	1.9	4.7	3.4	4.1	-0.5	-1.3
IT	2.2	2.9	1.9	2.5	1.2	0.3	-0.9	0.1
NL	1.6	4.7	1.9	3.8	1.2	0.2	-1.5	0.7
AT	2.5	2.9	0.8	2.0	1.7	1.4	0.0	-0.5
FI	3.4	4.5	1.3	2.6	2.3	1.3	-0.2	0.6
SE	3.9	4.0	1.1	2.0	2.8	0.9	0.0	1.0
CZ	10.4	7.3	6.5	3.3	1.0	2.5	2.9	1.5
HU	15.2	14.5	14.2	8.1	2.8	3.6	-1.8	2.8
SK	10.5	9.2	7.7	7.5	4.4	2.7	-1.6	-1.0
SI	10.4	10.6	7.4	8.3	4.6	3.8	-1.6	-1.5
PL	21.0	8.6	11.3	5.8	4.4	4.2	5.3	-1.4
EE	12.9	11.7	7.1	4.4	7.0	6.2	-1.2	1.1
LT	15.9	0.2	4.8	0.9	5.3	5.2	5.8	-5.9
LV	5.2	6.5	4.8	2.4	4.6	6.1	-4.2	-2.0

Source: European Commission (2003a).

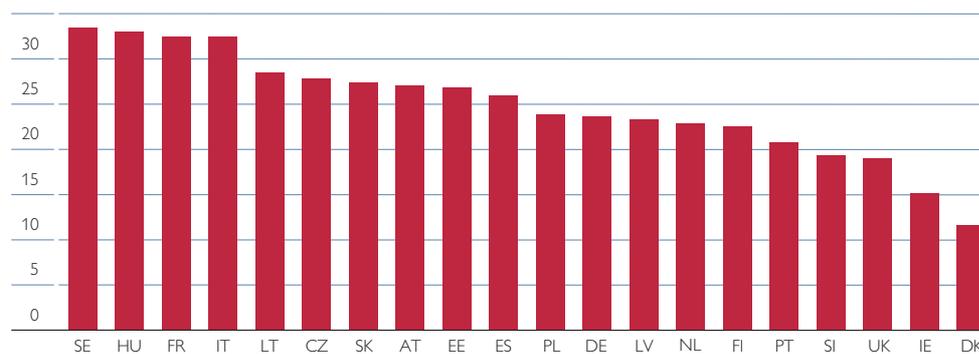
¹ Distributive margin: real wage growth minus productivity growth.

Note: Country abbreviations are listed in the note to chart 2.

the shares of nonwage labor costs are within a “normal” range compared to the other EU Member States (see chart 8). However, it should be noted that the tax burden on low-wage earners is clearly above the EU average in all NMS (European Commission, 2003a).

Chart 8

Share of Nonwage Labor Costs in 2000



Source: European Commission (2003a).

Note: Country abbreviations are listed in the note to chart 2.

A further aspect of wage flexibility is the degree of wage differentiation among e.g. sectors, industries or enterprises. Wage differentiation by sector as well as by firm size is significantly above the EU average in Hungary and in Poland, and with respect to the service sector also in the Slovak Republic. By contrast, wage differentiation is generally low in the Czech Republic, and it is lowest in Slovenia (European Commission, 2003b).

Moving on to *wage formation* and the *structure of wage bargaining*, wage bargaining may take place at different levels (the enterprise, industry, sector, national level, etc.) and between various negotiating partners (a single employee

and the employer, works councils, trade unions, government, etc.). Wage formation in the European Union is to a large extent based on collective bargaining structures. However, wage-setting structures as well as the role of trade unions in wage formation differ widely across the Member States (European Commission, 2003a). The main differences concern the degree of centralization and coordination at various levels, including the national, sectoral, industry and enterprise levels, the coverage rates of collective agreements and the frequency of wage bargaining.

Most of the old EU Member States have a multilevel wage bargaining structure, with centralized bargaining at the intersectoral and subsequent bargaining at the enterprise level (European Commission, 2003a). But whereas in Belgium, Ireland and Finland, wage bargaining is highly centralized, in the U.K. and France bargaining at the enterprise level is predominant. In the rest of the Member States wage bargaining takes place primarily at the industry level.

Bargaining structures look somewhat different in the NMS. Trade unions and employer organizations are among the institutions that have changed dramatically during transition (Mickiewicz and Bell, 2000). While under socialism, employer organizations did not exist at all, trade unions had practically no influence on wage setting, and with some exceptions (e.g. the independent *Solidarnosc*), they were basically used to justify and implement the wage policy of the government. Starting from this situation, trade unions developed in different directions. Some continued the pattern of activities they had followed in the communist era, though in a modernized fashion, some split into several unions, and new organizations of opposition origin were formed, leaving a rather fragmented trade union movement in some countries, e.g. Hungary. Employer organizations were also formed, though they are still very fragmented and not as well-organized as trade unions. Thus trade unions sometimes encounter the problem that they lack the counterpart employer association to negotiate with at an equivalent level. Against this background, social partners play only a small role in policymaking.

Not surprisingly, as a result today collective bargaining in the NMS takes place mainly at the enterprise level (table 3), with workers' interests often represented by works councils (Huber et al., 2002). Only in Slovenia, where the state prescribes collective agreements, does national or sectoral bargaining predominate. In Hungary and in Latvia, some sectoral bargaining may also be observed, however. Negotiations at the industry level are of some importance only in the Slovak Republic, and to a certain extent also in Hungary and Slovenia. Collective bargaining mainly takes place in industries with a monopolistic or oligopolistic structure, such as the energy or railroad sectors (Funk and Lesch, 2004). However, in these countries collective agreements at the industry level merely serve as a framework for subsequent negotiations at the enterprise level.

In all NMS wage bargaining is accompanied and supported by "social pacts" (Funk and Lesch, 2004) negotiated on a tripartite basis between employees, employers and the government. These pacts involve the social partners to a certain extent in the economic reform process of the government. Although still very small, the influence of social pacts on wage setting is largest in Slovenia,

Table 3

Wage Bargaining Structures in the European Union

Country	National (cross-sectoral)	Sectoral (industry)	Enterprise	Coverage ¹ %
LT		*	***	15
EE		*	***	28
HU	*	**	***	31
LV	*	*	***	19
PL		*	***	37
ES		***	*	76
PT		***	*	75
UK		*	***	37
CZ		*	***	33
FR		*	***	90
NL		***	*	76
SK		***	**	47
DE		***	*	76
IE	***	*	*	57
DK	**	**	*	72
GR	*	***	*	95
IT		***	*	90
SE		***	*	86
AT		***	*	91
FI	***	*	*	89
SI	**	**	*	97
BE	***	*	*	93

Source: Funk and Lesch (2004), European Commission (2003a), Schroeder (2003).

Note: * less important, ** important, *** predominant. Country abbreviations are listed in the note to chart 2.

¹ Coverage rate of collective agreements with respect to total employment.

Poland and Hungary. In practice, however, these pacts are at best relevant for the setting of minimum wages, where such pacts have a more binding character.

To sum it up, the collective bargaining structure in the NMS is comparatively more decentralized than in the old Member States. According to Calmfors and Drifill (1988), higher wage flexibility may be observed either in countries in which wage bargaining is largely decentralized, e.g. the Czech Republic or the U.K., or in countries with strongly centralized bargaining systems, such as Slovenia (and other EU Member States). Countries with union coordination and without strongly centralized or decentralized bargaining structures may provide lower flexibility. In her estimations on the impact of labor market institutions on labor market outcomes, Cazes (2002) even finds that the coefficient for union coordination is negative with respect to unemployment as the dependent variable; the higher the coordination degree is, the lower unemployment is. Cazes therefore suggests that although union density and union coverage variables are positive, implying that powerful trade unions are inversely associated with a decrease in unemployment, a good coordination between unions and employer organizations can offset the previous effect.

Turning to the issue of *wage elasticity*, there are two competing approaches (Huber et al., 2002; Onaran, 2002; Büttner et al., 2003) to calculate the flexibility of wages: the wage curve approach and the Phillips curve approach. There are important conceptual differences between these two methods. The first is usually interpreted as an equilibrium concept, since it deals with the determinants in labor market equilibrium and is used to estimate the correlation between wages and unemployment, controlling for sectoral composition and particular effects. The second is interpreted as an adjustment process toward labor market equilibrium. It relates wage growth to unemployment (and expected inflation). Various extensions and variations exist for both concepts.

In this paper, a wage bargaining model of the Phillips curve type is used. The wage-setting equation can be defined as follows:

$$NW_t = \alpha_1 + \alpha_2 * U_t + \alpha_3 * CPI_t^e + \varepsilon_t \quad (1)$$

where NW_t is the nominal wage rate (in logarithmic terms) demanded by workers in period t , α_1 is the constant, U_t is the unemployment rate in period t and CPI_t^e is the consumer price level (in logarithmic terms) expected by the workers to prevail during the period for which NW has been negotiated. The coefficient of unemployment is interpreted as a measure of wage flexibility. Within a flexible wage bargaining regime, one expects higher unemployment to exert downward pressure on wage claims. Therefore, if wages respond flexibly to unemployment, the sign of the coefficient should be negative.

Since wage bargaining is in practice determined by the rate of change in wages and by the expected rate of inflation rather than the level of wages and prices, the equation therefore is rewritten as follows:

$$\Delta \log NW_t = \alpha_1 + \alpha_2 * \Delta U_{t-j} + \alpha_3 * \Delta \log CPI_{t-k}^e + \varepsilon_t \quad (2)$$

The dependent variable NW_t is a three-month moving average of changes in nominal wages. The unemployment rates are based on labor force survey data. The terms $t - j$ and $t - k$ imply different time lags.⁹ The results of the calculations are shown in table 4.

Table 4

Wage Elasticity in Selected Countries			
Country	ΔU_t	ΔCPI_t^e	R ²
AT	-0.0092** (0.0038)	0.2723** (0.132)	0.13
DE	-0.0105* (0.0034)	0.5985* (0.216)	0.18
FR	-0.0141* (0.0036)	0.8955* (0.188)	0.30
NL	0.0043** (0.0021)	0.5018* (0.161)	0.15
PT	-0.0173* (0.0068)	1.1138** (0.491)	0.13
Euro 12	-0.0114* (0.0042)	0.4451** (0.22)	0.13
CZ	0.0067* (0.0016)	0.2374** (0.098)	0.27
HU	-0.0057** (0.0024)	0.8016* (0.061)	0.70
SK	0.0060* (0.0018)	0.1360* (0.052)	0.30
SI	-0.0084*** (0.0052)	0.3793* (0.122)	0.13
PL	-0.0113** (0.0046)	0.9704* (0.216)	0.31

Note: Values in brackets report standard errors of the estimate. Coefficients are significantly different from zero at the 1% (*), 5% (**) and 10% (***) level. Country abbreviations are listed in the note to chart 2.

The results show first of all that wage elasticity is in general low. In this context, some differences in wage elasticity between the Member States can be reported. It can be argued that the average wage elasticity of the NMS seems to be slightly lower than the average of the other Member States. In our sample, Poland has the highest elasticity of all NMS, which is about the Euro 12 average. But Slovenia and Hungary are also comparable to the other Member States,

⁹ CPI_t^e is substituted by realized inflation.

whereas the Czech Republic and the Slovak Republic show a clearly lower wage elasticity. However, as mentioned above, until now there has been little need in the NMS for downward flexibility of nominal wages because productivity growth has been strong and inflation has been partly high.

These results are largely in line with those of other studies. Huber et al. (2003) suggest that in the NMS the elasticity with respect to national unemployment rates may be lower than in the European Union on average.

Unlike wage flexibility at the national level, regional wage flexibility has been shown in studies (Büttner et al., 2003; Huber, 2003) to be higher in the NMS than in the European Union on average; accordingly, the NMS are in a more favorable position in dealing with region-specific shocks.¹⁰ Büttner (2003) finds that Hungary and the Slovak Republic show the strongest elasticities. Conversely, a recent study by Iara and Traistaru (2003) that estimates static and dynamic wage dependencies finds only limited flexibility for Hungary (−0.05) and for Poland (−0.04). In Hungary and Poland, necessary wage adjustments took place with a two-year and one-year delay, respectively. Iara and Traistaru therefore conclude that although wage flexibility could act as an adjustment mechanism in equilibrating regional labor markets in the NMS, “this adjustment is likely to take place with a delay which implies that labor market disequilibria might persist.”

However, studies on regional asymmetric shocks prove that adjustment to these shocks takes place in the short and medium term mainly as a reaction of the activity rate (quantitative adjustment). Thus adjustments via wages are generally insignificant and only of little importance within the European Union including the NMS (Huber and Traistaru, 2003).

3.1.3 Union Flexibility

In order to approximate union flexibility, two aggregates are examined: first, what is referred to as union density, i.e. the share of unionized workers in total employment, and second, union coverage, understood to be the coverage of collective agreements. The available data on union density vary markedly, although one may assume that accurate membership figures in all countries in consideration should be available. The same is true of union coverage data. The figures indicated are therefore based on the author’s calculations, in most of the cases averages of published data.

In addition, one has to be especially cautious using the term “flexibility” when evaluating union flexibility. According to the literature, union flexibility is high when union density and coverage are low. This correlation may be true in most of the cases, but not necessarily always.

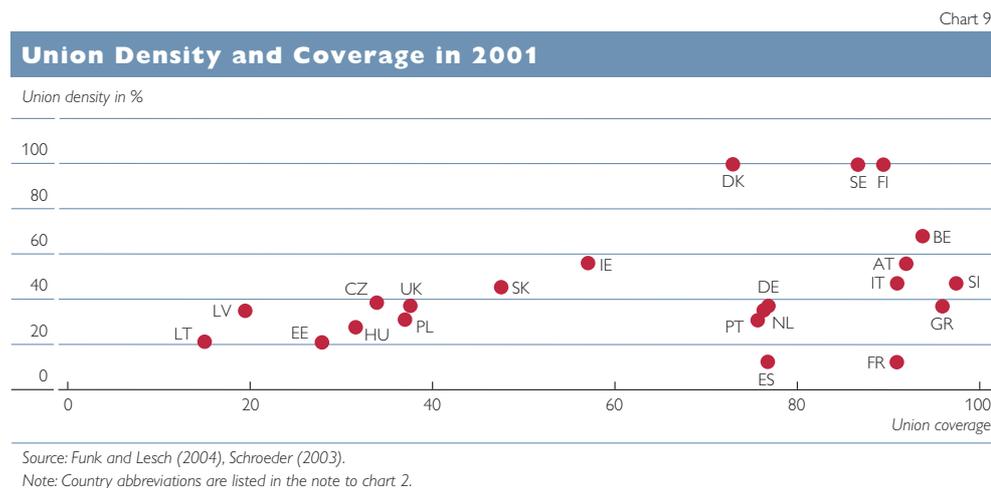
As mentioned, trade unions were among the institutions that changed dramatically during transition. Before 1989, trade union membership was compulsory and union density was therefore extremely high. After the breakdown of communism, trade unions developed in different directions. Nonetheless, they all share some common features, one of which is that membership in trade unions is decreasing (or has decreased) to European Union average levels. This

¹⁰ Most of the evidence about the reaction of wages to regional unemployment rates in the NMS has been based on the wage curve approach. Not only have the results been mixed, there is some evidence that wage curve estimates in the 1990s were not very robust (Huber and Traistaru, 2003).

may be mainly attributed to the abolishment of formerly compulsory union membership, the increase in unemployment and the mushrooming of SMEs following the privatization and liberalization process (Funk and Lesch, 2004). Today, union density in the NMS ranges from 24% in Hungary to 37% in the Slovak Republic.

Data for the European Union show that union density varies from 10% in France and Spain to 80% in the Nordic countries. Leaving the Nordic countries out of account, union density in the NMS is comparable to that in the rest of the EU Member States.

Beside union density, union coverage is an indicator of flexibility, probably a more meaningful one. Whereas union density in the NMS may be comparable to that in the other EU Member States, union coverage in the NMS is clearly much lower. The only exception is Slovenia, where nearly every employee is covered by some collective agreement. This overwhelming coverage is due to the fact that the state prescribes the drawing up of collective agreements. Chart 9 shows the clear distinction between the NMS and the other EU Member States.



In contrast to most NMS, the coverage of collective agreements is fairly high in the majority of EU Member States, where systems of national and sectoral bargaining, coupled with the extension of agreements to nonsignatories, ensure that the majority of employees is covered by collective agreements (European Commission, 2003a). In addition, nominal wage contracts are of a relatively longer duration in the old Member States than in the NMS (ECB, 2003).

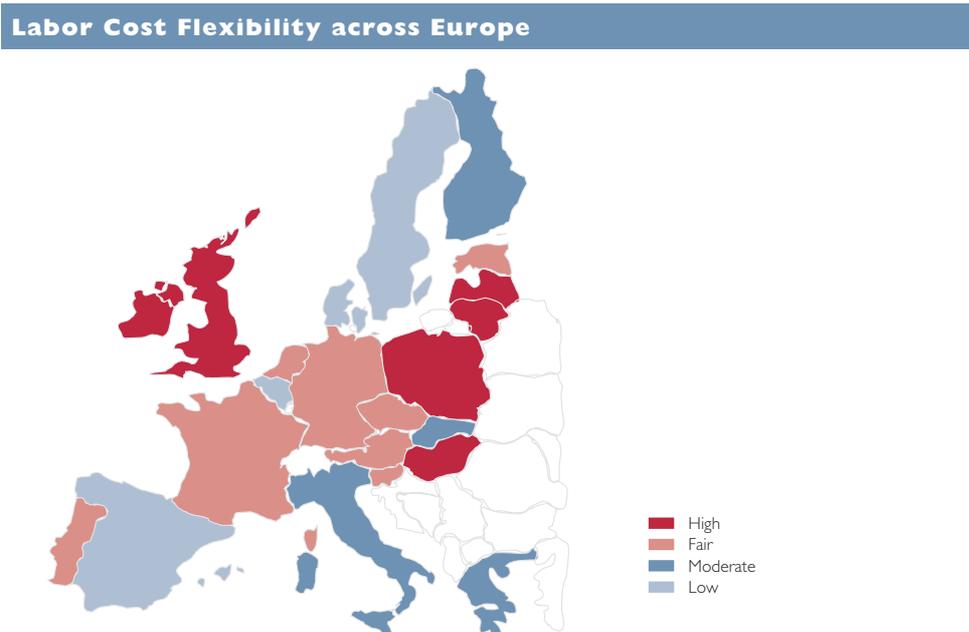
It may be concluded that while average NMS union density is lower than the EU average but still roughly comparable to that of the other EU Member States, union coverage is significantly smaller in the NMS. In addition, both ratios are on a declining track.

To complete this picture, one would have to take into account union power, which is itself reflected by union coverage and density on the one hand and specific bargaining structures on the other hand. As already discussed, in general the role of trade unions is weak and, in addition, workers' interests in the NMS are often represented at the enterprise level by works councils.

3.1.4 The Labor Cost Index

The types of flexibility discussed above (unemployment, wage and union flexibility) are now aggregated to a so-called *labor cost index*, which is a weighted average of the single values of each subindex. Each index is weighted according to several indices found in the literature. For instance, Cazes (2003) estimates the impact of labor market institutions on labor market outcomes. Using unemployment as the dependent variable, she finds that active labor market policies, union coverage and to a lesser extent bargaining coordination between trade unions and employers' organizations seem to have an impact on overall unemployment. On the other hand, union density, unemployment replacement ratios and the length of time for which benefits are payable are insignificant. For each subindex (e.g. union coverage) and for each country a value was calculated relative to the performance of the other countries. These values are weighted according to the estimates found in the literature mentioned above.¹¹ The results show that the whole sample of countries can be divided into four distinctive groups, each of which represents a different degree of labor cost flexibility (table 5 and illustration 2).

Illustration 2



Source: OeNB.

Labor cost flexibility in the NMS can be described as being relatively high compared to that in the other Member States. Indeed, with the exception of the Slovak Republic, the NMS – most of all Hungary, Latvia, Lithuania and Poland – are among the most flexible countries with respect to labor costs.

¹¹ The union flexibility index is a composition of the values for union density plus double the values for union coverage. The unemployment flexibility index is a composition of the values for replacement ratios, benefit duration and minimum wage ratios. The wage flexibility index is a composition of values for collective bargaining structures and double the values for bargaining coordination. All these values represent institutional aspects of labor cost flexibility. In addition, the estimated wage elasticity is weighted triple and treated as a separate index for calculating the overall labor cost index. The single values of the indices with respect to union, unemployment and wage flexibility as well as wage elasticity were totaled and divided by four to produce the labor cost index.

Table 5

Labor Cost Flexibility		
Labor cost flexibility is ...	high	HU, IE, LV, LT, PL, UK
	fair	AT, CZ, EE, FR, DE, NL, PT, SI
	moderate	GR, FI, IT, SK
	low	BE, DK, ES, SE

Note: Country abbreviations are listed in the note to chart 2.

Austria may also be rated as having fairly flexible wage bargaining structures and institutions. Only for Belgium, Denmark, Spain and Sweden do the indices point to relatively lower labor cost flexibility. However, it must be emphasized that these results represent relative values. In absolute terms, wage flexibility is generally rather limited.

3.2 Other Measures of Labor Market Flexibility

Other measures of labor market flexibility encompass what has been called supply-side flexibility and production function flexibility. Two aspects covering both indices are briefly discussed below: labor mobility and employment protection legislation.

3.2.1 Labor Mobility

If an economy faces an adverse shock to labor demand, there are basically two ways by which the labor market can adjust: either relative prices for labor fall sufficiently (real wage flexibility) or quantities adjust, e.g. unemployment increases, labor migrates to other regions or the activity rate adjusts. In this context, labor mobility may serve as an effective channel for regional adjustment to asymmetric shocks, as migration helps to reduce interregional unemployment and wage differentials. A lack of labor mobility can thus have profound economic consequences, especially against the background of monetary integration. In the NMS, economic reforms have had largely asymmetric repercussions, resulting in large and persistent unemployment and wage differentials, which in turn emphasize the need for effective regional adjustment (Fidrmuc, 2003). Despite the importance of labor mobility, there is only very little research on mobility in transition economies.

Existing research on labor mobility in the NMS shows rather low levels of interregional labor mobility in many countries (ECB, 2003). Fidrmuc (2003) finds that despite large and increasing interregional wage and unemployment disparities, migration flows have actually been declining.

Compared to the EU, where mobility is already very low and declining in some countries, mobility in the NMS is even lower (see Huber et al., 2002; Fidrmuc, 2001). Some studies (Bardsley and Ederveen, 2003) also show a lower elasticity of regional mobility in the NMS with respect to regional differences in wages and unemployment. Thus, sizeable differentials in wages and unemployment rates give rise to only very modest migration flows. Looking at international migration patterns (Huber et al., 2002), migration in the NMS is on the one hand substantially less responsive to wage differences than in the European Union, but on the other hand more responsive to unemployment rate differentials. Overall, international migration in the NMS seems to be less efficient in smoothing regional disparities than migration within the EU.

Among relatively prosperous regions, migration appears mainly between two regions with large productivity and income differentials. This may indicate that a large proportion of migrants are relatively highly skilled. If this pattern prevails, the free movement of workers within the EU (though limited by transition periods) may have adverse effects (brain drain) on the NMS (Fidrmuc, 2003).

Turning to occupational mobility, evidence can be found (ECB, 2003) that mobility across jobs, as measured by the job turnover rate, was high in the early 1990s. However, mobility has declined significantly since then, and worker flows across sectors and occupations are relatively low in the NMS today (Boeri and Terrell, 2002). In this context, some argue that to a large extent existing human capital and skills do not fit the needs of a post-industrial economy (Schuettpelez, 2003), thus leading to higher structural unemployment.

This also fits into the picture that labor market problems in the NMS seem to be associated with a low probability of escape from unemployment. Instead, flows into inactivity represent a substantial part of the adjustment mechanism of labor markets (Huber et al., 2002). The evidence indicates (Fidrmuc, 2003) that the efficacy of regional mobility to reduce interregional unemployment and wage differentials is rather low. In this context, it is to be expected that regional mobility in the NMS is very limited as a labor market “adjustment mechanism,” even more so than in the EU.

3.2.2 Employment Protection Legislation

Finally, to partly capture the concept of production function flexibility, OECD employment protection legislation (EPL) indicators will be considered briefly. These indicators measure the overall strictness of EPL and in particular provisions for regular and temporary employment as well as collective dismissals. These indicators obtain values ranging from 0 to 5, where 0 is equal to practically no protection at all, and 5 to very strict protection rules.

Table 6

OECD Employment Protection Indicators

Country	Overall	Regular employment	Temporary employment	Collective dismissal
BE	2.5	1.5	2.8	4.1
DK	1.5	1.6	0.9	3.1
DE	2.6	2.8	2.3	3.1
GR	3.5	2.4	4.8	3.3
ES	3.1	2.6	3.5	3.1
FR	2.8	2.3	3.6	2.1
IE	1.1	1.6	0.3	2.1
IT	3.4	2.8	3.8	4.1
NL	2.2	3.1	1.2	2.8
PT	3.7	4.3	3.0	3.6
AT	2.3	2.6	1.8	3.3
FI	2.1	2.1	1.9	2.4
SE	2.6	2.8	1.6	4.5
UK	0.9	0.8	0.3	2.9
CZ	2.1	2.9	0.5	4.3
HU	1.8	2.1	0.6	3.4
PL	2.0	2.2	1.0	3.9
SK	2.3	2.6	1.0	2.4
SI	3.3	3.4	2.5	4.5

Source: European Commission (2003a), OECD (1999), Cazes and Nesporova (2003), author's calculations.
Note: Country abbreviations are listed in the note to chart 2.

Studies on cross-country evaluations of the strictness of employment protection legislation in selected transition economies in the late 1990s show that employment protection rules differ widely across transition countries (OECD, 1999). However, on average the NMS have EPL rules that are similarly liberal to those in the remaining European Union. Moreover, after the latest labor code amendments in most of the NMS, it seems that they have recently become more liberal on average than the other EU Member States (ECB, 2003). Thus, with the exception of regulations concerning collective dismissals, employment legislation in the NMS in general can be regarded as less strict than in the European Union as a whole. In fact, the impact of EPL on labor market performance and labor market flows in transition countries, though not insignificant, seems to be very modest (Cazes and Nesporova, 2003). Cazes (2002) finds that EPL has little or no effect on overall unemployment levels and on unemployment duration.

4 Conclusions and Outlook

Looking at NMS labor market developments, one may observe an overall decline in employment figures and low employment rates despite relatively high growth rates. While unemployment in Poland and the Slovak Republic is extremely high, unemployment rates in the other NMS are comparable to or even below EU averages. In some NMS employment recently gained some momentum, and the overall trend will probably turn positive in the near future. However, future restructuring of the labor market following strong structural changes in the NMS in the wake of the catching-up process combined with further sizeable shifts in sectoral compositions may impose difficulties on the labor markets. In addition, regional disparities are likely to increase.

The accession to the EU on May 1, 2004, has several effects on the NMS labor markets, two of which are set forth: First, there will be some enlargement effects. For instance, Breuss (2001) calculates significant positive employment effects for the NMS between (cumulative) 0.4% and 1.7% until 2010. At the same time, unemployment rates will decline within the same period, sinking by 0.15 percentage point in the Czech Republic, 0.4 percentage point in Hungary and 1.33 percentage points in Poland.

In addition, accession will have significant positive mid-term and long-run effects on GDP growth (Boeri and Brücker, 2000; Breuss, 2001). However, in the short run, entrance into the single market will entail possibly sizeable economic and structural adjustments in the NMS, which might even imply some transitional output losses compared to a reference scenario.

Second, upon accession to the European Union, the NMS entered the monetary integration process which ends with the adoption of the euro. This implies that the NMS restrict (step by step) and finally relinquish autonomy over monetary policy as well as exercise important restrictions on fiscal policy. The set of tools available for dealing with asymmetric shocks will be reduced. In this context, standard optimum currency area theory stresses the importance of flexible labor markets. Thus, in the absence of a national monetary policy, labor market policies become central to accommodating idiosyncratic shocks.

Therefore, this paper examines the flexibility of NMS labor markets by aggregating an index of labor cost flexibility and calculating wage elasticities

as well as elaborating on other flexibility issues, such as labor mobility or employment protection legislation. The results show higher labor cost flexibility in the NMS than in the EU in general. There are also signs that so-called production function flexibility is higher in the NMS, at least according to existing employment protection legislation. On the other hand, supply side flexibility, notably occupational and regional mobility, seems to be lower than in the other Member States. It follows from the analysis that below the bottom line overall labor market flexibility is similar to EU standards. Huber and Traistaru (2003) conclude that overall flexibility is small or even insignificant. In addition, findings (Cazes, 2002) confirm that the main focus of collective bargaining has so far been on employment protection and negotiating wage increases, leaving aside the issue of jobless persons and contributing to a longer duration of unemployment.

However, Büttner (2003) and Huber (2003) find that the adjustment mechanisms on the labor markets in the NMS may be deemed as well suited for EMU as those of other Member States. Moreover, because wages in the NMS are more responsive to regional labor market conditions, the NMS show a higher degree of adjustment capability for regional labor markets and therefore may probably find it easier to adjust to asymmetric shocks. This conclusion, however, rests on the assumption that shocks in the NMS and in the old Member States are equally asymmetric and persistent; in addition, the labor market adjustment mechanisms are not endogenous to monetary integration.

Since the NMS are still in the midst of a transition and catching-up process, the NMS will not only face asymmetric shocks, as several studies suggest, but in addition, as these studies prove, the shocks which occur in the transition economies are largely uncorrelated with those prevailing in EMU member countries (Horvath, 2001). Against this background and because overall labor market flexibility is rather limited, labor markets in the NMS may not be sufficiently well-equipped to deal with such shocks. Therefore, with a view to further monetary integration, Fidrmuc (2003) finds that early participation in the euro area may not be the optimal choice for some of the NMS. Further efforts to enhance labor market flexibility have to be made, especially improving regional mobility and applying active labor market policies.

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Distorted Incentives Fading?

The Evolution of the Russian Banking Sector since Perestroika

Stephan Barisitz¹

The present study attempts to trace and analyze the development of the Russian banking sector since the final years of Soviet rule. It deals with legal foundations, banking supervision, banks' major sources of assets, liabilities, earnings and related changes, bank restructuring, rehabilitation programs, the role of foreign credit institutions and FDI. For many years prevailing conditions and incentives have favored speculative and short-term activities, but have not allowed banks to carry out effective financial intermediation in Russia. After the financial collapse of August 1998 sluggish post-crisis restructuring ensued. The banking sector only recovered on the back of the general economic recovery, buoyed by the ruble devaluation, the oil price boom, political stability and some first fruits of structural reforms. A credit boom unfolded, giving rise to new risks. Most recently, the authorities have undertaken impressive efforts to intensify reforms. If implementation follows up, Russia will have put itself on the catching-up lane with other transition countries that are further advanced in banking reforms.

1 Introduction

The banking sector is certainly one of the branches of the Russian economy that has exhibited considerable susceptibility to distorted incentives. Banking development in Russia has been fraught with structural problems, a great deal of which are rooted in the Soviet past. In contending with the challenging and quickly changing environment, banks have often proved to be very flexible, even ingenious. However, this versatility has not always been reflected in increased value added in a market economy sense. This study attempts in a chronological approach to trace and analyze the development of the Russian banking sector since the final years of Soviet rule. The study deals with legal foundations, banking supervision, banks' major sources of assets, liabilities, earnings and related changes, bank restructuring, rehabilitation programs, the role of foreign banks and FDI. Particular emphasis is put on highlighting salient features of the everyday business environment in which credit institutions² have found themselves and on incentives to which they have been exposed.

Chapter 2 sets the initial stage, describing the banking system of the late period of Soviet rule. Chapter 3 deals with the early years of transition and the many sources of speculative earnings that emerged. A turnaround was brought about by the tightening of economic policy and the ensuing interbank loan crisis in the mid-1990s, subject of chapter 4. Soon thereafter, new sources of enrichment emerged: shares-for-loans deals, short-term treasury bills (GKO) and monetary surrogates, related in chapter 5. This trend contributed to an increasing differentiation of the sector, to growing risks and structural imbalances, dealt with in chapter 6. Chapter 7 focuses on the Russian financial collapse of August 1998 and its immediate repercussions, while chapters 8 and 9 analyze the sluggish post-crisis restructuring and the following recovery of the banking sector, buoyed by effects of the recent oil and raw materials price boom. In connection with this boom, credit institutions have taken on new risks.

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² In this paper, the terms “bank” and “credit institution” are treated as synonyms.

The evolving banking structure, the most recent reform measures and the current situation (2003–2004) are explained in chapters 10 and 11. Chapter 12 intends to draw conclusions and to come up with some suggestions.

2 The Latter Soviet Years (1985 to 1991)

The first steps that prepared the establishment of a market-oriented banking sector in the former Soviet Union were taken as elements of perestroika policies of the second half of the 1980s. Before that, the single-tier banking system, dominated by Gosbank (Gosudarstvenny bank/State Bank) in the Soviet state-owned and centrally planned economy, essentially played a passive role. The banks carried out payment transactions that were to accompany – and thus verify – the execution of orders and directives pertaining to the real economy. In the context of arbitrarily determined “prices,” enterprise profits were redistributed by the state or used otherwise according to the central plan, and “credits” granted to firms by the central bank in effect constituted automatic transfers and were not really expected to be paid back. Bankruptcy was practically unknown in the centrally planned economy. “Money,” except that paid out to workers and employees, was largely constrained to fulfilling bookkeeping functions. Gosbank was supported by a special purpose bank, the Sberkassa (State Workers’ Savings Bank) (Lane, 2002, p. 11).

Until the end of the 1980s, private property rights with regard to means of production were generally outlawed and banking skills were all but nonexistent. Given the central planners’ lack of information on the real productive capabilities and efficiency of many enterprises subordinated to their instructions, these enterprises were in a position to demand and receive from the state more inputs than they really needed to fulfill the central plan, which perpetuated wasteful modes of production (“soft planning”). Owing to the general rigidity and inefficiency of the system, central planning could not have survived without a robust and supple underground or informal economy. However, given that the informal economy was mostly illegal, such basically market-oriented activities had to be continuously disguised.

The USSR Governmental Decree on the Reorganization of the Banking System (1987) formally created a two-tier banking system. Gosbank was renamed “Central Bank of the USSR” and tasks which resembled commercial banking activities were separated from the central bank and transferred to various newly created specialized state-owned institutions: Promstroibank (which granted investment credits to the industry, construction, transport and communications sectors), Agroprombank (which served kolkhozes, sovkhozes and agroindustrial complexes), Zhilsotsbank (which served residential construction, light industry and trade). Vneshekonombank was established to deal with foreign creditors of the Soviet state. The Sberkassa (with its approximately 70,000 branches and outlets throughout the USSR) was consolidated into Sberbank (Sberregatelnny bank/Savings Bank). Sberbank collected household deposits and granted loans to the government largely as a contribution to budget finance. The Soviet central bank was thus left with the function of carrying out monetary policy and banking supervision, while at the same time it was still in charge of the central credit plan (Laurila, 1996, pp. 86–87).

The (all-Union) Law on Cooperatives and subsequent regulations of the USSR central bank permitted the setting up of private commercial and cooperative banks, most of which were established by state-owned enterprises and organizations. The following years witnessed the rapid weakening of Soviet central and state authority. Elements of central planning started to disintegrate. In December 1990 the Russian Soviet Republic enacted its own Central Bank Law, declaring the Russian office of Gosbank the Central Bank of Russia (CBR) and subjecting it to Russian republican jurisdiction. This effectively turned the Soviet monetary authority into an umbrella organization of central banks of the Soviet republics. The same year the Russian Law on Banks and Banking Activity was passed,³ and Vneshtorgbank was created to service foreign trade transactions of the Russian Soviet republic.

Despite the fact that the country was as yet far from featuring basic market-oriented institutions, the total number of operating credit institutions on Russian territory grew from 6 at end-1988 to 1,360 at end-1991. This development was promoted by the initial virtual absence of effective commercial banking regulations (IMF, World Bank, OECD, EBRD, 1991, p. 31). After the collapse of the USSR and the demise of central planning, the CBR formally took over the remaining functions of former Gosbank in the Russian Federation. Licensing and prudential regulations remained under the sole jurisdiction of the CBR. The boom in new banks continued, promoted by a very liberal licensing policy (in particular low charter capital requirements, which e.g. in 1992 amounted to USD 200,000) and a generally lax regulatory environment with poor enforcement. The total number of operating banks expanded to 2,517 by end-1994.

3 The Early Years of Independence and Transition

In the first years of transition, commercial banking was very profitable, in contrast to other branches of the economy whose activity contracted strongly. To be more precise, banks' activities – but not necessarily banking activities proper – flourished. Some credit institutions with an obvious potential for expansion were created by important resource-oriented enterprises, heavy industrial firms, central as well as regional authorities and former Soviet organizations. Yet, apart from the above-mentioned specialized state-owned banks, most credit institutions remained extremely small. At end-1994, the total capitalization of the sector was estimated at about 4% of GDP, and the total volume of commercial bank credit amounted to approximately 20% of GDP (Walter, 1999, p. 7).

Like other state-owned credit institutions, Sberbank (the Savings Bank), was – and still is – equipped with a state household deposit guarantee. Sberbank has retained the majority of household accounts. Other specialized banks continued to administer “directed credits,” which, in effect, constituted a remnant of Soviet times. Directed credits were cheap (or soft) loans extended by the monetary authorities or the government to “strategic enterprises” in industry or agriculture, or to other beneficiaries. Newly founded banks largely received money from their owners or tried to attract funds from households by offering

³ Although this law has been amended several times since, it is still in force today.

higher deposit rates than Sberbank. In many instances, newly founded credit institutions have been owned by one or a few firms and called “pocket banks” or “agent banks,” since they have essentially functioned as extended treasury or financial departments of the respective enterprise(s).⁴ Many of them continue to do so today.

The privatization of the specialized banks as well as of the (state-owned firms’) “pocket banks” proceeded largely through management and employee buy-outs (MEBOs), as well as through the privatization of the owner firms themselves, which mainly took place through voucher schemes. These types of privatization brought little new know-how and capital to banks and often left incumbent managements unchanged. Sberbank, Vneshekonombank and Vneshtorgbank were excluded from privatization, with majority stakes of these institutions remaining in the ownership of the CBR/the state. While Vneshtorgbank successfully added some commercial banking activities to its business, Vneshekonombank essentially remained a special state agency for servicing former Soviet foreign debt inherited by Russia.

In the first years of transition the main sources for banks’ profits were furnished by speculation or arbitrage activities in connection with: high and variable inflation (sometimes bordering on hyperinflation), the continuing depreciation of the ruble, exchange rate instability, the opening up of the country to market-oriented foreign trade, steps to liberalize foreign exchange transactions as well as generous refinancing by the CBR. Annual inflation (CPI, year on year) increased from about 160% in 1991 to over 2,500% in 1992 and came to 840% in 1993 (table 1). Credit institutions profited from conditions of macroeconomic instability, even if their rent-seeking activities were not, strictly speaking, of a banking nature.

Thus banks first of all converted funds they received into foreign currency and paid negative or low real interest rates on ruble-denominated accounts.⁵ Currency dealing and foreign exchange services were in high demand. Second, at the expense of state-owned companies in particular, banks benefited by deliberately extending the period between the receipt and the payment of funds, e.g. directed credits, and by speculating with these funds in the meantime. Third, banks granted sizeable commercial credit on their own to firms and benefited from relatively high spreads. The possibility that these loans would turn nonperforming did not pose a problem as long as cheap refinancing was forthcoming from the central bank. Fourth, opportunities arose through the accumulation and use of privatization checks or vouchers issued by the government to the population in 1992 and 1993. These vouchers were resellable and some credit institutions purchased and invested considerable amounts.

Finally, banks drew advantages from acting as financial intermediaries in the strongly expanding Russian trade with countries of the “far abroad” (i.e. the non-Baltic, non-CIS countries), notably with respect to exports of energy and raw materials and imports of consumer goods. Given the lack of effective

⁴ In some cases, these “pocket banks” had in fact constituted former state-owned enterprises’ financial departments that were later divested from the firms.

⁵ During most of the 1990s, the only major alternative Russian citizens had to holding their savings in bank accounts was hoarding them at home in storage facilities like mattresses or jam jars (called “banki”). Hard currency circulating in Russia outside the banking sector has been estimated to oscillate around USD 30 billion to USD 50 billion.

foreign exchange regulations, many of these transactions had the additional advantage of allowing banks to “leave” a substantial amount of hard currency abroad. In an environment of weak banking supervision and currency rules, credit institutions became instruments for (facilitating) capital flight. This also goes for transferring profits abroad and avoiding (evading) taxes.

4 Tightening of Macroeconomic Policy, Interbank Loan Crisis (1994 to 1995)

The subsequent years witnessed a substantial decline of most of these early sources of easy profits. Monetary policy was tightened sharply; quasi-automatic refinancing and directed credits were curtailed as from 1994. Progress in stabilization, which brought about much lower inflation and exchange rate volatility, reduced profits from inflation rents, the servicing of foreign currency exchange and speculation (OECD, 1997, pp. 81–82). Annual inflation fell to about 130% in 1995, 22% in 1996 and 11% in 1997. Real lending interest rates to nonbanks became positive in the second half of 1994. From early 1995 onward, the monetary authorities made a vigorous attempt to stabilize the exchange rate, leading even to some months of nominal appreciation against the U.S. dollar. In July 1995 the authorities introduced a crawling exchange rate corridor for the ruble vis-à-vis the U.S. dollar, which was chosen as the nominal anchor for the Russian currency.

Table 1

Russia: Macroeconomic and Monetary Indicators												
Year-end	GDP growth (real)	CPI inflation (year on year)	CPI inflation (annual average)	Exchange rate	Exchange rate	Central bank refinancing rate (uncompounded)	Broad money (M2, nominal change)	Broad money (M2)	Current account balance	Gross foreign currency reserves (excluding gold)	External debt ¹	
	%			RUB/EUR, before 1999	RUB/USD	RUB/ECU	% per annum	% of GDP		USD billion	% of GDP	
1991	-5.0	161.0	93.0	0.13	..	..	..	125.9	68.0	..	..
1992	-14.5	2,506.0	1,526.0	0.51	..	..	..	642.6	37.0	..	..
1993	-8.7	840.0	875.0	1.27	..	..	210.0	416.1	21.4	..	..
1994	-12.7	204.4	311.4	3.55	..	..	180.0	166.4	16.0	3.4	5.00	43.7
1995	-4.1	128.6	197.7	4.64	5.89 ²	..	160.0	125.8	13.9	2.3	14.40	36.6
1996	-3.6	21.8	47.8	5.56	6.63 ²	..	48.0	30.6	14.4	2.8	11.28	36.7
1997	1.4	10.9	14.7	5.96	6.54 ²	..	28.0	29.8	16.0	0.0	12.90	44.6
1998	-5.3	84.5	27.6	20.65	25.31	..	60.0	19.8	17.0	0.1	7.80	70.4
1999	6.4	36.8	86.1	27.00	27.77	..	55.0	57.2	14.6	12.6	8.46	90.3
2000	10.0	20.1	20.8	28.16	26.90	..	25.0	62.4	15.7	18.0	24.26	61.0
2001	5.1	18.6	21.6	30.14	27.15	..	25.0	40.9	18.0	11.1	32.54	49.1
2002	4.7	15.1	16.0	31.78	33.53	..	21.0	32.4	19.7	8.6	44.05	44.1
2003 ³	7.3	12.0	13.6	29.45	36.82	..	16.0	50.5	24.1	9.0	73.18	38.1

Source: CBR, Goskomstat, IMF, EBRD, wiiw.

¹ 1994 and 1995: Public debt only.

² Average annual rate.

³ Preliminary data or estimates.

Note: In this table, RUB also represents the old ruble (RUR), which was in force until December 31, 1997.

An important amendment to the Central Bank Law was passed in May 1995. It reinforced the CBR’s legal independence from the government and strengthened its authority as bank supervisor and lender of last resort. Licensing requirements, minimal capital adequacy ratios and other prudential regulations were tightened and better monitored, resulting in mergers of small banks and the withdrawal of licenses. The number of operating credit institutions began to decline in 1994 and fell to 2,029 at end-1996 and about 1,600 in mid-1998 (table 2).

The first sustained progress in stabilization caught many banks off guard, triggering mounting liquidity problems. The initial effect of lower inflation and higher real interest rates also squeezed the liquidity of enterprises. The curtailment of central bank refinancing contributed to a decline of commercial bank credit, which fell from 34% of GDP in 1993 to 12% in 1995. Many banks responded to these pressures by raising more and more funds on the interbank loan market, which led to a spiral of borrowing, eventually resulting in an explosion of overnight interest rates and the subsequent collapse of the interbank market in August 1995. Given that the central bank provided only partial accommodation, the crisis caused several hundred banks to fail, including two relatively large ones, Tveruniversalbank and Natsionalnyi Kredit.

The CBR revoked a considerable number of licenses, and some of the first bank bankruptcies occurred. Tveruniversalbank e.g. was formally declared bankrupt and wound up; Natsionalnyi Kredit was rehabilitated, though. This process can be interpreted as a first sign of nascent hard budget constraints in the Russian banking sector. It was possible, however, to avert a systemic banking crisis. The fallout from the interbank loan crisis of August 1995 made it increasingly difficult for banks other than Sberbank to attract household savings. After declining to 60% in 1994, the share of household deposits in Sberbank climbed back to 75% of total household deposits in the banking sector at the beginning of 1997 and came to 70% in mid-1998.

5 Liquidity Squeeze, New Profit Sources and Increased Differentiation of the Banking Sector (1995 to 1997)

The very ambitious IMF-sponsored efforts toward macroeconomic stabilization since the mid-1990s were based on very restrictive monetary and exchange rate policies which led to sharply tightened monetary conditions. After a phase of partly excessive liquidity, the economy found itself in a liquidity squeeze, which was exacerbated by sharply rising imports driven by real appreciation. Nonpayment and the mounting of overdue liabilities (between companies and vis-à-vis employees) became a widespread phenomenon throughout the economy and also affected the government budget. Even though no expansive fiscal policy was pursued in terms of noninterest expenditure, the resulting shortfall of budgetary revenues and rising interest payments increased the budget deficit considerably. Based on the imperative of noninflationary deficit financing, the government budget started to absorb remaining liquidity via the issuance of state obligations, ultimately attracting foreign funds to provide liquidity (Reininger, 2000, p. 53).

Russian credit institutions soon made efforts to adapt to the changed situation and to find some new sources of profits. In the general post-1995 environment of tightened liquidity constraints, many banks supported some new ways to facilitate the exchange of products and services between enterprises and institutions, including government bodies. By assisting in barter and non-monetary deals or issuing “veksels” or bills of exchange, banks helped overcome liquidity bottlenecks in financing transactions of private as well as state-owned firms. Veksels, often traded on the secondary market, proved to be quite profitable monetary surrogates for many banks. It was a frequent practice for credit institutions to issue loans in their own bills of exchange. Veksels were some-

times even accepted by (regional) government authorities in lieu of tax payments. At times, banks transformed defaulted ordinary loans into veksel credits in order to adjust the look of their balance sheets.⁶

A number of banks continued to operate on the basis of close relations with authorities at various levels, which included being “authorized” to hold budget accounts with little or no interest, granting loans equipped with state guarantees to designated enterprises, participating in various government financial programs as well as extending credits to government structures. Connections with local (and sometimes national) politics could take the form of incumbent administrations drawing on bank resources to fund election campaigns and personal projects (Lane, 2002, p. 19).

Perhaps the most important, but – as it turned out later – most dubious new source of income for banks was investment in high interest-yielding government securities. The rapid expansion of the market for state securities in connection with still high budget imbalances that were no longer monetized offered banks liquid, high-yield and, it seemed, low-risk investment. Not least due to an inefficient tax system, the federal budget deficit (according to IMF methodology) amounted to 5.4% of GDP in 1995, 7.9% in 1996 and 7.0% in 1997. The securities banks invested in were GKO (Gosudarstvennye kratkosrochnye obiazatelstva – state short-term obligations or treasury bills) and OFZ (Obligatsii federalnogo zaima – federal bonds). GKOs were introduced in 1993, OFZs in 1995. Until 1997, significant limits were put on foreign investors in this market, which, together with uncertainties surrounding the presidential elections of 1996, contributed to pushing up interest rates, so that real returns on GKOs topped 75% on average in the whole of 1996. This may help explain some of the banking “success stories” of that year. At the end of 1997, holdings of state securities reached about 30% of banks’ assets and in the first half of 1998 even surpassed the volume of corporate loans (see also table 3).

Thus, while initial speculative incentive structures of the early years of transition had largely evaporated, new short-term factors and rent-seeking opportunities emerged. Credit institutions’ proximity to and dependence on the state changed, but remained substantial. But also vice versa, the dependence of the state on banks made itself felt – federal authorities e.g. relied more and more on banks to finance their growing debt, and regional administrations drew on banks’ resources to finance pet projects. There was one other major factor that brought considerable wealth to a few larger and well-connected banks: cash privatization measures, in particular the shares-for-loans auctions in the second half of 1995. Banks’ preeminence in these schemes may be explained by the coincidence of at least three factors: First, in the mid-1990s most aspects of economic policymaking (at the federal level) had been subordinated to the objective of macrostabilization and noninflationary financing of the budget deficit. Second, for various reasons, progress with privatization in the post-voucher era had ground to a halt. Third, in a cash-strapped society, credit institutions proved to be “kings” (Tompson, 2002, p. 62; Allan, 2002, p. 153).

A major goal of the shares-for-loans scheme was to raise money for the treasury: The federal government accepted credits extended by banks to help finance

⁶ By 1997–98, various forms of quasi-money are estimated to have covered half of the industrial transactions in Russia.

the budget deficit on the basis of auctions of packages of state shares in certain valuable firms (among them firms in the oil, electricity and metallurgy sectors) that would serve as collateral for granted credits. In the event of nonrepayment of the credits, the banks in question had the possibility to sell collateralized shares or to keep them. Although the auctions should have been competitive and transparent, in many instances they were not, and numerous violations of established rules reportedly occurred.⁷ In some of the most important cases, winning bids were only slightly above the very modest starting prices.

Virtually all of the auctions were surrounded by controversy. Accusations of corruption, insider dealing and fraud abounded. As a rule, authorities did not repay the loans. In the end, some relatively large and well-connected Moscow-based banks, most notably Oneximbank and Bank Menatep, cheaply acquired major stakes in such important resource-oriented firms as Norilsk Nickel (associated with the largest nickel deposit in the world), Yukos (oil), Sidanko (oil), Surgutneftegaz (oil and natural gas), Novolipetsk Metallurgical Kombinat, Murmansk and Novorossisk Shipping Companies. The “winners” thus made handsome windfall profits and struck it rich.

The expansion of the GKO market and the shares-for-loans auctions accentuated a process of differentiation in the Russian banking sector that had already gotten under way earlier. One can distinguish at least three different groups of banks operating in the second half of the 1990s. Sberbank was (and still is) in a class of its own. Toward the end of the decade, the state-owned institution maintained around 200,000 employees and 33,000 branches and service posts on the territory of the Federation. This dwarfs the number of outlets of all other Russian banks put together. Sberbank accounted for almost a quarter of all assets of the banking sector at the beginning of 1997. Apart from retaining the lion’s share of household deposits, it massively invested in state securities, which began to dominate its portfolio.⁸ Sberbank also acted as an agent of the federal government in financing programs and handled the accounts of the Ministry of Finance.

Second, an increasing share of banking capital and assets came to be concentrated in a small group of Moscow-based banks. Among these were former state-owned specialized credit institutions, major players in the GKO market, prominent “winners” of the above-mentioned auctions, participants in numerous government programs as well as constituent parts of emerging financial-industrial groups (FPGs or *Finansovo-promyshlennye gruppy*), often with strong shareholding interests in many enterprises. At the beginning of 1997, the 22 largest Moscow-based banks accounted for 31% of net assets and 45% of credits of the banking sector. It is safe to assume that privileged access to state resources was pivotal to the expansion of Moscow-based banks.

A third group consisted of all other banks, mainly comprising institutions based outside Moscow. This group included a large number of tiny banks specializing in various short-term activities. Most of them functioned as pocket banks. Some credit institutions of this group were implicitly subsidized by regional authorities and granted loans to local industry. Only one or two banks

⁷ Foreign banks were excluded from bidding practically everywhere.

⁸ In 1996 and 1997, Sberbank held around one-third of the total value of Russian government bonds.

based in St. Petersburg were comparable in assets and clout to the large Moscow banks. In 1996 many regional credit institutions also acquired access to the GKO market (OECD, 1997, p. 92).

Boosted by the outcomes of the shares-for-loans deals, a number of FPGs gained influence and prominence in the second half of the 1990s. FPGs were usually set up by industrial enterprises and banks; occasionally state authorities (of various affiliations) participated, too. FPGs could be formally established (according to a presidential decree of December 1993, which even promised them some benefits) or informally created. Participating members were often – but not necessarily – tied together by cross-ownership of shares. In many cases, the ownership structure of FPG banks and major enterprises was complex and opaque, with offshore companies sometimes holding important positions.

In some regards, these conglomerates functioned as networks to cope with a difficult and unstable overall economic environment. In this respect, even behind-the-scenes connections with state organs could help. Banks would typically act as financial “clearing houses” of respective groups, provide convenience functions and finance investment projects of member firms (connected lending).⁹ This may have contributed to conserving structures unviable in the long term. Some of the more important FPGs and largest Moscow-based banks have been headed by powerful “oligarkhs.” Given the continuing weak presence of foreign investors in Russia, (home-grown) financial-industrial groups have at times even been depicted as elements of an alternative route to leading the country to industrial maturity.

Table 2

Russia: Banking Sector-Related Indicators

Year-end	Banks (of which in majority foreign ownership)	CPI inflation (year on year)	Deposit rate (average)	Lending rate (average)	Total assets of the banking sector	Domestic credit (nominal change)	Domestic credit to enterprises	Share of nonperfor- ming loans in total loans	Household deposits	Funds attracted from enterprises and organi- zations	Capital (own funds)	Capital adequacy of banks with positive capi- tal (capital/ risk-weight- ed assets)
	number	%	% per annum		% of GDP	%	% of GDP	%	% of GDP			%
1994	..	204.4	..	..	..	335.6	12.1	..	..	..	..	..
1995	2,297 (21)	128.6	102.0	320.0	..	87.8	8.7	12.3	..	..	..	..
1996	2,029 (22)	21.8	55.1	146.8	..	48.3	7.4	13.4	..	..	..	..
1997	1,697 (26)	10.9	16.8	32.0	30.1 ¹	22.2	9.5	12.1	7.5 ¹	5.8 ¹	4.6 ¹	23.4 ¹
1998	1,476 (30)	84.5	17.1	41.8	39.8	68.2	12.6	30.9	7.6	13.0	2.9	19.8
1999	1,349 (32)	36.8	13.7	39.7	33.3	34.1	9.9	28.1	6.2	9.7	3.5	26.7
2000	1,311 (33)	20.1	6.5	24.4	33.4	13.7	11.0	16.1	6.3	9.9	4.1	24.9
2001	1,319 (35)	18.6	4.9	17.9	34.9	30.0	13.7	12.2	7.5	10.0	5.0	24.3
2002	1,329 (37)	15.1	5.0	15.6	38.1	29.6	15.3	11.4	9.5	10.1	5.4	22.2
2003 ³	1,329 (41)	12.0	4.5	13.0	42.1	51.5	17.8	..	11.4	10.4	6.1	21.1 ²

Source: CBR, EBRD, OeNB.

¹ Mid-1998.

² Mid-2003.

³ Preliminary data or estimate.

⁹ *The economic efficiency of banks' activities in reallocating scarce financial resources within groups has been in doubt (Jasper, 1999, p. 50).*

6 Structural Imbalances and External Factors

For all these impressive and sometimes even breathtaking activities, credit institutions had not approached what is generally seen as the essence of commercial banking: efficient financial intermediation between savers and the real sector. In other words, incentives were skewed in such a way as to make the granting of loans intended for financing enterprises' productive capital formation difficult. Commercial bank loans to the nonfinancial sector declined to about 10% of GDP in 1997 (table 2). But this low share largely reflected loans to owner companies, very short-term credits and trade credits. Long-term (over one year) investment loans amounted to less than 1% of GDP. Large Moscow banks participating in FPGs have not shown any greater inclination to devote their funds to long-term investment than the banking sector as a whole. Some of the reasons for this major shortcoming of Russian banking will be identified in the following.

First, banks inherited problems from the past: They had difficulties in identifying profitable investment opportunities, encountered enterprises lacking a business reputation and a reliable credit history, and were equipped with insufficient skills for project evaluation. Second, banks suffered from problems connected to the way transition has materialized in Russia: There is a predominance of insider control in enterprises, the legal system is complicated, contract enforcement is weak or arbitrary and, more generally, the rule of law is not effectively assured. A long-standing and pivotal obstacle in this respect appears to be that creditor rights are insufficient, even if credits are collateralized. Third, the long-lasting economic contraction, which generally weakened incentives to invest in future production, weighed on banks.

Fourth, last but not least, banks were allured to lend to the government budget, which itself suffered from the liquidity squeeze of the whole economy. Thus, within the excessively tight monetary conditions of lacking liquidity, the sovereign debtor partly crowded out bank lending to the real sector. Not only domestic banks, but also foreign banks were more attracted by the highly profitable and seemingly less risky government debt market. On one account, namely the weakness of creditor rights, the (general) Bankruptcy Law, enacted in March 1998, was meant to improve the situation. But enforcement remained problematic.

Given this overall state of affairs, it is easy to understand why foreign banks have not rushed to Russia to engage in core banking activities there. In addition to the difficult environment, a number of administrative restrictions on the activities of foreign-owned banks were introduced by the CBR in 1993, among them a 12% limit on the share of foreign capital in the aggregate capital of the Russian banking sector. Some of these constraints – though not the 12% limit – were relaxed or removed in subsequent years. But the actual share of foreign-owned capital came to less than 4.5% on average in the period from 1996 to 1998 and thus remained far below the mentioned threshold and was very modest also in comparison to Central European countries at this time.

The further opening of the state securities market to nonresident investors in the course of 1997 (supported by the IMF) drove down GKO yields. This liquidity injection, which triggered cuts in key interest rates, supported some moderate recovery, with GDP reaching its first – if feeble – post-transforma-

tion real growth. Faced with capital account liberalization and decreasing GKO profits, Russian credit institutions managed to access new profit routes for themselves: They took up low-interest credits abroad to finance their GKO purchases, offered their services as intermediaries to foreign investors in GKOs, and offered foreigners forward contracts to cover currency risks. Russian banks did not deem these transactions to be very risky, given the continuing commitment of the CBR to defend its exchange rate corridor. Moreover, this exchange rate policy was part of the official economic strategy of the authorities and was endorsed by the IMF. All the same, capital flight from Russia, which was largely channeled through banks, remained buoyant in the heyday of GKO placements.

Starting in late 1997, a number of warning signs showed up. The continuous appreciation of the ruble in real terms ever since the introduction of the exchange rate corridor eroded the competitiveness of Russian industrial goods, and imports surged. In the fall of 1997, the country was severely hit by contagion from the Asian crisis via two main channels: First, the Asian crisis was one of the main reasons for the sharp fall of energy and raw material prices in the world market. Second, financial contagion led to a sudden reversal of capital flows, with accumulated foreign portfolio capital rushing for the exit. These factors together led to a strong deterioration of Russia's external accounts, and the liquidity squeeze reemerged in an even more acute form. Investors were withdrawing from the GKO market, although the central bank had hiked interest rates substantially and intervened strongly to defend the ruble, thereby cutting its foreign exchange reserves. The situation temporarily stabilized in the first quarter of 1998, but fundamentals, including the weak fiscal situation and tax administration, continued to deteriorate. Parliament repeatedly failed to enact a reformed tax code that was meant to raise revenues. Political instability connected to the abrupt change of government in spring further sapped confidence.

7 The Financial Collapse of August 1998 and Its Immediate Repercussions

Banks apparently started to sense that the ruble might be devalued in the second quarter of 1998 and essentially ceased to issue forward contracts in May of that year. Despite skyrocketing interest rates, by June/July 1998 the authorities were no longer able to roll over mature state securities by issuing new ones. Despite hasty attempts of some banks to reshuffle their portfolios, in July 1998 securities (still) made up over a third of all banking sector assets. Even the assistance package of USD 22.6 billion the international financial community granted to Russia, including the immediate disbursement of an IMF credit tranche of USD 4.8 billion at end-July, could not sufficiently calm investors and remedy the situation. In announcing their default on the internal debt and the devaluation of the ruble on August 17, 1998, the authorities dealt the banking sector a terrible blow. The declaration of a 90-day moratorium on private payments on obligations to foreigners was meant to give banks some respite to rearrange their activities. A strong and sharp depreciation of the ruble was followed by a spike in inflation which reached 85% in 1998 (year-end), then fell to 37% in 1999 and gradually receded further (table 1).

The vast majority of the large Moscow banks that had participated in the GKO market, taken up foreign currency loans or issued forward contracts immediately became illiquid, insolvent and decapitalized. Sberbank, a major holder of GKO's, was also severely affected. Many risky loans that banks had extended became nonperforming. Payment arrears between banks exploded, and the payment system collapsed. Most large banks holding deposits no longer served depositors trying to withdraw their money, and some banks, faced with runs, simply closed their doors. According to CBR calculations, aggregate banking capital, expressed in U.S. dollars, shrank from USD 19.1 billion at end-July 1998 to USD 3.7 billion at end-December 1998, thus amounting to less than 3% of GDP (table 2) (Bank of Russia, 1999, p. 88). At the beginning of 1999, the total assets of the Russian banking sector were estimated to amount to about a fifth of GDP, whereas in Hungary or Poland banking assets surpassed two thirds of GDP. A due diligence study of 18 of the largest Russian banks (but excluding Sberbank) carried out by World Bank experts at the request of the CBR and referring to the financial situation of banks in October 1998 is reported to have found that all reviewed credit institutions, except three, had negative net worth (Euromoney, 1999, pp. 262–263).¹⁰

Table 3

Structure of Balance Sheets of Russian Credit Institutions

End of period	Assets								Liabilities							
	Total assets	Claims on non-financial private enterprises and households	Claims on non-financial public enterprises	Claims on general government	Claims on other financial institutions	Foreign assets	Reserves/liquid assets	Other assets	Demand deposits	Time and savings deposits and foreign currency deposits	Money market instruments	General government deposits	Liabilities to monetary authorities	Foreign liabilities	Other liabilities	Capital accounts
	%															
Old structure¹																
1995	100	57.3	57.3	18.3	0.2	13.5	10.7	–	56.6	56.6	..	..	2.3	8.8	12.8	19.5
1996	100	45.4	45.4	30.3	0.0	14.6	9.5	–	50.7	50.7	..	..	1.4	11.8	11.2	24.9
1997	100	43.7	43.7	31.5	1.3	11.8	11.8	–	52.0	52.0	..	..	1.4	16.9	6.5	23.3
1998	100	40.6	40.6	27.8	0.8	23.6	7.3	–	46.5	46.5	..	..	7.7	21.8	7.2	16.9
New structure																
Mar. 1998	100	38.6	4.7	34.6	1.0	10.8	10.3	–	22.5	26.7	6.1	2.8	0.7	16.9	–	24.2
Jun. 1998	100	40.0	4.8	33.3	0.8	11.6	9.4	–	33.7	33.7	7.5	2.9	2.0	20.2	3.5	30.1
1998	100	31.2	3.1	24.0	0.7	20.3	6.8	14.0	14.2	25.9	3.5	1.8	6.5	18.3	14.8	14.9
1999	100	29.2	2.6	24.5	0.7	20.7	9.0	13.3	14.0	25.5	6.0	1.6	11.2	12.5	12.9	16.4
2000	100	34.1	2.9	20.7	0.6	18.7	11.8	11.3	17.4	26.7	7.5	2.1	8.1	9.8	11.3	17.2
2001	100	41.0	2.3	17.3	0.7	15.9	10.1	12.7	17.3	27.5	7.3	2.0	7.3	9.3	10.9	18.1
2002	100	43.1	2.8	16.0	0.8	13.7	10.8	12.9	16.3	30.9	9.1	1.5	5.1	9.1	9.7	18.0
2003	100	47.8	2.5	12.8	1.0	10.5	13.3	12.2	17.3	30.7	9.4	1.5	3.5	11.8	9.8	15.7

Source: CBR Bulletin of Banking Statistics, various issues, 1995–2004.

¹ In the old structure, the "Foreign liabilities" column was labeled "Foreign clients' deposits" and the "Capital accounts" column was called "Equity capital."

Note: The share of foreign currency deposits in the sum of time and savings deposits and foreign currency deposits came to 42% at end-1996, rising to 50% at end-1997 and 67% at end-1998. Since then, it has fallen continuously, reaching 42% at the end of 2003.

The central bank was in a very difficult situation, since it neither had the necessary means at its disposal to refinance or recapitalize all or most large illiquid credit institutions (in particular with respect to their foreign debt obli-

¹⁰ All of Russia's five largest credit institutions as at July 1998 (save Sberbank, which was not reviewed) featured among the banks with negative net capital. The combined losses of the 18 banks in the wake of the crisis were calculated at USD 9.8 billion.

gations), nor was it vested with sufficient legal and coercive power to take effective control of the problem banks and force them to restructure. The Russian government was not able (or willing), either, to provide sufficient resources for a genuine overhaul of the banking sector.¹¹ Therefore, policies to overcome the systemic crisis were hesitant, of limited effectiveness and controversial – although the central bank proved to be successful in restoring the operative capacities of the sector in relatively short time.

The CBR's first important step in reaction to the crisis was to relaunch the payment system and stave off a banking panic. This was done by reducing mandatory reserves of commercial banks and, in various cases, accepting GKO's at nominal value as reimbursement of credits despite the fact that GKO's had been frozen. A number of prudential regulations were relaxed, particularly those regarding minimum capital and capital adequacy, with the goal of giving the sector some time to recover. The CBR extended emergency loans to a number of credit institutions in need of liquidity. By far the largest loans and liquidity injections were granted Sberbank (Ippolito, 2002, p. 15). State-owned Vneshtorgbank also received substantial financial assistance. Further, private depositors at 6 distressed large Moscow banks and at about 30 other banks were allowed to transfer their accounts to Sberbank (which offered a state deposit guarantee). The devalued exchange rate for converting foreign currency deposits, however, implied considerable losses for depositors. By October 1998, interbank payments had more or less been reestablished and further runs by the population were averted.

8 Reaction to the Shock and Some Limited Restructuring

After the strong contraction in 1998, the Russian economic recovery started in 1999, supported by the significant easing of monetary conditions, as the exchange rate had fallen by 40% in real-effective terms by the beginning of 1999 and nominal key interest rates were raised much less than the sharply accelerating inflation rate (table 1). The ruble's substantial depreciation boosted the competitiveness of Russian manufacturing and import substitution. Then, importantly, oil and raw material prices started to recover again and rose quickly during 1999. In particular, oil prices doubled (from a low level) in the first half of the year. Liquidity in the economy sharply adjusted, contributing to a decline of payment arrears between enterprises and also to a rise in tax revenues (Reininger, 2000, p. 54). The fact that these changes impacted on the banks, but that the banks in turn hardly contributed anything to the recovery very well reflects the state of the banking sector at the time. In November 1998 the CBR and the Russian government presented a reconstruction plan for the banking sector, which, however, quickly proved to be inapplicable because initial lists of large Moscow banks worthy of rehabilitation implied too high a financial burden for the authorities (Walter, 1999, p. 15; OECD, 2000, p. 76).

Although the CBR continued to withdraw the licenses of insolvent banks after August 1998, the speed of this activity did not accelerate in the following

¹¹ Furthermore, no debt-for-equity swap programs, which would have allowed foreign strategic investors to gain control of large parts of the banking sector, were implemented.

months or in 1999.¹² Almost all banks that had their licenses removed were small or very small. Unfortunately, the monetary authorities were not able to bring decisive reform efforts to bear on larger banks; they could not nor did they prevent a further deterioration of the situation in a number of ailing entities. When the CBR in the fall of 1998 tried to revoke the licenses of, and appoint external administrators to, two large insolvent Moscow banks (Inkcombank and SBS Agro), these decisions were contested and initially overturned in the courts. Only after considerable delays and legislative changes (see below) were the two institutions declared bankrupt.¹³

The situation provided incentives for asset stripping, fraud and capital flight.¹⁴ In a number of instances, managers organized the transfer of assets of insolvent credit institutions to new structures (often called “bridge banks,” “shadow banks” or “mirror entities”), leaving liabilities (particularly debts to non-FPG creditors) in the “shell” of the old bank. Bridge banks were usually controlled by the shareholders of the old banks and were often run by the same managers. For example, Oneximbank created Rosbank; Menatep St. Petersburg took over assets of Bank Menatep in Moscow and other regions; Impeksbank succeeded Rossisky Kredit; SBS Agro became part of the Soyuz Group and set up the First Mutual Credit Society (Euromoney, 1999, p. 258). The central bank leadership was criticized for an apparent lack of will to bring about decisive adjustments to the banking sector. Altogether, according to IMF estimates, the direct fiscal cost of the Russian financial crisis was minimal, compared to other crisis countries, but indirect effects via disruptions to the system, exchange and interest rate volatility and loss of confidence were significant (IMF, 2003a, p. 22).

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

¹² Actually, the withdrawal of licenses slowed down. In the period between the end of August 1998 and the end of March 1999, the CBR revoked about 88 licenses for violations of banking legislation and regulations. This was 46 less than in the same period a year before. On the other hand, the share of respective banks in total assets of the sector, while modest, was higher than a year before.

¹³ Inkcombank was finally declared insolvent by court in February 2000. The liquidation procedure took three years and left many creditors disappointed. In July 1999, the CBR introduced temporary administration in SBS Agro; an “amicable settlement” on the institution’s bankruptcy was reached in February 2001 but fell far short of the expectations of most depositors.

¹⁴ According to CBR estimates, illegal capital transfers abroad amounted to USD 25 billion in 1998, fell to USD 15 billion in 1999 and rose again to USD 23 billion in 2000. Capital exports have often been carried out in connection with offshore centers that give banking secrecy the highest priority, e.g. Cyprus, the British Channel Islands, the Bahamas (Pleines, 2002, pp. 120–121).

According to the law, the CBR is obliged to transfer banks satisfying certain criteria of financial distress to ARKO's control (unless the monetary authority decides to revoke the banks' licenses outright). In the event of a transfer, ARKO is vested with significant authority over the bank in question, including the ability to write down shareholders' capital or to repudiate improper transactions undertaken by the bank's management (IMF, 1999, p. 91). But ARKO was only granted RUB 10 billion (about EUR 380 million at the exchange rate of mid-1999) of charter capital by the Ministry of Finance and has not received substantial financial support from any other source. Partly due to the paucity of financial resources, to some problems of coordination of its activities with those of the CBR as well as to persisting legal and political obstacles (see below), ARKO has not yet shown much impact on the banking sector.¹⁵

Despite the consolidation of its legal position, the CBR's attempts to effectively bankrupt (formerly) large banks and seize assets before they disappear or are moved to "safe havens" repeatedly ran up against problems of legal complexity and political resistance. Although the CBR eventually did revoke the licenses of a number of larger insolvent banks, this was typically only achieved after considerable delays. New laws were found to be inconsistent with a host of unchanged pieces of legislation. Further, liquidation procedures remained complicated and were often drawn out. The surviving political power of some oligarchs at the head of financial-industrial groups as well as corruption continued to hamper banking reform in Russia.¹⁶ The enforcement of rights of minority shareholders and creditors remained selective at best. Bankruptcies and liquidations were liable to protect insiders and expose outsiders to considerable losses and disadvantages. On a number of occasions the behavior of the CBR and ARKO themselves seem to have been nontransparent and their handling of insolvent banks arbitrary (Vassily et al., 2000, pp. 19–20).

Added up, this probably also reflected a lack of political resolve to carry out serious bank restructuring efforts. In any case, the opportunity for an in-depth clean-up of the sector afforded by the crisis was missed. This contrasts with what happened in some Central European countries which had also encountered financial crises. Despite the authorities' assistance, the situation of Sberbank remained difficult. The CBR-owned credit institution had been a major purchaser of GKO's and, after having received substantial transfers of accounts as mentioned above, in mid-1999 had about 90% of all household deposits in Russia on its books. This once again made it a quasi-monopolist for private savings.

After their most important previous profit sources had been wiped out, Russian commercial banks were in want of new sources. In the weak and uncertain post-crisis situation of 1999, not much showed up. After the value of the entire banking sector's holdings of state securities had strongly shrunk, in the first months of 1999 banks appeared to reshuffle some of their activity (back) to "investing" in cash balances and deposits in foreign currency. Clearly, given the initial burst of inflation after the August 1998 devaluation and the accom-

¹⁵ Altogether, ARKO approved or conceived restructuring plans for about a dozen mostly smaller credit institutions. Among the bigger banks it temporarily assisted, *Rossisky Kredit* and *SBS Agro* are worth mentioning, but both were eventually wound up.

¹⁶ After the passage of the bank bankruptcy law, about half of the top ten credit institutions were reported to have transferred most of their business to newly established "shadow entities," a move which was inconsistent with creditor rights.

Table 4

Indicators of Real Growth of the Russian Banking Sector					
	Assets	Corporate loans	Household deposits	Funds of enterprises and organizations	Own funds (capital)
Mid-1998 ¹	100.0	100.0	100.0	100.0	100.0
End-1999	67.0	70.4	54.2	103.3	59.7
End-2000	90.1	109.4	69.7	143.8	84.6
End-2001	106.4	146.9	91.0	159.5	113.1
End-2002	125.2	174.7	122.4	172.5	125.8
End-2003	151.1	222.4	160.8	205.0	157.4

Source: CBR, BFI (Konsaltingovaya gruppa – banki, finansy, investitsii), own calculations.
¹ End-June 1998 = 100.

panying increased volatility of the exchange rate, renewed possibilities of benefiting from currency arbitrage and speculation emerged. But, owing to the quick reduction of inflation in subsequent months, this “window of opportunity” soon drew to a close again.

A more important motivation for acquiring sizeable foreign currency accounts may have been a desire to build up some low-risk investment abroad after having suffered a home-grown economic calamity. While liquidity recovered, possibilities for profitable investment in Russia were scarce for the time being.¹⁷ Among the healthiest credit institutions appear to have been those attached to rich owners or clients, like profitable exporters and “natural monopolies,” such as natural gas (Gazprom) and electricity. But the overall profitability of the sector was clearly negative in 1999 (OECD, 2000, p. 78).

9 Recovery and Fragile Expansion (since 2000)

The impact of the ruble devaluation on the Russian economy was reinforced by further rising oil and raw material prices, growing rents from related exports, sustained political stability since 2000, prudent macroeconomic policies and some positive effects of structural reforms, e.g. tax reforms.¹⁸ Russian GDP has continued its recovery and expansion until present (June 2004). Economic growth rates have been robust indeed (2000: 10.0%, 2001: 5.0%, 2002: 4.3%, 2003: 7.3%, first quarter of 2004: 7.4% year on year). Higher capacity utilization facilitated initial swift growth; investments then rose. Current account surpluses have been strong (table 1).

Inflation declined further – although not as quickly as the authorities hoped for – and reached 15.1% at end-2002, 12.0% at end-2003 and 10.1% in May 2004 (year-on-year). The slowness of the decline was partly attributable to the continued inflow of large foreign exchange earnings. Given that the CBR has intervened against resulting ruble appreciation pressures and that it does not have sufficiently effective sterilization instruments at its disposal, the inflows translated into a swelling of the quantity of money and inflationary pressures. The CBR’s foreign currency reserves (including gold) expanded swiftly, reached a record level of EUR 68.2 billion at end-March 2004 (about 17% of GDP) and are continuing to grow. Buoyed by the rising liquidity in the economy, budget-

¹⁷ As the CBR commented, “The dynamics and structure of banking assets in 1999 were largely determined by banks’ desire to reduce risks and by a lack of profitable and safe areas for investment.” (Bank of Russia, 2000, p. 78).

¹⁸ Apart from tax reforms, the overall environment of Russian banking has been influenced by a host of other reforms undertaken so far in the Putin era, among them customs, labor market, pension, enterprise regulatory, land, energy and infrastructural reforms.

ary revenues increased significantly. In addition, negative real interest rates and debt rescheduling decreased the level of interest payments. The fiscal situation improved radically and the federal budget even featured surpluses as from 2000. By the fall of 2003, about three quarters of the crisis-induced real effective depreciation of the ruble had been eliminated; this jeopardized the new-found competitiveness of the nonenergy branches of industry.

Rising earnings and the wealth of raw material extractors, exporters and linked industries attracted banks and provided a new base for banking activities. This development was later complemented by the steady recovery of the wage level and by pronounced pension adjustments (albeit from very meager post-crisis points of departure).¹⁹ The stabilization of the general economic uptrend supported attempts to broaden fledgling financial intermediation. Sberbank was first to react by expanding its credit portfolio (already in mid-1999); most other banks followed later (in 2000). After having been overtaken by inflation during the financial crisis, real lending interest rates turned positive again. Real deposit rates remained mostly in negative territory, though. According to the CBR, by the end of 2001, the Russian banking sector had more than compensated the losses caused by the crisis, and its profitability had been restored. For the first time, typical banking activities started to play a substantial role in banks' endeavors in Russia, although these activities were not yet fully market-oriented.

Banking recovery gathered momentum in 2002 and 2003. As tables 2 and 4 show, at end-2003, total banking assets in real terms were about 50% higher than in July 1998 (just before the crisis). By end-2003, banking assets reached 42% of GDP (or approximately EUR 160 billion). The total volume of loans to the corporate sector more than doubled in real terms in the mentioned time span, coming to almost half of total assets. The volume of household deposits climbed by 60% (BFI, 2003a, p. 19).²⁰ Banks' total capital in real terms was more than 50% larger in December 2003 (amounting to 6% of GDP) than in July 1998 (Bank of Russia, 1998–2004). Profitability rose, with banks' return on equity (ROE) passing from 8% in 2000 to 12% in the first half of 2003 (BFI, 2003a, p. 19). Yet these data are based on official Russian accounting standards (RAS), which tend to put greater emphasis on formal reporting requirements than on material elements and economic meaning.²¹ As can be seen in table 3, reserves and liquid assets are relatively high.

The quality of measured capital is questionable and loan loss provisioning may not fully reflect risks. A (still) not infrequent way of dressing up the books appears to be that banks grant loans to their shareholders, who then use the funds to “boost” capital.²² If high assets risks were accurately taken into account, a number of credit institutions could end up with negative net worth. The still modest level of capitalization of most Russian banks contributes to higher

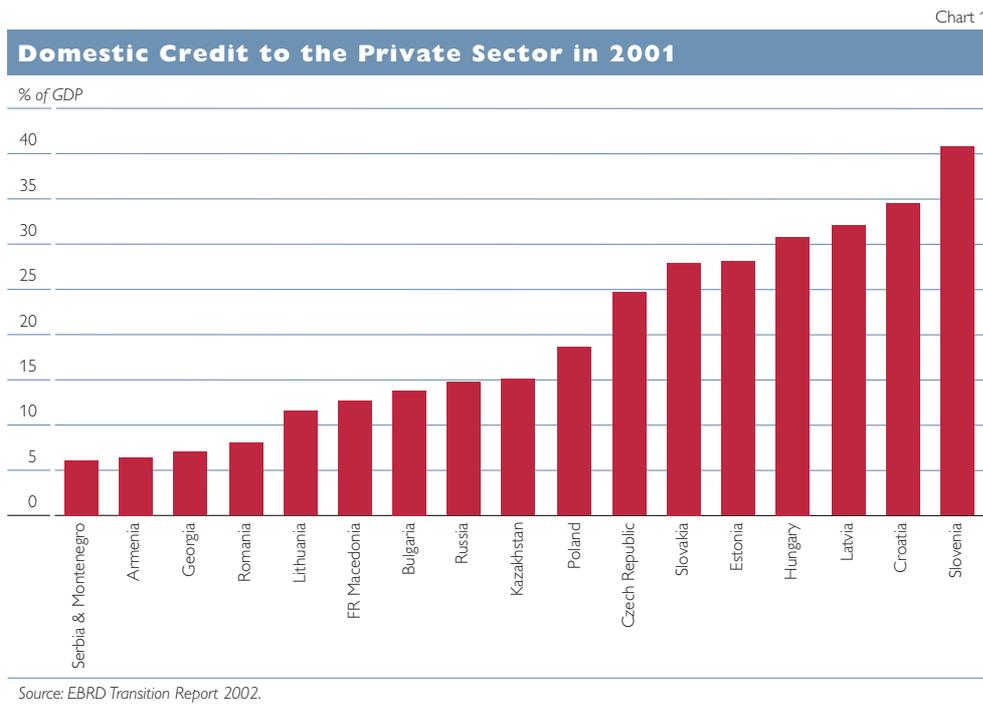
¹⁹ But mistrust of private depositors (many of whom had lost large parts of their bank savings twice during the reform period) has only been gradually overcome.

²⁰ Strong deposit and lending growth continued in the first quarter of 2004. At end-March 2004, total household deposits were 20% higher (in real terms) than a year before and total loans to companies had expanded 30% over the previous year.

²¹ For a concise comparison of RAS and IAS, see Banerji et al., 2002 p. 49.

²² This is also dubbed “roundtripping of loans to shareholders” (Odling-Smee et al., 2003). 60 out of 180 credit institutions recently examined by the CBR were reported to have shown signs of fictitious capital. According to some expert estimates, between 20% and 60% of banking capital may be accounted for by fictitious assets (Kostikov, 2004, p. 5).

(potential) credit risk, fewer loans and less public trust. Compared to other transition economies, and in particular to the new EU member countries, the degree of financial intermediation has remained relatively low in the Russian banking sector, even though the situation improved in the period from 2001 through 2003, when the gap was somewhat reduced.



Thus, household deposits in Russian credit institutions grew from 6% of GDP at end-1999 to 11% at end-2003, and domestic loans to the enterprise sector correspondingly expanded from 10% to 18% of GDP (see table 2 and chart 1). Credits to firms averaged around one third of GDP in the central European new Member States of the EU in 2003. Only 4% to 5% of investment financing in Russia comes from banks, compared to over 15% in many other countries (Komulainen et al., 2000, pp. 9–10; Mazzaferro et al., 2002, p. 16). In particular, the Russian banking sector has not linked the great need for capital in small and medium-sized companies (SMEs) to the large amount of existing capital generated by the big natural resource businesses.²³

10 Structure and Activities of the Banking Sector

When the dust of the crisis had settled, it was clear that state-owned credit institutions had become the dominant players in Russia. Coming to 1,327 as of end-May 2004, the total number of Russian banks is still high. The total number of licensed credit institutions essentially stopped declining in 2000. Since then, license withdrawals have been, by and large, offset by new licenses granted.²⁴ The head offices of more than half of all credit institutions remain in Moscow

²³ According to expert estimates, banks cater to only about one-fifth of the potential market for credit to SMEs. The total amount of current loans to small business does not exceed USD 1.5 billion, which corresponds to about 3% of the total credit volume extended to enterprises (Plisetsky, 2003, p. 16).

²⁴ The only country with more commercial banks than Russia appears to be the U.S.A., which has some 9,000 banks.

or Moscow Oblast. Today, Russian commercial banks can be subdivided into four basic groups: first, the big state-owned banks Sberbank and Vneshtorgbank; second, the next 15 to 20 mostly private banks, currently dominated by institutions owned by big raw material producers; third, numerous small banks; fourth, foreign-owned credit institutions.²⁵ The largest two dozen banks have more assets than all the remaining 1,300 credit institutions put together. 80% of Russian banks continue to be very small, with equity capital per bank not exceeding EUR 5 million, 50% of Russian banks do not have more capital than EUR 1 million. These “dwarf banks” are often undercapitalized and many of them are not considered to be stable institutions. On the other hand, given their flexibility and adaptation to their environment, a number of these banks are deemed to play useful roles in the regions (OECD, 2002, p. 59).²⁶

Sberbank remains by far the biggest player in the market. Although it has been closing some of its outlets in recent years, it still has about 190,000 employees and 20,000 branches and service points across Russia at its disposal, and it is the only bank present in a few outlying and far-flung areas of the federation – which to some degree may reflect an infrastructural role. Sberbank’s branches and outposts continue to dwarf those of all other banks put together (about 2,200). This implies an average branch-to-bank ratio of less than two for the rest of the sector. The state Savings Bank claims about a quarter of total banking assets. Owing to increased competition, Sberbank’s market share of total household deposits declined to 61% at end-March 2004 (which corresponds to the share it had in the mid-1990s). A large part of deposits at Sberbank are pension accounts. While Sberbank used to be the largest buyer of public debt instruments, it has over recent years strongly expanded its exposure to the corporate sector, in particular to the oil and natural gas industries, with a high level of concentration of loans, thus incurring greater risks. Sberbank’s share in the sector’s total credit volume grew from over one-fifth at end-1998 to almost 32% at end-2000, before receding to 29% at end-2003.

Vneshtorgbank has also widened its activities from financing foreign trade to crediting industrial and commercial enterprises. As of end-2003, Sberbank and Vneshtorgbank together accounted for one-third of the total amount of Russian banks’ credit portfolios (see also table 8). Thus, the large state-owned banks have become preeminent not only in deposit taking, but also in lending. If we add the banks that are (more than 50%) owned by various central, regional and local authorities and state bodies, 38% of banking sector assets were reported to be in public ownership.²⁷ At end-2003, majority state-owned banks accounted for 39% of loans to the real sector and for 70% of household deposits. While state-owned credit institutions loom larger, private banks have become more oriented to servicing business as opposed to government organs. The majority of private credit institutions, whether small or large, remain agent or pocket banks. This may help explain why many Russian banks do not have any branches at all. Most of the larger banks are probably members of FPGs. Excluding Sberbank and Vneshtorgbank, the 15 to 20 next largest credit insti-

²⁵ The fourth group partly overlaps with the second and the third one.

²⁶ In some regions, pocket banks may be the only local competitors to Sberbank.

²⁷ Altogether, state bodies reportedly hold majority stakes in more than 20 banks and minority stakes in over 800 credit institutions (Chowdury, 2003, p. 8).

Table 5

Structure of Personal Deposits Disaggregated by Maturity

	Demand deposits	Deposits with a maturity of up to one year	Deposits with a maturity of over one year
	%		
Mid-1998	41.2	51.8	7.1
End-1998	37.6	55.2	7.3
End-1999	30.5	63.9	5.6
End-2000	31.5	57.1	11.3
End-2001	25.0	51.0	24.0
End-2002	20.0	45.2	34.8
End-2003	18.5	38.5	43.0

Source: Bank of Russia Bulletin of Banking Statistics, various issues.

tutions together account for slightly fewer assets, and have granted slightly more loans, than Sberbank.

The rise in natural resource prices has boosted the fortunes of many banks connected to large producers and exporters of oil, gas, metals and other raw materials. Among the largest “RawMat banks” are Gazprombank (associated with the natural gas monopolist Gazprom), Rosbank (linked to Norilsk Nickel), Bank Petrokommerts (attached to Lukoil) and Surgutneftegazbank (Hainsworth, 2002, pp. 26–27).²⁸ The resource price rises appear to have strengthened, or injected new “life” into, a number of financial-industrial groups. Doubtlessly, after the crisis of 1998 many banks no longer retain the dominant positions in FPGs they once had (in the wake of the shares-for-loans deals). Pre-eminence is held by the resource enterprises themselves. The endurance of FPGs also has to be seen against the backdrop of a lingering problematic environment for financial intermediation in Russia and slow-moving progress of reforms in this field. It continues to be difficult for Russian banks to “lend on the free market.”²⁹

Average maturities of deposits and loans have increased over the past few years. For example, the share of medium- and long-term loans (with maturities exceeding one year) in the total volume of corporate credits expanded from 35% at end-1999 to 38% at end-2003; the corresponding share of medium- and long-term household deposits increased from 6% to 43% in the same time span (table 5). Particularly the latter evolution can be taken as a sign of growing trust in the banking system. In 2003, retail deposits overtook commercial deposits in Russian banks for the first time (table 2). There are even signs that money Russians have traditionally stored in their homes is partly flowing into the banking sector (Aris, 2004b, p. 100). However, owing to the fact that Russians are legally entitled to withdraw money on short notice even from their longer-term deposits, banks’ resource bases have not necessarily become more stable. The level of “dollarization” of banking is still relatively high in Russia: Approximately one-third of loans to enterprises and one-third of household deposits are denominated in foreign currency, predominantly in U.S. dollars (although the euro has been slowly making inroads) (table 6). Comparing the level of disposable income to the level of retail accounts between Russia and other countries

²⁸ Gazprombank may currently qualify as the largest pocket bank.

²⁹ According to nonofficial estimates, around half of all Russian bank loans were extended to related parties or insiders in 2001 (RECEP, 2002, p. 13).

Table 6

Structure of Corporate Loans in Rubles and Foreign Currency¹

	Rubles %	Foreign currencies
Mid-1998	58.4	41.6
End-1998	33.2	66.8
End-1999	54.9	45.1
End-2000	66.5	33.5
End-2001	69.0	31.0
End-2002	65.5	34.5
End-2003	67.0	33.0

Source: Bank of Russia Bulletin of Banking Statistics, various issues.

¹ Predominantly U.S. dollars.

indicates that retail accounts could be two to three times larger in Russia than they are at present, which reflects Russia's catching-up potential.

One of the reasons why Russia is trailing behind other economies with respect to the size of its retail deposits is the persistence of negative real deposit interest rates. Despite many changes, it remains relatively difficult – particularly for the population at large – to preserve the real value of savings. Many people (as well as banks) are increasingly investing in real estate – which has given rise to a possible speculative bubble on the housing market. In 2003 the U.S. dollar prices for real estate in Moscow grew by 40%, in the first quarter of 2004 by 7% to 8%.³⁰

Consumer loans have been growing briskly in recent years, albeit from a very modest starting point. Their share in total credits expanded from 4.5% at end-1999 to 10.0% at end-2003 and 12% to 13% in March 2004. After financing purchases of household appliances and automobiles, some banks marked a milestone by launching mortgage loan programs. Russian credit institutions have continued to assist in exporting capital after the financial crisis; however, capital flight has been on a declining trend in recent years, although it appears to have regained some momentum in the second half of 2003. Many observers believe this (temporary?) reacceleration of capital flight is linked to the “Yukos affair” – the Russian judiciary's investigation (since July 2003) into charges of corporate wrongdoing and tax evasion on the part of the management of the oil firm Yukos and the arrest (in late October 2003) of the CEO of Yukos. While overall net private capital outflows fell in 2003 by almost two-thirds to USD 2.9 billion, a USD 8.7 billion net outflow was recorded in the third quarter, followed by a USD 2.5 billion net inflow in the fourth quarter of the year (EBRD, 2004, p. 64).

On the other hand, enterprises have been trying to supplement insufficient domestic bank credit by raising funds in domestic and international capital markets. In 2002 the – very modest – Russian bond market was booming. The face value of outstanding corporate bonds rose from EUR 2.8 billion in January 2002 to EUR 6.8 billion a year later. Russian direct corporate borrowing abroad, which bypassed the domestic banking system, has expanded vigorously in the wake of sharply declining global interest rates, lower sovereign spreads and easier access to foreign capital markets.³¹ Expectations of upward pressure on

³⁰ Information supplied by Vasily Astrov (wiiw).

³¹ This became possible after restrictions on cross-border borrowing were lifted in October 2001.

the exchange rate of the ruble have contributed to the attractiveness of taking up funds abroad. Indeed, at the end of 2003 corporate liabilities incurred abroad reached a level which exceeded one half of what the sector owed to domestic banks.

Russian credit institutions themselves have increasingly taken up funds abroad. Throughout 2003, their (positive) net investment position abroad declined to around zero. Russian banks have also issued eurobonds. Already at end-2001 Gazprombank made a large emission (of USD 200 million), followed at end-2002 by Alfabank (USD 175 million), MDM bank (USD 200 million) and other institutions staging smaller issues (BFI, 2003b, p. 110). The fact that Moody's granted investment grade rating to Russia in October 2003 boosted banks' efforts to mobilize funds on international financial markets. While Russian sovereign debt has continued to decline, Russian private external liabilities have been on the rise.

If funds taken up abroad are on-lent to enterprises, they almost exclusively benefit large and financially attractive companies.³² Russian SMEs have no choice but to try to solicit credits domestically, if at all (Astrov, 2003, pp. 36–37). Lending to SMEs has remained feeble generally, owing to a number of informational and institutional obstacles, including a lack of information on small firms' credit records and cumbersome procedures which have to be observed when extending credits to SMEs, even if they were originally tailored for big loans (Astrov, 2003, p. 47). Increasing competition is witnessed by a trend of declining spreads between banks' deposit and lending rates. Thus the average spread fell from 18% at end-2000 to 8.5% at end-2003 (table 2). Other indicators of improvements in the overall investment climate are some recent large contracts with foreign investors in the energy sector, holding out the prospect of an imminent rise in FDI.³³ But the Yukos affair and questions it raises about the security of property rights in Russia may dampen some expectations about FDI.

Foreign direct investment and ownership continue to play only a minor role in Russian banking – in stark contrast to many other transition countries. At end-March 2003, the 37 majority foreign-owned banks accounted for about 8% of total banking assets and 7% of banking capital (table 7). Foreign-owned banks have mainly focused their business on servicing international enterprises and big domestic exporters and manufacturers, but some foreign banks have also ventured into catering to wealthy Russian private customers. Foreign-owned credit institutions hold important positions on the interbank loan markets. The International Moscow Bank (Mezhdunarodny Moskovsky Bank or MMB),³⁴ Citibank (U.S.A.) and Raiffeisenbank (Austria)³⁵ were among the largest 15 Russian credit institutions (measured by assets) at end-2003

³² *The recent swift expansion of corporate foreign debt has given rise to concern, particularly in the event of a sharp decline in oil prices.*

³³ *For example, BP announced in February 2003 an investment valued at USD 6.8 billion over three years. If carried through, this project would dwarf all other foreign investment undertaken in the country. The total inflow of FDI in the first nine months of 2003 came to nearly USD 5 billion, an increase by 77% against the corresponding period of the previous year. However, it is not yet clear whether this is just a spike in FDI activity or whether it will usher in more far-reaching changes.*

³⁴ *The MMB has a number of foreign shareholders, among them Hypo-Vereinsbank (HVB, Germany), Merita Nordbanken (Finland/Sweden) and the EBRD.*

³⁵ *Raiffeisenbank ranked seventh in terms of intake of household deposits at end-2002.*

(table 8). ING Bank Evrazia (Netherlands), Commerzbank (Germany), ABN AMRO (Netherlands) and Deutsche Bank (Germany) featured among the top 40.

The relatively weak presence of foreign capital in the Russian banking sector is certainly in part attributable to the impact of the crisis of 1998, when many foreign-owned banks and foreigners had lost a lot of money. This impact has not yet fully worn off. The 12% limit on the share of foreign capital in the aggregate capital of the Russian banking sector was declared invalid by the CBR in the fall of 2002.³⁶ But some administrative restrictions on foreign participation in the Russian banking sector still exist, the most important one being a (de facto) ban on the opening of branches of foreign banks (as opposed to the more onerous process of establishing subsidiary banks).³⁷ Moreover, the purchase of bank equity by foreigners generally requires an authorization by the CBR. Mergers and acquisitions appear to be money- and time-consuming and particularly difficult to carry out administratively in Russia.

Some risks relate to possible unequal treatment of foreign versus Russian-owned banks in the actual interpretation of laws and regulations by courts. Opening up the domestic market to foreign banks remains a politically contentious issue; many Russians seem to fear that weak and undercapitalized domestic credit institutions would not withstand competition from foreign “predators” who would “gobble up” the sector. In any case, as long as the country’s investment climate remains relatively unfavorable for foreign banks, there does not seem to be a chance or danger that foreign banks could move into Russia on a large scale.³⁸ The banking sector is thus largely deprived of an important source of competition and modernization.

Table 7

Share of Foreign-Owned Credit Institutions¹

in the Russian Banking Sector

	Assets	Loans and other placements with enterprises	Loans, deposits and other placements with banks	Correspondent accounts with non-resident banks	Household deposits	Funds of enterprises and organizations	Equity capital
Mid-1998	6.7	8.9	14.6	6.4	0.7	7.2	5.0
End-1999	10.6	9.9	31.8	10.0	1.8	14.9	10.3
End-2000	9.5	7.1	33.0	15.7	1.7	14.0	9.4
End-2001	8.8	7.2	31.3	20.1	2.3	11.7	7.7
End-2002	8.1	7.1	25.9	22.9	2.3	10.3	7.1
End-March 2003	7.7	6.9	22.3	24.9	2.2	10.4	6.7

Source: CBR, BFI (Konsaltingovaya gruppa – banki, finansy, investitsii).

¹ Refers to banks with more than 50% foreign ownership of statutory capital.

³⁶ Actually, the 12% limit, while often cited, never really played an incisive role. Only during some months of 1999, when subsidiary banks of nonresidents were recapitalized after the financial crisis, was the stipulated quota actually exceeded (e.g. March 1999: 13.5%), and in this case the authorities seem to have turned a blind eye. Then, following Russian banks’ recovery, the share of foreign capital declined again (BFI, 2003b, p. 81).

³⁷ There does not appear to be a law or explicit normative act of the CBR that would ban the opening of branches of foreign banks. Still, only Bank Austria and the Armenian bank Anelik seem to have succeeded in surmounting administrative barriers and opening Russian branches. This unsatisfactory state of affairs for foreign banks is one of the issues being discussed in Russia’s WTO accession negotiations (Handelsblatt, 2003b).

³⁸ The banking sector is estimated to account for only about 1% of the total amount of foreign investment in Russia. In contrast, in Poland FDI in the financial sector makes up about one-fifth of total FDI in the national economy (Gamza, 2003, p. 11; BFI, 2003b, p. 53).

11 Recent Policy Efforts and Current Situation (2003 to 2004)

In 2001 and 2002 amendments to the law on banks and banking activity, the bank insolvency law and the central bank law enhanced the legal framework for licensing and restructuring credit institutions and for prudential supervision (Perret, 2001, p. 44; Rucker et al., 2001, p. 129). Among other novelties, consolidated accounting was introduced for bank groups, and bank bankruptcy procedures were streamlined. In December 2001, the CBR and the government adopted a medium-term “Strategy of Russian Banking Sector Development,” essentially a joint plan for further banking sector reform. The document inter alia proposes measures to create a level playing field for state and private banks, to strengthen accounting standards and improve commercial banks’ risk management. The authorities also strive for better law enforcement with regard to credit contracts and other contracts.

The change at the helm of the CBR in March 2002 heightened the central bank’s awareness of the major unsolved structural problems affecting the sector. Bank supervisors have been undergoing retraining with the goal of alerting them to reviewing material compliance of banks with prudential standards instead of pure formal checking. In September 2002, procedures for on-site as well as off-site bank inspections were reinforced and a special CBR department, the Main Inspectorate for Credit Institutions (*Glavnaya inspektsia kreditnykh organizatsii*, GIKO), was set up (Kommersant bank, 2002, pp. 25, 28). A new general bankruptcy law was enacted in October 2002, updating earlier 1998 legislation. The new rules inter alia enhanced the transparency of bankruptcy proceedings and strengthened the rights of secured creditors. However, full and effective application requires complementary advances in related reform areas. In the face of strong vested interests, banking reform has continued to encounter difficulties. In the most recent months, however, reform efforts appear to have intensified.

In late 2002, the authorities reached a tentative agreement with the EBRD on the sale of a stake of up to 20% in VTB; the IFC also plans to participate in the privatization of VTB, possibly with a debt-equity swap. The federal government has asked regional, local and other state bodies to sell off their remaining minority stakes in numerous banks. For a number of reasons the authorities are not planning to privatize Sberbank in the near future. The bank is very large in relation to the entire sector and any radical adjustment might destabilize the situation. While any sale to a foreign investor would be politically unacceptable, selling to domestic investors could be risky, given lingering doubts about existing skills and corporate governance. Owing to its extensive regional service, Sberbank does appear to have some social importance.

For the moment, the authorities’ strategy seems to be to foster the development of the sector as a whole, hoping that in this process the relative importance of Sberbank will decline, facilitating its privatization in the future. After the adoption of antimoney laundering legislation and regulations in early 2002, Russia was removed from the “black list” of uncooperative countries of the Financial Action Task Force on Money Laundering (FATF, an international institution linked to the OECD) in October 2002. In June 2003, the country even gained membership of the FATF.

Today, the most important risks Russian credit institutions face differ from those before the financial crisis: There is neither a notable currency mismatch between claims and liabilities nor do banks record a heavy exposure in investment in short-term government paper. But there remain substantial structural weaknesses. The recent swift expansion in lending bears a considerable risk potential, taking into account the often noncompetitive nature of lending operations (insider lending, related party transactions) and their partly fragile basis (poor corporate governance, high prices for oil and raw materials). This is aggravated by the fact that a small number of debtors and creditors account for the majority of both loans and deposits (reflecting high portfolio concentrations). Moreover, notwithstanding considerable improvements, many Russian credit institutions may still lack the capacity to accurately price and manage their risks. The ownership structure of many banks remains intransparent. So-called “evergreening” continues to be practiced, i.e. concealing dubious loans by handing out a fresh credit to cover the repayment. There are doubts on the soundness of credits, which points to the persistent vulnerability of the Russian banking sector.³⁹ Despite progress in attracting personal deposits, there is still some mistrust in Russian credit institutions, which points to the lingering memory of the fallout caused by the 1998 crisis.

Any sustained fall of the oil price or pronounced downturn of the business cycle would certainly constitute a genuine stress test for Russian banks. According to recent IMF estimates, a hypothetical decline in asset quality of a similar dimension as witnessed during the 1998 crisis, for example caused by a sharp and sustained reduction in raw material prices, would have an impact equivalent to 3% to 5% of GDP and wipe out the capital of banks accounting for some 80% of sector assets. But the authorities would be in a much better legal and material position to intervene than some years ago.⁴⁰

Since late 2003, the authorities seem to have been successful in passing or moving forward a number of important banking reform initiatives, thereby appreciably stepping up the pace of change. The upgrading of prudential supervision, the introduction of international accounting standards (IAS), the adjustment of minimum capital requirements to EUR 5 million (from currently EUR 1 million) and the creation of a general mandatory deposit insurance scheme feature among major planned banking reform measures that have been discussed for a long time in Russia. Opposition to IAS and higher capital requirements comes particularly from the Association of Russian Banks. It rightly fears that enforcement would leave many smaller credit institutions unable to secure their licenses to operate. The Association argues that small banks have their own niches.

Pivotal components of updated prudential rules have already reached the statute books. The CBR recently radically revised its Instruction No. 1 On Banks' Mandatory Norms (Ob obiazatelnkh normativakh), which entered into

³⁹ According to assessments by some Russian and foreign experts, the share of potentially problematic loans in banks' total loans may amount to between around 40% to 70% (*Vedomosti Forum*, 2003, p. 22).

⁴⁰ According to the IMF, sustained distress would be a valid assumption if the price of a barrel of oil were to drop to low double digits (e.g. USD 12 to USD 14) for an extended period (up to one year). Regarding the above-mentioned figures, one should note that IMF staff had conducted an exercise of mapping RAS data into IAS data for an extensive sample of large banks before doing stress test calculations (IMF, 2003a, pp. 7, 21–25).

force in April 2004. Instruction No. 1, which constitutes a major element of the CBR's regulatory framework, had remained unchanged in substance for a decade. The new rule exemplifies efforts to shift from form to substance in regulation and, according to experts, may bring about a real improvement in the quality of CBR supervision in that it reduces opportunities for banks to manipulate their accounts in order to meet prudential ratios. Another welcome change relates to a new instruction on the calculation of bank capital for use in prudential ratios, which tightens the rules for making such calculations. But implementation promises to be difficult. Retraining regulatory staff will be a major challenge, since their overall approach will need to undergo a fundamental adjustment (OECD, 2004, p. 202–203).⁴¹

Higher capital requirements are planned to become effective for all banks in 2007; currently, they only apply to new banks. The binding adoption of IAS, originally envisaged for 2004, has recently been postponed to 2006 or 2007. As of the beginning of 2004, Russian banks are required to draw up financial statements in accordance with IAS – alongside RAS. But the IAS reports are not to be used for regulatory purposes until 2006 or 2007.⁴² These obligations and standards, once properly introduced, can (and should) be used as a basis for reliably assessing and screening banks. According to estimations, around half of Russian banks would have significant trouble in immediately and exclusively applying the IAS regime, as their net assets would probably be substantially lower when measured by international standards. Today, most banks would have major problems to fulfill tightened minimum capital requirements owing to their undercapitalization. Many would only be left with the option to merge or go under.

Draft deposit insurance legislation was finally submitted to the State Duma in early 2003, passed and signed into law in December of the same year. This piece of legislation constitutes perhaps the most important banking reform adopted in recent years. Such insurance is considered an essential step toward boosting confidence in the sector and creating a level playing field for state-owned and private credit institutions. Sberbank (and other state-owned banks) will thus lose the privilege of monopolizing household deposit guarantees. The law provides for the introduction of guarantees on accounts up to a threshold of RUB 100,000 (around EUR 2,840 as of June 2004) in banks authorized to participate in the insurance; these banks are to finance the scheme with their own premium contributions, equivalent to 0.6% of respective savings volumes. Premiums are to go into a fund managed by ARKO (the Agency for Restructuring of Credit Organizations). The state will step in if the fund's financial means are insufficient to carry out its mandate. Sberbank has opposed this legislation. In order to counter moral hazard inherent in the insurance scheme, the authorities intend to make access to deposit insurance subject to stringent conditions (*inter alia*, higher standards for capital, transparency and management). Thus, unsound and imprudently managed credit institutions may lose the authorization to hold deposits or even lose their banking licenses.

⁴¹ In this important endeavor the CBR can enlist European support: The ECB, together with nine national central banks – including the OeNB – are participating in an EU-funded Tacis project which will provide training to 400 staff members of the CBR and is designed to strengthen banking supervision in Russia. The project was launched in late 2003.

⁴² Numerous pieces of legislation may require revision for IAS to be fully enforced (*Renaissance Capital*, 2002, p. 59).

DISTORTED INCENTIVES FADING?
THE EVOLUTION OF THE RUSSIAN BANKING SECTOR
SINCE PERESTROIKA

Table 8

Rank		Bank	Majority owner	Location of headquarters	Assets		Extended credits ¹		Liabilities ¹		Private deposits ¹		Equity capital		Profit before taxes RUR billion
					RUR billion	% of total banking assets	RUR billion	% of total	RUR billion	% of total	RUR billion	% of total banking liabilities	RUR billion	% of total		RUR billion	% of total banking capital
1	Sberbank	State	Moscow	1,502.45	26.8	564.18	29.1	966.38	300	693.03	67.5	147.79	18.1	39.45	
2	Gazprombank	Gazprom (state)	Moscow	219.71	3.9	48.45	2.5	128.34	4.0	14.61	1.4	28.50	3.5	5.58	
4	Alfabank	Alfa group (FPG)	Moscow	195.97	3.5	101.37	5.2	121.29	3.8	23.93	2.3	23.24	2.8	0.30	
5	Mezhdunarodny Promyshlenny Bank	Shares distributed among legal entities (total number 40)	Moscow	136.90	2.4	90.54	4.7	87.20	2.7	0.72	0.1	28.75	3.5	0.55	
6	Rosbank	Interros FPG	Moscow	114.72	2.0	33.67	1.7	56.95	1.8	11.84	1.1	11.49	1.4	1.10	
7	MDM (Moskovsky Delovy Mir) Bank	MDM FPG	Moscow	114.05	2.0	39.34	2.0	72.15	2.2	5.90	0.6	8.93	1.1	0.67	
8	Bank Moskovy	City of Moscow	Moscow	111.05	2.0	53.65	2.8	80.14	2.5	25.50	2.5	10.98	1.3	1.98	
9	MFB (Mezhdunarodny Moskovsky Bank)	HVB Bank / CBR	Moscow	80.96	1.4	21.92	1.1	75.67	2.4	7.05	0.7	5.74	0.7	3.03	
10	Promstroybank	Shares distributed among legal entities and private individuals (total number 20,733)	St. Petersburg	68.10	1.2	30.37	1.6	43.31	1.3	8.28	0.8	5.22	0.6	2.06	
11	Uralsibbank	Nikoil Banking and Investment Group (75% of voting shares), Republican government of Bashkortostan, Bashneft	Ufa	65.38	1.2	24.37	1.3	35.81	1.1	7.40	0.7	11.29	1.4	1.03	
12	Citibank	Citigroup	Moscow	62.49	1.1	28.29	1.5	52.06	1.6	11.84	1.1	8.21	1.0	2.54	
13	Raiffeisenbank	RZB Austria	Moscow	62.20	1.1	18.84	1.0	39.71	1.2	9.13	0.9	4.14	0.5	2.76	
14	Bank Petokommerts	Lukoil	Moscow	44.41	0.8	12.81	0.7	25.66	0.8	3.90	0.4	7.83	1.0	1.77	
15	Bank Menatep	Menatep FPG	St. Petersburg	37.65	0.7	16.76	0.9	36.28	1.1	6.61	0.6	3.22	0.4	0.34	
16	St. Petersburg Promsvyazbank	Shares distributed among legal entities (total number 12)	Moscow	37.36	0.7	13.75	0.7	20.69	0.6	1.72	0.2	4.02	0.5	0.53	
17	Nomosbank	Shares distributed among legal entities related to the defense sector	Moscow	36.64	0.7	14.69	0.8	15.38	0.5	1.19	0.1	4.95	0.6	0.36	
18	Trastbank	Bought out by its managers from Menatep FPG	Moscow	34.60	0.6	x	x	x	x	x	x	5.35	0.7	1.01	
19	Nikoilbank	Mr. Alekperov (head of Lukoil), Mr. Tsvetkov (CEO of Nikoilbank)	Moscow	34.54	0.6	14.73	0.8	16.25	0.5	3.67	0.4	6.66	0.8	0.45	
20	Bank Zenit	Shares distributed among a group of individuals (mostly bank managers) and legal entities from the Republic of Tatarstan (Tatneft a.o.)	Moscow	32.15	0.6	14.79	0.8	19.95	0.6	2.30	0.2	3.25	0.4	0.93	

¹ As at January 1, 2003.

Note: Vneshekonbank is not listed here. It is a special state-owned institution that was established in the final years of the Soviet Union and whose main task is to service former USSR debt assumed by the Russian government.

Sources: CBR, Ekspert. (March 22, 2004). WWI, Interfax.

The planned implementation calendar of this ambitious screening process promises to pose a tremendous challenge for the CBR, not least because of the very demanding time scales set out in the legislation. The law entered into force at end-December 2003. The deadline for credit institutions to apply for admission to the scheme expires end-June 2004. The CBR in turn is required to carry out a thorough examination of each bank applicant within nine months of application. This implies that the central bank will need to conduct intensive reviews of a very large number of banks (probably over 1,000) by end-March 2005. Credit institutions rejected at first application will have the option to apply for a second review, triggering new deadlines, which are to produce a final decision by end-November 2005 at the latest. This process is not only bound to stretch the resources of the CBR, it is also liable to severely test its capacity and political will to enforce much more rigorous banking standards. It could also bring about a major shake-up of the banking sector (OECD, 2004, pp. 202, 214).⁴³

12 Conclusions

Russian banks have come a long way and have been through many ups and downs since the collapse of communism. Changing incentives have not always meant improving framework conditions. In a somewhat exaggerated manner, one could divide Russian banking developments since the end of the USSR into three periods: (1) the first half of the 1990s, featuring an initial phase of arbitrage and speculation driven by very soft budget constraints, excessive liquidity as well as inflation and exchange rate instability; (2) the second half of the 1990s, bringing a very ambitious effort toward stabilization, excessive tightening of monetary conditions and a liquidity squeeze that was accompanied by a different phase of speculation – with government securities on exchange rate stability, then a major crisis implying painful adjustment; (3) currently we are in a third phase, in which initially a sharp devaluation, later rising and buoyant oil prices contributed to strong economic growth, underpinned by political stability, a prudent macroeconomic policy mix and probably the first fruits of structural reforms.

Genuine financial intermediation, though still largely short-term and not yet fully market-oriented, may finally be starting to emerge. In this sense, only in recent years have distorted incentives for banks likely been losing some of their weight. Given that the Russian equity market is thin, underdeveloped and focused on a few large energy firms, carrying on banking sector reform can be considered pivotal if Russia is to sustain economic expansion and live up to its growth potential in the medium and long run. Higher growth requires more investment, and more investment requires efficient financial intermediation across sectors. It is Russia's fledgling small and medium-sized enterprises that particularly need banks. According to Goskomstat estimates, the share of SMEs in GDP in Russia is much lower (around 15%) than in more advanced transition economies (up to 50%). SMEs may provide an important outlet to absorb labor laid off by industrial restructuring, much of which still awaits Russia. They can also contribute to diversifying the economy.

⁴³ According to recent official estimates, only 400 to 500 of around 1,300 Russian banks may be eligible for the deposit insurance system. Considering current indicators and conditions, the other 900 would be "left outside." Therefore, a "compromise" might be sought. The CBR may not actually exclude all banks that turn out to be ineligible for the system.

In order to set the stage for attracting more funds into the banking sector and achieving more efficient intermediation it would appear necessary to further improve the CBR's ability to effectively supervise credit institutions. Important steps have already been taken with respect to upgrading prudential regulations. The CBR should persevere in its efforts to put substance over form in reporting requirements, to improve the quality and risk orientation of regulations and to apply existing rules more strictly.

In particular, the requirement to draw up financial statements in IAS as of 2004 should be vigorously enforced. Moreover, higher capital requirements and the use of IAS for regulatory purposes should be implemented as soon as possible. Loan loss provisioning rules should be redesigned to rely more on a qualitative assessment of risks; the resulting likely higher loan loss provisioning requirements should be applied, and, according to the IMF, nonviable banks should be shut down, unless owners are willing to immediately increase capital (IMF 2003a, pp. 8, 11). However, owing to the social importance of some banks that may be among the only ones serving (outlying) regions, such banks should be subject to restructuring programs. It would be strongly advisable to fine-tune the introduction of the deposit insurance system with a strengthened implementation of prudential regulations.

Given insufficient capacities for credit risk assessment in many banks, respective skills of bankers would need to be upgraded. The establishment of credit information services or bureaus would reduce another important obstacle to sound lending, namely lack of information on the owners and the credit record of potential borrowing firms, particularly SMEs. However, some reluctance on the part of banks would have to be overcome, given mutual mistrust of many banks in Russia and given that pocket banks may not want to make information on their key clients available to competitors. Crediting procedures for SMEs should be simplified. Debt recovery and access to credit collateral should be generally strengthened and effectively enforced.

In order to facilitate restructuring, mergers and acquisitions of banks should be made administratively easier to carry out. The complementarity and interdependence of reforms should be observed. Banking reform cannot be successful without progress in real sector reform, e.g. overcoming modest corporate governance standards and strengthening the rule of law. Real sector firms should be subjected to the disciplines of the market. Applying IAS only to banks would be inadequate. A level playing field – in form, substance and actual treatment – is also required with respect to Russian-owned and foreign-owned banks.

Russia's banking sector needs to be transformed into a genuine banking system. Without a strong banking system, the country may not be able to persevere in its quest of catching up with other emerging markets (chart 1). On the whole, the incentive structure and systemic framework for banking in Russia have no doubt improved in recent years; recent months have seen impressive efforts to intensify reforms. But new risks and exposures, particularly to a drop of raw material prices or to a sharp economic downturn, have emerged. Progress so far does seem to hold out hope that the overall operating environment will adjust in a direction already taken by other transition countries which are further advanced in banking reforms.

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High oil prices have been associated with bouts of inflation and economic instability over the last 30 years. Consequently, the rise of oil prices in recent months has generated concern. We argue that the inflationary consequences of a rise in oil prices depend upon the policy response of the monetary authorities. They can ameliorate the short-term impacts on output, but only at the cost of higher inflation. In the short term, the size and distribution of output effects from an increase in oil prices depends on the intensity of oil use in production and on the speed at which oil producers spend their revenue. In the medium term, higher oil prices change the terms of trade between the OECD and the rest of the world and hence reduce the equilibrium level of output within the OECD. In this paper the authors first discuss oil market developments and survey previous studies on the impacts of oil price increases. In a next step, the NiGEM model is used to evaluate the impact of temporary and permanent rises in oil prices on the world economy under various policy responses, and the impact of a decline in the speed of oil revenue recycling is analyzed.

1 Introduction

Changes in oil prices have been associated with major developments in the world economy, and are often seen as a trigger for inflation and recession. The increases in oil prices in 1974 and then again in 1979 were important factors in producing a slowdown in the world economy at a time when inflation was rising. Recent rises in oil prices have caused concern. Although they have not been on as large a scale as in the 1970s, oil price surges are frequently seen as a possible threat to our lower-inflation world. However, the oil intensity of output has fallen markedly, and hence we might expect the effects of a rise in oil prices to be different now than they were in the 1970s and 1980s. Another reason why we might expect there to be differences between the 1970s and the current conjuncture has to do with central banks' responses to higher oil prices, and we can explore these using our model, NiGEM.

In this paper, we examine the impacts of oil price increases on output and inflation, and discuss how these effects differ between individual European countries, including in our analysis results on Poland, Hungary and the Czech Republic. We argue that the consequences of oil price shocks for inflation and output depend largely on the monetary policy stance adopted in response to them. In addition we show that the impact of oil price increases on output depends in part on the oil intensity of production, which has fallen at different rates in different countries in the last two decades. We also demonstrate that in a world where economic agents form rational expectations about the future there is a difference between the short-term impacts of temporary and permanent shocks. Monetary policy may now be better designed to keep inflation low, and hence oil prices may not set off the sort of wage-price spirals that developed in the 1970s.

In order to evaluate the role of monetary policymaking, we undertake three experiments. In the first case, henceforth referred to as the base case, we raise oil prices by 20% permanently. In the following two simulations, we examine

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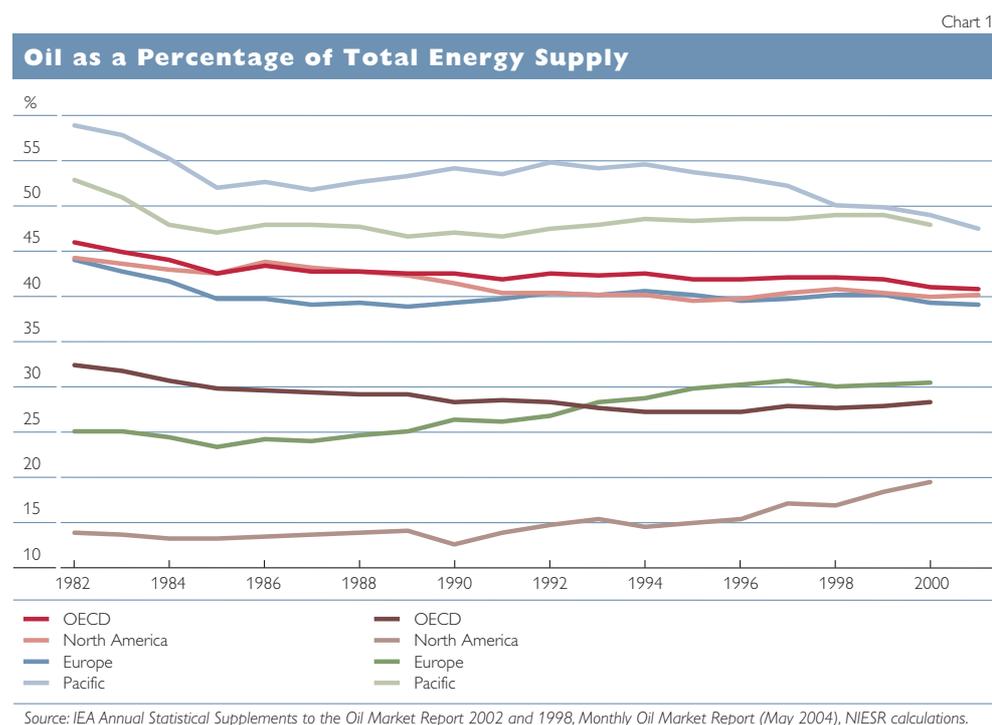
the effects of changing the response of the U.S. and EU monetary authorities. The effects of oil price increases depend on the flexibility of the oil-importing economies, and in particular on the degree of real wage resistance, which may have changed a great deal in the last 25 years, partly in response to the costs associated with the first oil price shock. Besides monetary policy and labor market dynamics, the impacts of oil price increases on the OECD also depend upon the speed at which oil exporters' revenues are recycled into demand for goods and services. If the whole process is slow, then aggregate demand may temporarily fall as a result of the changes in financial flows. In order to evaluate its importance, we undertake a simulation where the speed of recycling oil revenues into imports of goods and services is slowed to 1970s levels.

The rest of the paper is structured as follows. Section 2 provides an overview of oil consumption, production and supply patterns over the past three decades. Section 3 reviews previous studies which have attempted to quantify the impact of increasing oil prices on the world economy. Section 4 details the results of our simulations explained above and section 5 offers our concluding remarks.

2 Patterns of Oil Consumption, Production and Supply

2.1 Patterns of Oil Consumption – Historical Perspective

The level of oil dependence varies greatly among regions and countries. Chart 1 details oil dependence as a share of all energy consumed by major regional blocks. In general, more developed countries are more oil dependent – some 40% of OECD energy needs were met by oil in 2003, as compared to only 28% for non-OECD countries. This is not surprising, as manufacturing and transport consume the largest share of petroleum products. Japan has the highest proportion of its energy needs served by oil, deriving close to 50% of its



energy from oil in 2001, but this is down from almost 60% in the early 1980s. By contrast, China is one of the least oil-dependent countries, with oil meeting less than 20% of the country's energy consumption in 2000. As the country continues to industrialize, its oil needs exhibit a growing trend, as can be seen from chart 1. Other Asian countries follow a trend similar to China, although they have a much greater share of oil in their energy supply – over 30% at the beginning of the current decade.

With the notable exception of Japan, most other OECD economies exhibit similar and relatively constant levels of oil dependence in their total energy supply. Both North America and Europe rely on oil for about 40% of their energy needs, and this share has been relatively stable over the past several decades. Partly in response to the second oil price shock of the late 1970s, European countries decreased their oil dependence from over 45% of energy consumption in 1982 to under 40% within four years. In North America, particularly in the United States, the share of oil in total energy consumption did not exhibit noticeable declines until the early 1990s.

Among developing nations, the countries of Latin America remain most dependent on oil for their energy needs, as close to half of the region's energy came from oil in 2000. As in the OECD, the share of oil declined slightly in response to the second oil shock of the late 1970s, and has remained constant for two decades. As middle-income economies, South American countries are much less energy efficient than their OECD counterparts, yet are industrialized, with large numbers of private motor vehicles and fairly developed commercial transport. This combination of factors largely accounts for a relatively high share of oil in meeting energy needs.

Several of the transition economies of Central and Eastern Europe are relatively less dependent on oil for their energy needs than many of their more developed counterparts. This has mostly to do with their continued dependence on coal as a source of energy. For example, the Czech Republic met over 50% of its energy needs from coal as late as 2000, while serving about 20% of its energy needs with oil – a share that has remained relatively constant over the past 30 years. By contrast, Hungary is relatively more oil-dependent, deriving about 27% of its energy from oil; this figure is down significantly from 1973, when almost 40% of Hungarian energy was derived from oil.

Table 1

Average Annual Growth of Oil Consumption

	1974–1980	1981–1990	1991–2000	2001–2003	1974–2003
	Change in %				
North America	0.2	0.1	1.5	0.8	0.7
Europe	-0.7	-0.7	1.1	0.2	0.0
Pacific	-0.1	1.4	1.9	0.0	1.1
Total OECD	-0.2	0.0	1.4	0.5	0.5
China	8.2	3.2	7.8	4.8	6.0
Other Asia	5.3	5.0	5.2	2.7	4.9
Latin America	3.0	0.9	3.5	-1.4	2.0
Middle East	7.4	3.8	4.7	3.4	4.9
Africa	5.0	3.1	2.4	2.7	3.3
Total	1.3	0.5	1.5	1.1	1.1

Source: IEA Annual Statistical Supplements to the Oil Market Report 2002 and 1998, Monthly Oil Market Report (May 2004), NIESR calculations.

Over the past 30 years world annual consumption of petroleum products has increased by almost 40%, from 57.4 million barrels per day in 1973 to about 78.7 million barrels per day in 2003. However, growth in the demand for oil varied significantly over this period. As indicated in table 1, total consumption of petroleum and related products has increased by just over 1% per annum over the past 30 years, with growth oscillating between 0.5% on average during the 1980s and 1.5% per annum on average during the following decade.

In addition to varying over time, patterns of oil consumption also exhibit significant regional and country differences. Driven by a substantial decline in demand from Europe, oil consumption in OECD countries expanded by about 0.5% per annum on average over the entire period and failed to grow at all until the early 1990s. In contrast, demand for oil and related products from developing countries was noticeably more robust, particularly as China and India continued to grow at a rapid pace. Consumption in Latin America has declined in the last several years, driven primarily by severe recession in Argentina as a result of the country's debt default. Despite growing at a significantly faster pace, in 2003 demand from non-OECD countries accounted for less than 40% of the total petroleum products consumed during that year. Nevertheless, the share of OECD consumption has declined somewhat from almost 74% of total consumption in 1973 to below 62% in 2003. The most notable shifts in oil consumption occurred from the countries of the former Soviet Union to China and other Asia, which includes the rising consumption of oil in India.

Table 2

Patterns of Oil Consumption in

Central European Transition Economies

	Pretransition 1982–1989	Transition recessions ¹ 1990–1993	Recent trends 1994–2001	Total 1982–2001
Czech Republic	–0.6	–7.6	2.3	–0.8
Hungary	–1.6	–2.2	–1.6	–1.7
Poland	1.8	–4.1	4.6	1.7

Source: IEA Annual Statistical Supplements to the Oil Market Report 2002 and 1998, NIESR calculations.

¹ Hungary began its transition somewhat earlier than the other former Warsaw Pact countries, and the country's transition process was somewhat more gradual than in Poland and in the Czech Republic. Here, we calculate Hungary's transition as beginning in 1988, not in 1990 as is the case for the other two countries.

Over the past two decades patterns of oil consumption in transition economies have changed markedly, as these countries experienced a significant reorientation of production from centrally planned to market economies. During the 1980s oil consumption declined slightly in the Czech Republic and in Hungary, while increasing by an average of almost 2% annually in Poland. Following the fall of the Berlin Wall and the ensuing reorientation of productive capacity, much of the region underwent several years of recession, which was quite severe in some cases. Not surprisingly, the region's oil consumption declined significantly in the early 1990s. The Czech Republic exhibited the biggest drop, with its oil demand declining by almost 8% annually. In Poland, the decline was less severe, at just over 4% a year. In Hungary, where transition to a market economy began earlier and hence has been less rapid, oil consumption declined by a more moderate 2% per annum. Once economic growth resumed, oil demand in the Czech Republic and in Poland began to increase, while oil

consumption in Hungary continued on the pattern of the 1980s, with demand declining by about 1.5% annually.

Chart 2a

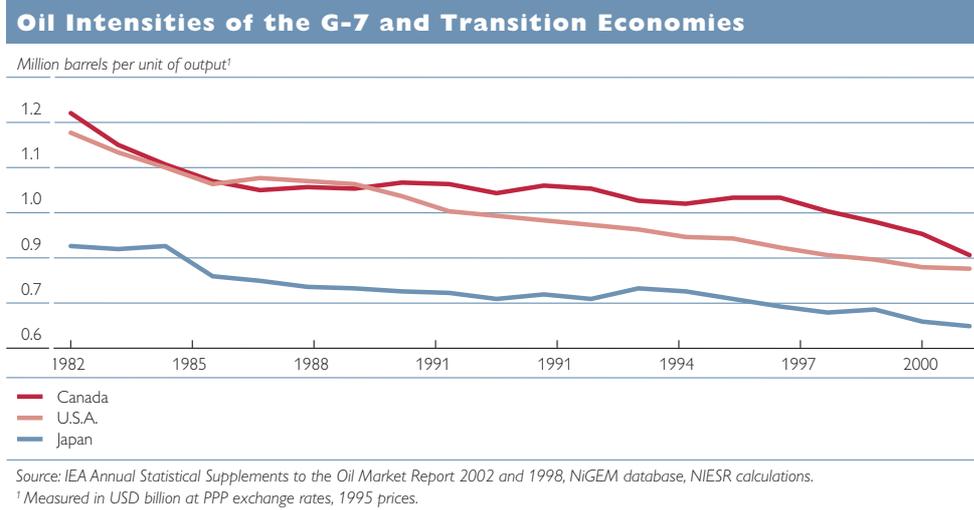


Chart 2b

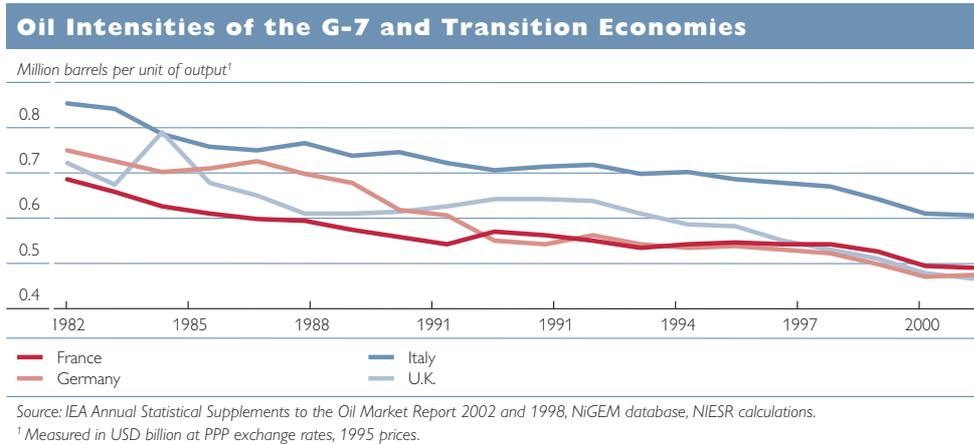
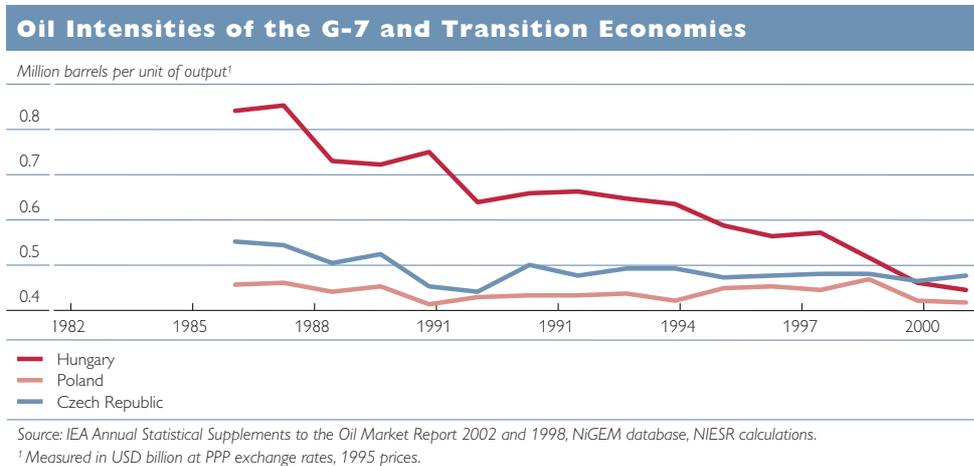


Chart 2c



Over the past several decades, oil intensity – defined as the amount of oil used to produce a unit of output at purchasing power parities³ – has declined substantially in many European countries. In the United Kingdom and Germany, oil intensity has fallen by a third in the last 20 years, and by slightly less in Italy and France. As chart 2 shows, oil intensities in the three largest European economies are now at very similar levels. Notable exceptions to this European trend include Portugal and Spain, both of which underwent a period of relatively rapid economic expansion as they converged toward income levels prevalent in the European Union. In several European countries, such as in Sweden and Austria, the oil intensity of the economy was already low and remained fairly constant over the past two decades, suggesting that there is a lower bound to how oil-efficient a developed economy can be.

When measured at PPP exchange rates, the oil intensity of the new Member States is on a par with other European economies, as shown in chart 2. Of the three most advanced transition economies, Hungary is the only one to have improved its oil efficiency markedly over the past couple of decades. In 2001 Hungary used almost half as much oil to produce a unit of output as it did in the mid-1980s. In contrast, both Poland and the Czech Republic maintained a fairly constant level of oil intensity throughout the period. However, it is important to note that their economies were already relatively oil-efficient in the mid-1980s.

In contrast to significant declines in oil intensity in the majority of European countries, developments in oil intensity in North America followed a different pattern. While the U.S.A. requires a quarter less oil to produce a unit of output as compared to its petroleum needs in the early 1980s, for much of the 1990s Canada's oil intensity fluctuated around the same level as in the mid-1980s, as shown in chart 2. Oil intensity in the United States is around 40% higher than in the three largest European economies, and is around the level achieved in the mid-1980s. Japanese oil consumption measured at PPP remains relatively high, although it is between European and U.S. levels. However, the sustained difference we have seen between PPP and the market exchange rate of the Japanese yen has meant that increases in the cost of oil have had less impact on Japan than would be suggested by oil intensity at PPP exchange rates.

During the first quarter of 2004, demand for petroleum products increased significantly from the relatively low levels of the past several years. This was attributable partly to the economic recovery that has taken hold in most parts of the world. Thus, petroleum demand in Europe expanded by almost 2% per annum in the first quarter, with France and the U.K. recording double-digit growth, at 12.8% and 10.1% per annum, respectively. Much of this gain was in diesel, which may reflect stronger economic recovery and the resulting increase in trucking activity. As in Europe, demand for diesel in North America expanded rapidly during the first quarter of 2004.

³ A unit of output is measured in USD billion at 1995 prices. The transition economies are not near to PPP exchange rates, but rather significantly below them, with ratios in our 1995 base year of around 2.1 for Hungary and Poland, and 2.4 for the Czech Republic. Oil imports therefore represent more of these countries' imports than their oil intensity would suggest. Hence oil prices will have a significantly greater effect on these economies than the figures suggest.

2.2 Patterns of Oil Production and Supply

Over the past three decades, world oil supply has expanded by about 1% per annum on average. OPEC output grew by 0.2% annually on average after 1973, while non-OPEC output expanded by an average of 1.9% annually over the same period. During the 1970s and 1980s, when OPEC sharply reduced its oil output, non-OPEC oil exporters, mainly from the countries of the former Soviet Union and Central America, expanded their output to meet the aggregate demand for oil. In the 1990s, with the collapse of the Soviet Union and robust growth of oil output from the Middle East, output from non-OPEC exporters expanded by just over 0.5% per annum before returning to the long-term average annual growth rate of around 2% by the end of the 1990s.

Table 3

Aggregate Oil Supply (1973 to 2003)

	OPEC	Non-OPEC	Total
<i>Million barrels per day</i>			
1973	31.2	27.7	58.9
2003	30.5	48.9	79.4
<i>Annual change in %</i>			
1973–1979	0.4	4.0	2.1
1980–1989	–2.3	1.9	0.0
1990–1999	2.2	0.6	1.2
2000–2003	1.0	2.2	1.7
1973–2003	0.2	1.9	1.0

Source: IEA Annual Statistical Supplements to the Oil Market Report 2002 and 1998, Monthly Oil Market Report (May 2004), NIESR calculations.

After falling in the mid-1980s, world oil prices in real terms have remained well below their peaks of the 1970s and early 1980s. However, over the last 3 years they have been higher than in the previous 15 years. As is evident from chart 3, OPEC's share of total oil supply tends to move inversely with oil price fluctuations. As prices for crude oil rose sharply in the wake of the second oil price shock in the early 1980s, OPEC's share of world oil production declined rapidly – from over 50% in 1973 to under 30% by 1985. By the early 1990s, OPEC's market share had recovered to around 40% of the world total and fluctuated around that figure for the remainder of the period under consideration. With respect to non-OPEC oil exporters, production in the former Soviet

Chart 3

Movement of Oil Prices and OPEC's Share in World Oil Supply



Source: IEA Annual Statistical Supplements to the Oil Market Report 2002 and 1998, NiGEM database, NIESR calculations.

Union slumped following the collapse of communism in 1989, while supply from Latin American producers nearly doubled, from 1.8 million barrels per day in 1985 to 3.9 in 2003. However, supply from the former Soviet Union has now recovered strongly, and in 2003 exports amounted to about 30% of those from OPEC countries.

During most of the past three decades, aggregate oil supply and the amount demanded moved inversely with oil prices, with changes in supply dominating developments. However, over the past several years this relationship appears to have transformed, suggesting that there has been a structural change in oil demand. Since the beginning of the current decade, the movements of supply do not appear to have been the major factor affecting prices, and the price of crude oil does not appear to fluctuate inversely with changes in amount demanded. Lower industry stocks of crude oil, particularly in the United States, combined with strong demand in Asia and heightened geopolitical instability in the Middle East, will have tended to exert upward pressure on prices and may account for the bulk of price changes of the past three years (Kaufmann, 2003).

3 Quantifying the Impact of Oil Prices on Output and Inflation (Based on Existing Studies)

We look at three major studies as representative of the work on oil prices. The first uses a large, calibrated and estimated macromodel of the world economy developed at the IMF. The results are representative of those achieved by other models, and the authors bring out the importance of labor market flexibility in absorbing an oil price shock. They also discuss the role of monetary policy in mediating the shock, emphasizing that the monetary policy response partly determines the effect on prices. The second and third studies look at the role of monetary policy and at the structure of effects from oil prices using VARs. Although this method is informative, it has to be used with care, as the impacts of oil prices depend on policy responses, which can change markedly over time and may differ in the future from the average response from the data period.

3.1 Model-Based Results

Hunt, Isard and Laxton (2002) conduct simulations using the IMF's multicountry model, MULTIMOD, and summarize their work in Hunt et al. (2001). The first set of simulations describes responses of real GDP and inflation to oil price shocks of different duration. The second compares the model's responses to transitory and more persistent oil price shocks under two alternative structures of the wage-price nexus. The third set of simulations illustrates how asymmetric responses by microeconomic agents to changes in their real wages might help explain the nonlinear relationship between oil prices and macroeconomic activity observed by Hooker (1996), Hamilton (2000) and others. They also discuss the implications of delaying the response to the shock until it is clear whether it is temporary or permanent.

3.1.1 Responses to Shocks of Different Duration

The authors analyze three shocks. Under the temporary shock, the price of oil goes up by 50% in the first year and returns to baseline in the second year. They also look at a more persistent shock, with oil prices increasing to 50% above

baseline for the first two years and then declining at a steady rate to reach the baseline level again in the sixth year. The third shock involves a permanent 50% increase in oil prices. Their results also suggest that oil price shocks have significantly different effects in different countries. The simulated effects are larger in the United States than in the United Kingdom, given the greater responsiveness of expected inflation to oil price increases in the United States. The similarity of responses in the United States and the euro area reflects the combination of a significantly higher degree of resistance to real income declines in the U.S.A. with a significantly greater responsiveness of expectations to oil price changes in the euro area.

3.1.2 The Strength of the Pass-Through into Core Inflation

Hunt et al. (2002) undertake a set of simulations to help explain why oil price shocks during the 1980s and 1990s had little apparent influence on core inflation in the U.S.A. They do this by either allowing or preventing oil price shocks to pass through into core inflation and hence to change the labor market response to a shock. They conclude that when the shock is temporary, the responses of output and inflation under the two different wage-price structures are similar; the most significant differences are in the core inflation outcomes for countries that have relatively large estimated real wage catch-up effects, as in the United States. Many of the shocks to oil prices that occurred during the 1980s and the 1990s lasted only one or two quarters and may therefore not have been important. It seems reasonable to assume that downward pressure on real incomes that lasts for a year or longer would start to have observable effects on the outcomes of the wage bargaining process. In a world with many shocks occurring simultaneously, economic agents may not perceive a short-lived price spike as important.

3.1.3 Asymmetry in Real Income Catch-Up Effects

Empirical evidence suggests that oil prices and economic activity are negatively correlated, but oil price increases tend to be followed by larger changes in activity than oil price declines. Workers may respond asymmetrically to oil price increases and declines, pushing for higher wages to resist the declines in their real consumption power that result from positive oil price shocks, but not resisting the increases in real consumption power that result from oil price declines. To test this asymmetry, the authors focus on permanent 50% changes in oil prices. Their results indicate that the degree to which output and inflation respond asymmetrically to oil price changes – as indicated by the ratio of the effects of the positive shock to the effects of the negative shock – varies among the different countries. Since the transmission of oil price effects through the expectations channel is modeled symmetrically, the different degrees of asymmetry among the individual countries can be largely attributed to differences in the strength of the real wage catch-up effect; the asymmetries are most pronounced in the United States.

The simulations suggest that negative oil price shocks create downward pressure on core inflation through the expectations channel, allowing monetary policy to ease and thereby stimulating the economy. However, asymmetry in the real wage catch-up term appears to be a potentially significant and plausible

explanation of the observed nonlinear relationship between oil prices and macroeconomic activity. As noted by Hamilton (2000), another plausible explanation of the observed nonlinearity is that the distribution of the exogenous component of historically observed oil price changes has been asymmetric, with most exogenous changes in oil prices consisting of price increases associated with petroleum supply disruptions.

3.1.4 The Implications of a Delayed Monetary Policy Response

Uncertainty about the extent to which oil prices may come down in the period ahead as well as uncertainty about the effects of the higher oil prices on core inflation may suggest that there should not be a rapid response to higher oil prices until their macroeconomic effects are more apparent. To illustrate the possible benefits and potential dangers of delaying the policy response to higher oil prices, the authors allow oil price innovations to pass through into core inflation and consider the implications of both symmetric and asymmetric real wage catch-up effects.

The manner in which monetary policy responds to various shocks to the economy can have an important influence on inflation expectations. The main potential danger of delaying the response to an oil price increase stems from the possibility that delay may weaken the credibility of announced or perceived policy objectives and have an adverse effect on inflation expectations. To account for credibility issues, the authors compare simulations based on two alternative formulations of how delayed monetary policy reactions might affect inflation expectations. In the first instance, they adopt the extreme assumption that delay has no effect on the inflation expectations generation process. In the second formulation, an endogenous element to private agents' perception of the inflation target that enters the monetary policy reaction function is added to the inflation expectations generation process. The inflation target perceived by private agents influences their expectations about future inflation, which in turn influences actual inflation outcomes.

Table 4 shows the dynamic adjustment paths for output, core inflation and the policy interest rate under symmetric and asymmetric real income catch-up effects. In both cases the shock is the persistent 50% rise in oil prices for two years that erodes over the next three years. The results of delaying the policy response vary across countries. Delaying the policy reaction has expansionary effects on aggregate demand and GDP in the short run, but leads to a much sharper interest rate response by the third year, with subsequent contractionary effects on GDP. If the central bank delays policy responses for a year and a half, then efforts to restore macroeconomic stability result in short-term interest rates being higher in the third year if expectations of inflation respond endogenously. They reach levels about 2% and 1.5% above baseline in the United States and in the euro area, respectively. While sharp interest rate increases might be regarded as successful in averting major cumulative inflation pressures in these hypothetical scenarios, in reality the scope for such an aggressive tightening of monetary policy may be constrained by political pressures. Furthermore, substantial tightening of monetary policy may bring about an undesirable slowdown in output.

Table 4

Delayed Monetary Policy Response Simulations – Summary Statistics

	Real GDP		CPI		Core price level	
	Symmetric real wage catch-up	Asymmetric real wage catch-up	Symmetric real wage catch-up	Asymmetric real wage catch-up	Symmetric real wage catch-up	Asymmetric real wage catch-up
<i>Cumulative change in % after 10 years</i>						
U.S.A.						
Immediate response	0.2	-0.6	0.5	0.8	0.4	0.8
Delayed response	0.1	-0.8	2.9	3.1	2.8	3.1
Delayed response erodes credibility	-0.3	-1.3	4.2	4.6	4.2	4.5
Euro area						
Immediate response	0.7	0.2	0.3	0.4	0.2	0.3
Delayed response	0.3	0.0	2.3	2.4	2.2	2.4
Delayed response erodes credibility	0.2	-0.1	2.8	2.9	2.8	2.9

Source: National Institute Economic Review (January 2002, p. 99).

3.2 VAR-Based Studies

Bernanke, Gertler and Watson (1997) develop a VAR-based technique for decomposing the overall economic effects of a given exogenous shock into the portion attributable directly to the shock and the part arising from the policy response to the shock. The authors find that a substantial part of the recessionary impact of an oil price shock results from the endogenous tightening of monetary policy rather than from the actual increase in oil prices. After establishing that essentially all U.S. recessions of the past 30 years have been preceded by both oil price increases and a tightening of monetary policy, Bernanke et al. choose the net oil price increase measure proposed by Hamilton (1996a, 1996b) as their principal measure of oil price shocks. Using monthly data on U.S. GDP from January 1965 through December 1995, the authors estimate a VAR (vector autoregression) using one constant and seven lags. The estimated model includes a set of macroeconomic variables, including the price of oil as a dependent variable, with a set of market interest rates – including the three-month treasury bill rate and the ten-year treasury bond rate along with the federal funds rate.

To show the effects on the economy of an oil price shock including the endogenous response of monetary policy, the base scenario considers a response to a 1% innovation in the nominal price of oil in the seven-variable system. The funds rate does not enter directly into the equations from output, prices, commodity prices or the oil indicator. In the second scenario, the funds rate is fixed at its base values throughout the simulation, and it exerts its macroeconomic effects through the short- and long-term interest rates included in the system. In the third scenario – anticipated policy – the response of monetary policy to the oil shock and the changes induced by the shock in output, prices, etc. is shut off, with the expectations components of interest rates determined separately.

The absence of an endogenously restrictive monetary policy results in higher output and prices. Quantitatively, the effects are large, in that a nonresponsive monetary policy suffices to eliminate most of the output effect of an oil price shock, particularly after the first eight to ten months. The anticipated policy simulation results in modestly higher output and prices than under the second scenario. The differences in results occur largely because the anticipated policy

simulation involves a negative short-run response in both the short- and long-term premiums, and thus lower interest rates in the short run. Next, the authors repeat the anticipated policy simulation described above, this time allowing the funds rate to affect the macroeconomic variables only through its effects on the expectations component of market rates. This alternative simulation attributes somewhat less of the recession that follows an oil shock to the monetary policy response, but endogenous monetary policy still accounts for two-thirds to three-quarters of the total effect of the oil price shock on output.

Finally, the following three major oil price shocks are examined: OPEC 1, OPEC 2, and the Iraqi invasion of Kuwait, focusing on the behavior of output, the overall price level and the funds rate for the five-year periods surrounding each episode – 1972–76, 1979–83, 1988–92. The first scenario – federal funds endogenous – is intended to isolate the portion of each recession that results solely from the oil price shocks and the associated monetary policy response. The second scenario – federal funds exogenous – models a situation in which oil prices equal their historical values, all other shocks are shut off and the nominal funds rate is arbitrarily fixed at a value close to its initial value in the period. The results of these two simulations are compared with the actual historical path of each variable.

This exercise demonstrates that the 1974–75 recession is generally not well explained by the oil price shock. The pattern of shocks reveals instead that the major culprit were non-oil commodity prices because their sharp rise before the recession stimulated a sharp monetary policy response. The federal funds exogenous scenario, in which the funds rate responds to neither commodity price nor oil price shocks, exhibits no recession at all, suggesting that endogenous monetary policy, responding to both oil price and commodity price shocks, played an important role in this episode.

The results for the period from 1979 to 1983 support the conventional explanation that this recession was generated by the oil price shock. However, if the monetary policy reaction to the oil price shock is excluded, the period from 1979 to 1983 exhibits only a modest slowdown, not a major recession. The experiment for the period from 1988 to 1992 shows that shutting off the policy response to oil price shocks produces a higher path of output and prices than otherwise, without explaining why the substantial easing of actual policy from late 1990 did not move the actual path of output closer to the alternative policy scenario.

Jiménez-Rodríguez and Sánchez (2004) extend the analysis of the effects of the oil price shock on real GDP growth to several OECD countries – individual G-7 countries and the euro area as a whole – using a variety of econometric specifications. Among the nonlinear model specifications, the asymmetric specification distinguishes between increases and declines in oil prices. The second model, developed by Lee et al. (1995), is based on a transformation on the oil price that standardizes the estimated residuals of the autoregressive model by its conditional variability. Finally, the third specification uses Hamilton's (1996) oil price variable defined as the amount by which oil prices in quarter t exceed the maximum value over the preceding four quarters. The results are obtained using quarterly data from the third quarter of 1972 through the fourth quarter of 2001.

Jiménez-Rodríguez and Sánchez (2004) find that the output growth in all countries but Japan responds negatively to an increase in oil prices. The largest negative impact on GDP occurs in the fourth quarter after the shock in all countries but France and Italy, where it takes place in the third quarter after the shock. The effects of the shock die out almost completely after three years in all countries. An increase of 100% in real oil prices yields a negative accumulated effect of GDP growth of around 5% in the United States and in Germany, 4% in Italy, 3% in France, 2% in the euro area as a whole and 1% in Canada. The appreciation of the real exchange rate in the U.S.A. and Germany contributes to the larger negative impacts on economic activity in these countries. France, Italy and the euro area also exhibit considerable negative impacts on their real GDP although the depreciation of their real effective exchange rates partly offsets the shock. The results of this study also indicate that an oil price shock increases inflation and long-term interest rates in all countries except Germany and drives up short-term interest rates in all countries with the exception of the United States, Germany and the euro area. As expected, the oil price shock contributes to the decline in real wages observed in these countries.

4 Simulating Oil Price Shocks Using a Large Econometric Model

We undertake some experiments analyzing the impacts of both permanent and temporary increases in the oil price using our model, NiGEM. We stress the short- and long-run effects of permanent shocks and discuss the role of policy reactions to oil prices. These will determine both the short-run output and price effects and will also strongly influence the long-run impact on prices. The long-run effects on output should depend on the impacts on real interest rates, the elasticity of substitution in the production function and the oil intensity of production. We first describe the model and then monetary policy reactions embedded in the model. We raise oil prices by 20% for two years in our temporary experiment, and permanently in each of our other experiments, and these latter experiments change the terms of trade between the OECD and oil producers. This in turn changes the saving-investment balance in the OECD, as for a given level of output and oil use more goods have to be exported to OPEC and hence fewer are available for domestic consumption. For every level of income in the steady state, consumption must be less and this can only be achieved with higher real interest rates. These will impact on output by changing the capital to labor ratio.⁴ We look at the overall effects of this shock on output and prices in the OECD, the United States, the U.K., the euro area and in selected other countries, including the Czech Republic, Hungary and Poland. We then analyze the effects of changing monetary policy responses and the speed of recycling oil revenues into OPEC imports of goods and services.

⁴ The oil intensity of output falls marginally, as oil imports fall more than total output. However, oil does not enter the production function.

4.1 The NiGEM Model

Over the last 16 years, NIESR has developed the global macromodel NiGEM for use in forecasting and monetary policy analysis. NiGEM is an estimated model, which uses a “new-Keynesian” framework in that agents are presumed to be forward looking, but nominal rigidities slow the process of adjustment to external events. All countries in the OECD are modeled separately, and there are models of the new Member States, of China and of all other regions of the world including OPEC and Developing Europe. All economies are linked through the effects of trade and competitiveness. There are also links between countries in their financial markets via the structure and composition of wealth, emphasizing the role and origin of foreign assets and liabilities. The model has complete demand and supply sides, and there is an extensive monetary and financial sector. In scenarios we can choose any number of environments, and there are forward-looking wages, consumption and exchange rates, while long-term interest rates are the forward convolution of short-term interest rates. NiGEM contains rational expectations as its normal scenario mode.

Trade. These equations depend upon demand and relative competitiveness effects, and the latter are defined in similar ways across countries. It is assumed that exporters compete against others who export to the same market via relative prices and that demand is given by the imports in the markets to which the country has previously exported, while imports depend on import prices relative to domestic prices and on demand. As exports depend on imports, they will rise together in the model. Systems of trade equations are “closed” to ensure that the world balance of trade adds up, at least to its normal degree of accuracy, in any simulation. The equations are estimated in equilibrium correction form.

Financial markets. In scenario mode, forward-looking nominal long rates and real long rates are the forward convolutions of expected short-term nominal and real interest rates, respectively. Forward-looking exchange rates have to look one period forward along the arbitrage relation involving domestic and foreign short-term interest rates. Forward-looking equity prices are solved out from the discounted sum of expected discounted profits. The discount factor is made up of the nominal interest rate and the risk premium on equity holding decisions.

Wealth and asset accumulation. The wealth and accumulation system allows for flows of saving onto wealth and for revaluations of existing stocks of assets in line with their prices determined as above. In the medium term, personal sector liabilities are assumed to rise in line with nominal personal incomes, and if there are no revaluations, gross financial wealth will increase by the nominal value of net private sector saving plus the net increase in nominal liabilities.

Consumption and personal income. Consumption decisions are presumed to depend on income and total wealth in the long run, and follow the pattern discussed in Barrell and Davis (2004), who study a panel of G-5 countries. Total wealth is composed of both financial wealth and tangible (housing) wealth where the latter data are available (where housing wealth is absent, house prices play a separate role). The dynamics of adjustment to the long run are data based, and differ between countries to take account of differences in the relative importance of types of wealth and of liquidity constraints. Personal incomes are built

up from components. Employment income comes from the labor market models. Profits and interest payments come from the production models, government models and models of foreign assets. Taxes and transfers come from the public sector models.

Production. For each country there is an underlying CES production function which constitutes the theoretical background for the specification of the factor demand equations for employment and the capital stock, and which form the basis for unit total costs and the measure of capacity utilization which then feed into the price system. The capital stock adjustment equation depends upon the long-run equilibrium capital stock, and the user cost of capital is influenced by the forward-looking real long-term rate as well as by taxes and by depreciation. The speed of adjustment to equilibrium in the investment/capital stock adjustment equations also depends upon the short-term real interest rate, with this effect being similar across countries.

Labor markets. Employers have the power to manage, and hence the bargain in the labor market is over the real wage. In the long run, wages rise in line with productivity, all else equal. Given the determinants of the trajectory for real wages, if unemployment rises, then real wages fall relative to trend and conversely. The equations were estimated in an equilibrium correction format with dynamics estimated around the long run. Both the determinants of equilibrium and the dynamics of adjustment can change over time and adjustment, especially in Europe, is slow. We assume that labor markets embody rational expectations, based either on the model or policy-related learning about inflation, and we assume that wage bargainers use consistent expectations either for the immediate period ahead or over a longer-term horizon.

Trend GDP. Trend GDP is determined by the production function and the labor market, with a role for real interest rates through the capital stock. We have complete capital stocks, working-age populations and work forces where data are available. The resulting estimates of trend GDP feed into a number of relationships in the model both directly and through the output gap, which depends upon it. Trend output calculations depend upon future as well as past data, and they are made in a forward-looking way in scenarios and can change in response to shocks.

Public sector. Each country has a set of equations for the public sector. Both direct and indirect taxes depend upon their respective tax bases and on the tax rate. Corporate taxes also depend upon the corporate tax rate and the level of profits, but with lags related to the complex collection process. Government spending on current goods and services and investment spending depend in part on current plans, and by default rise with trend output. Transfer payments depend upon unemployment and the dependency ratio as well as on policy. Government interest payments are determined by a perpetual inventory model based on the flow deficit and the stock of debt, with the appropriate structure of short- and long-term interest payments on the debt stock.

Monetary policy rules. We assume that the monetary authorities target something that stabilizes the price level or the inflation rate in the long term. The speed of response by the authorities affects the model properties. A typical policy for a central bank may be to target some nominal aggregate such as nominal GDP or the money stock, which may rise in line with nominal GDP in the long

run. A standard monetary policy rule would be to change the interest rate according to some proportion of the targeted variable's deviation from its desired path. For example, a proportionate control rule on nominal GDP or the money stock would be:

$$r_t = \lambda_1(\log(P_t Y_t) - \log(P_t Y_t)^*) \quad (1)$$

where P equals the price level and Y is real output with a star denoting target variables.

However, a nominal target only stabilizes inflation in the long run, and policymakers are likely to be concerned with keeping inflation at some desired level in the short term. During the 1990s several countries moved to a new monetary policy regime of inflation targeting and announced a formal inflation targeting framework where decisions are guided by the deviation of inflation from some target level. We might write a similar rule with the money stock replaced by the inflation rate. This would give a simple proportional rule on the inflation rate (we may use either the current or the expected inflation rate; in this paper we use expected rates):

$$r_t = \gamma_1(\Delta \log P_{t+j} - \Delta \log P_{t+j}^*) \quad (2)$$

where j indicates the lead or lag in the feedback.

We presume that the European Central Bank (ECB) uses a combination of these two approaches. A combined policy of nominal aggregate targeting and inflation rate targeting would then give:

$$r_t = \gamma_1(\log(P_t Y_t) - \log(P_t Y_t)^*) + \gamma_2(\Delta \log P_{t+j} - \Delta \log P_{t+j}^*) \quad (3)$$

Our default has $\gamma_1 = 0.5$, $\gamma_2 = 0.75$. The coefficient on inflation does not need to exceed one, as the first term contains an integral controller on inflation in the price level. We change these parameters in order to emulate a looser monetary stance. The rules on the model use the Consumer Price Index (CPI) inflation rate. We choose the combined rule as our default monetary policy rule because we assume that it represents the mixed framework that is used by the ECB. In this paper we also use the industry standard Taylor rule. We may write the rule as:

$$r_t = \gamma_1(\log Y_t - \log Y_t^*) + \gamma_2(\Delta \log P_{t+j} - \Delta \log P_{t+j}^*) + \gamma_0 \quad (4)$$

We set $\gamma_1 = 0.5$, $\gamma_2 = 1.5$, which are the industry standards; γ_0 is the steady state real rate of interest.

We can divide these rules into two classes.⁵ Rules 1 and 3 will return the price level (approximately) to base as long as the shock does not change equilibrium output.⁶ If the shock does change equilibrium output in the long run and the rule is used mechanically, in the long run the price level will be higher in inverse proportion to the lower level of output. Rules 2 and 4 will stabilize the price level, but not at base, even if equilibrium output is not changed. Both rules treat past inflation as a bygone, and any inflation above target will feed into the price level. The stronger the feedback on inflation, the smaller the target miss in each period and hence the smaller the increase in the price level in

⁵ Some of these issues are discussed in Barrell, Dury and Hurst (2000).

⁶ The outturn will be closer to base in the case of rule 3, where we have a derivative controller (inflation) as well, and in both cases the outturn will be closer to base if feedback on the nominal aggregate is increased.

response to an inflationary shock. The long-run effect of a shock on the price level will depend also on the degree of nominal inertia in the wage-price system. In addition, increasing the interest sensitivity of the economy reduces the long-run impact of a shock on the price level, as monetary policy opens up a bigger output gap and hence reduces inflationary pressure.

4.2 A Standard Simulation of a Permanent 20% Rise in Oil Prices

We assume that all producers and consumers are aware that the increase in the oil price is permanent and that they change their behavior in a forward-looking way. In particular, financial markets are forward looking, and the impacts of any anticipated increase in interest rates are reflected immediately in higher long-term interest rates and lower equity and bond prices. This will reduce wealth and hence consumption. Prices rise everywhere, but they rise most in the United States, where lump-sum taxes on gasoline are much lower than in Europe. Hence a given rise in crude prices produces a larger percentage rise in pump prices and therefore in consumer prices, and in part because the wage-price system reacts more rapidly than in Europe or the U.K. In addition the oil intensity of output in the U.S.A. is about 40% higher than in the euro area and the U.K., and hence the impacts on prices are likely to be more marked. In all countries we assume that policy follows our default rules, which involve targeting the inflation rate and a nominal aggregate, so that rule differences are not the cause of outcome differences at this stage.

Table 5

Output Effects of a Permanent 20% Rise in Oil Prices¹

	Euro area	OECD	U.K.	U.S.A.
2004	-0.31	-0.28	-0.17	-0.29
2005	-0.31	-0.42	-0.22	-0.55
2006	-0.27	-0.49	-0.22	-0.70
2014–2018	-0.53	-0.59	-0.35	-0.45

Source: NiGEM model simulations.

¹ Difference from base in percentage points.

Table 6

Inflation Effects of a Permanent 20% Rise in Oil Prices¹

	Euro area	OECD	U.K.	U.S.A.
2004	0.13	0.18	0.04	0.26
2005	0.08	0.28	0.09	0.48
2006	0.01	0.20	0.07	0.32
2007	0.04	0.11	0.06	0.09

Source: NiGEM model simulations.

¹ Difference from base in percentage points.

In the long run, output falls in the United States, Europe and the euro area. The short-run output effects are largest in the U.S.A., in part because of its higher oil intensity and also because the inflation effect is larger and hence the monetary response is more immediate. As a result, real long rates rise rather more than in the euro area, as we can see from chart 6. In addition the pattern of oil exporters' demand affects the pattern of output effects. First, it takes some time for revenues to be recycled and second, oil producers' demands for imports of goods and services are more concentrated on European than U.S. producers. The long-run fall in output comes from the impact of the change

Chart 4

Output Effects of a Permanent 20% Rise in Oil Prices

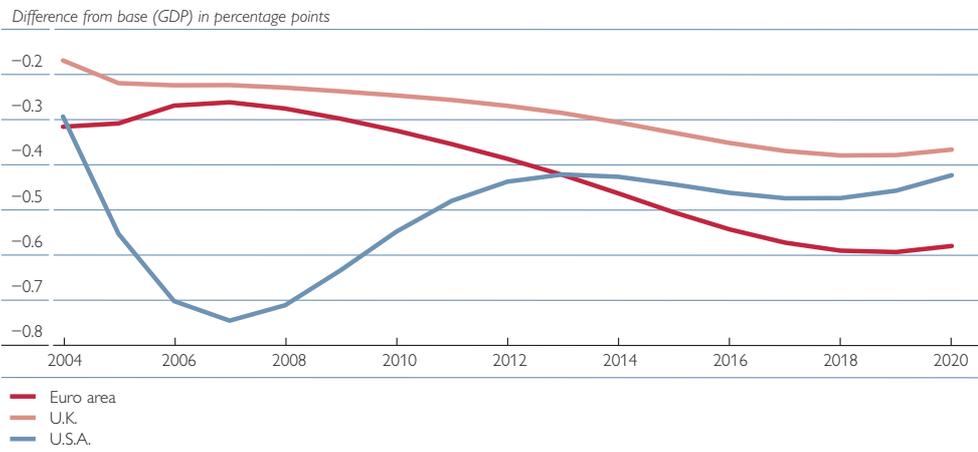


Chart 5

Price Effects of a Permanent 20% Rise in Oil Prices

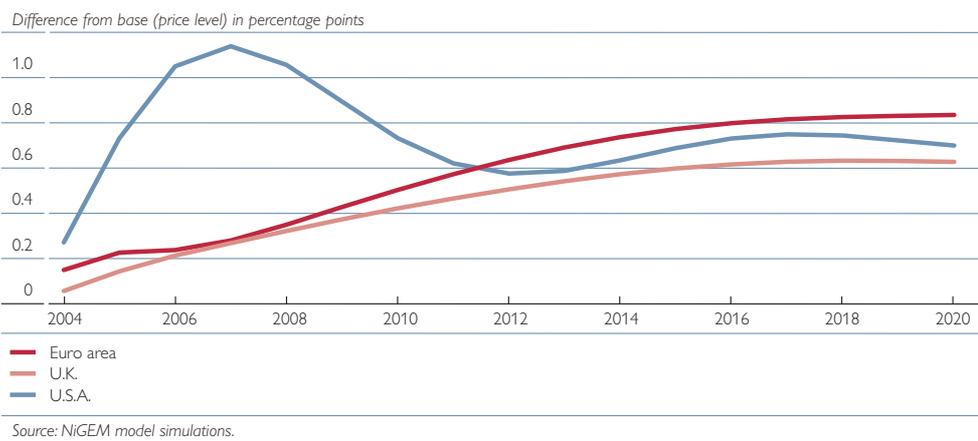
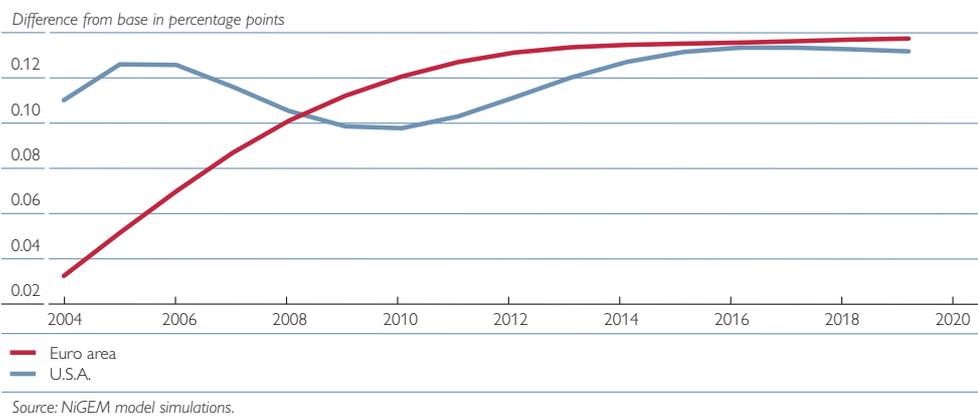


Chart 6

Effects of a Permanent 20% Rise in Oil Prices on Long Real Rates



in the terms of trade between the OECD and OPEC. Although OPEC revenue is recycled (more quickly than in the 1970s), the OECD has to produce more goods for a given level of consumption, and this changes the saving-investment balance and reduces saving for every level of output in the steady state. Hence the real interest rate rises in the long run, and the steady state level of output falls because the equilibrium capital stock falls. The long-run effect on output is similar everywhere as long-term real interest rates rise everywhere, and the long-run output effects are independent of the policy response chosen.

Within Europe, the output effects differ between countries, and they are generally higher in countries with a higher oil intensity in production.⁷ In particular, the negative effects on output are highest in the three new Member States we include because oil imports represent a much higher percentage of GDP in these countries than in the other OECD countries. In general, at 2001 exchange rates (latest year for which data are available free of charge) the oil intensity of these economies was about twice that of the United States, although at PPPs their intensity was below that measured in the U.S.A. Price effects are also more marked in the new Member States for similar reasons.

Table 7

Intra-European Output Effects of a Permanent 20% Rise in Oil Prices¹

	Belgium	France	Germany	Italy	Netherlands	Spain	Czech Republic	Finland	Hungary	Austria	Poland	Sweden
2004	-0.42	-0.22	-0.36	-0.22	-0.38	-0.20	-1.45	-0.42	-1.02	-0.50	-0.66	-0.28
2005	-0.38	-0.28	-0.24	-0.30	-0.31	-0.29	-1.54	-0.45	-1.47	-0.21	-1.05	-0.29

Source: NiGEM model simulations.

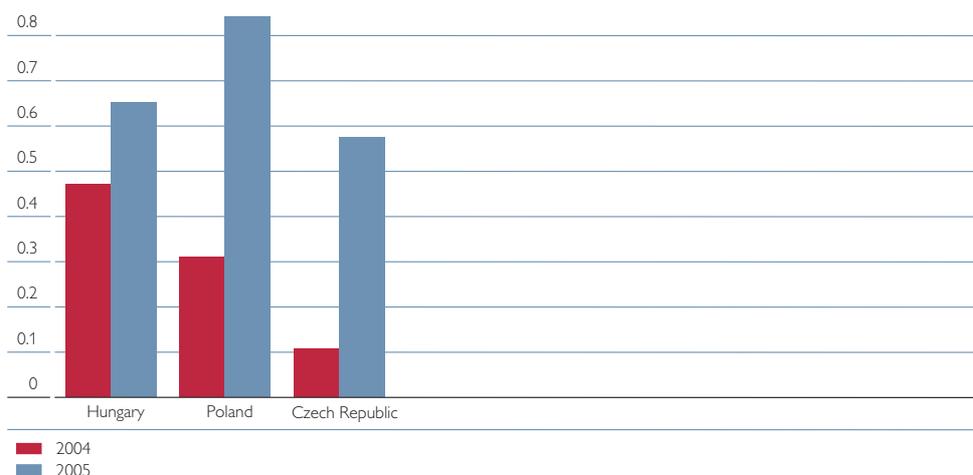
¹ Difference from base (GDP) in percentage points.

Chart 7

Effects of a Permanent 20% Rise in Oil Prices on Price Levels

in the New Member States

Difference from base (price level) in %



Source: NiGEM model simulations.

⁷ The correlation between impacts of the shock on GDP and the oil intensity of production measured at 2001 exchange rates (not PPP) is -0.56 among the 19 OECD countries we analyze, excluding oil-producing Mexico, and -0.57 if we include China and the non-oil exporting Latin American countries.

4.3 Comparing Temporary and Permanent Shocks

We can undertake an analysis of the differing impacts of permanent and temporary shocks in our model because we have forward-looking expectations. The temporary shock we analyze is sustained for two years and is of the same initial magnitude as the permanent one. A temporary shock raises costs in much the same way as a permanent one does, but it does not induce any changes to the model's steady state solution and hence does not involve a rise of long-term real interest rates. If real interest rates do not change, the contractionary impacts of the shock are less even in the short run. Forward-looking agents bring the knowledge of the temporary nature of the shock into their decisions, and investment falls less. As we can see from chart 8, the output effect of a temporary 20% oil price shock is about 30% lower than it would have been if the shock were perceived to be permanent. As a result, a smaller output gap opens up, especially in Europe, and hence inflationary pressures are higher. The impacts of oil prices on inflation come from the direct impact on costs initially, and they are offset by the impacts of a reduction in output. The smaller the reduction in output, the smaller the offset to inflation from the impact on the output gap. As we see here, and especially in Europe, inflation is marginally higher when the shock is perceived to be temporary. The impacts across some European countries within EMU and in the new Member States are given in table 8, which shows that the contractionary impacts remain higher in the new Member States.

Chart 8

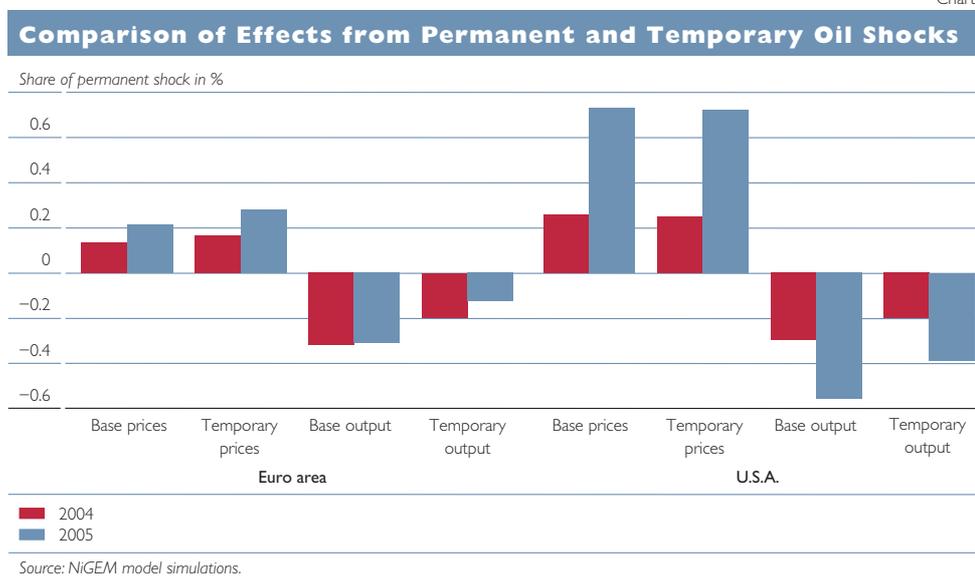


Table 8

Intra-European Output Effects of a Temporary (Two-Year) 20% Rise in Oil Prices¹

	Belgium	France	Germany	Italy	Netherlands	Spain	Czech Republic	Finland	Hungary	Austria	Poland	Sweden
2004	-0.25	-0.15	-0.21	-0.15	-0.21	-0.12	-1.20	-0.24	-0.85	-0.29	-0.57	-0.15
2005	-0.09	-0.18	-0.02	-0.18	-0.08	-0.16	-1.27	-0.17	-1.18	0.00	-0.92	-0.09

Source: NiGEM model simulations.

¹ Difference from base (GDP) in percentage points.

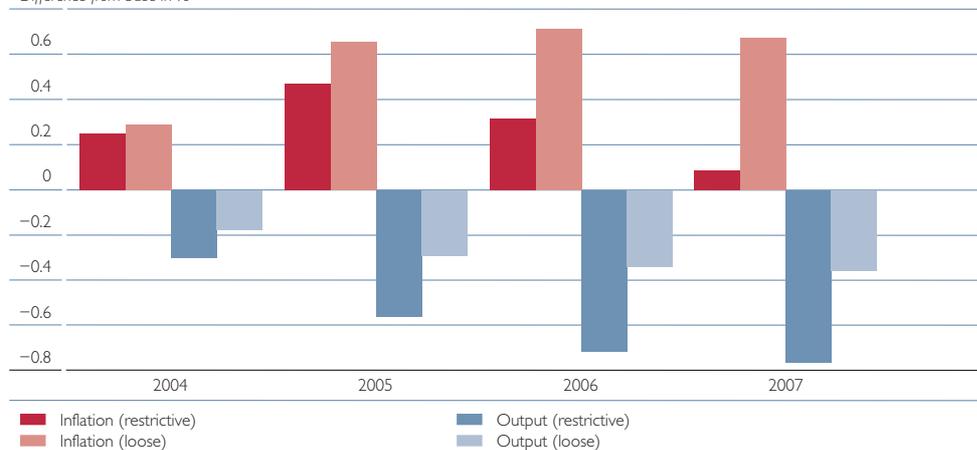
4.4 Changing the Rules

We undertake two experiments where we change the rules, allowing a more accommodating monetary response to the shock. Such a response is indeed what we (and Bernanke et al., 1997) think caused the high inflation of the 1970s following high oil prices. Central banks may have tried to keep real interest rates constant in a situation when it was impossible for them to do this, and hence inflation resulted. As we see, it is possible for policymakers to ameliorate the short-run output effects of an oil price increase, but only at the cost of higher inflation in the short run and higher prices in the long run. The output effects in the long run remain largely unchanged.

Chart 9

The Impact of Monetary Policy in the U.S.A.

Difference from base in %

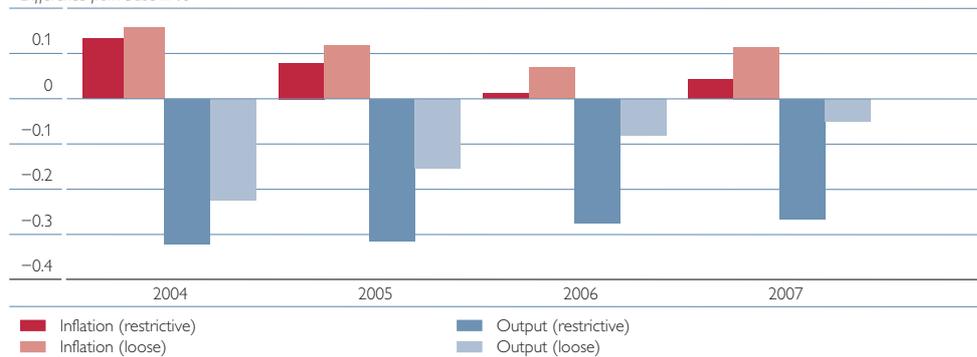


Source: NiGEM model simulations.

Chart 10

The Impact of Monetary Policy in Europe

Difference from base in %



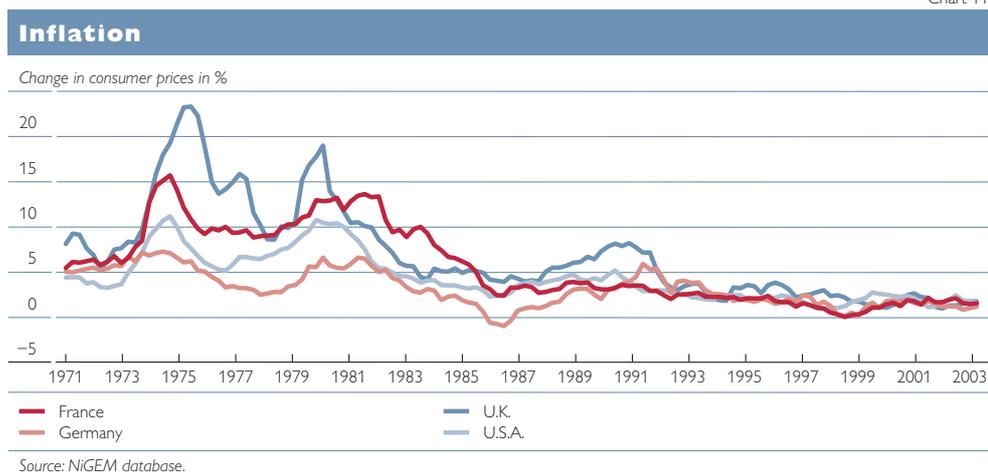
Source: NiGEM model simulations.

Our first experiment involves shifting the United States to use a standard Taylor rule in response to the output shock. As a result, interest rates do not rise so sharply, and as we can see from chart 9, the output effects in the first four years are about half the size they would have been under our default rules. Inflation effects are markedly higher, and the price level ends up about 6% above base, as compared to around 1% in our base case. Inflation in the euro area is

little affected, but output effects there are about two-thirds the size of those observed in the base case.

We can repeat this experiment for the euro area, but instead of using a Taylor rule, we change the feedback coefficients in the two-pillar strategy, cutting each of them to around a third of our base case level, as discussed above. The output effects reported in chart 10 are two-thirds the size of the base case in the first year and about half the size over the first four years of the run. Inflation effects rise noticeably, as we would expect. Output effects in the United States are almost 10% less than in our base case, and the price effect is similar. It is clear that we need to know the response of the authorities to an oil price shock before we can know what the effects are. If the real oil price were to double, as it did in the 1970s, and the authorities were to act in a lax way in the U.S.A. (and the U.K.), as they did, then we might expect prices to rise by 30% or more in those countries. This seems a reasonable description of what happened in the U.S.A. and U.K. in the 1970s, but not a good description of what happened in Germany, as we can see from chart 11.

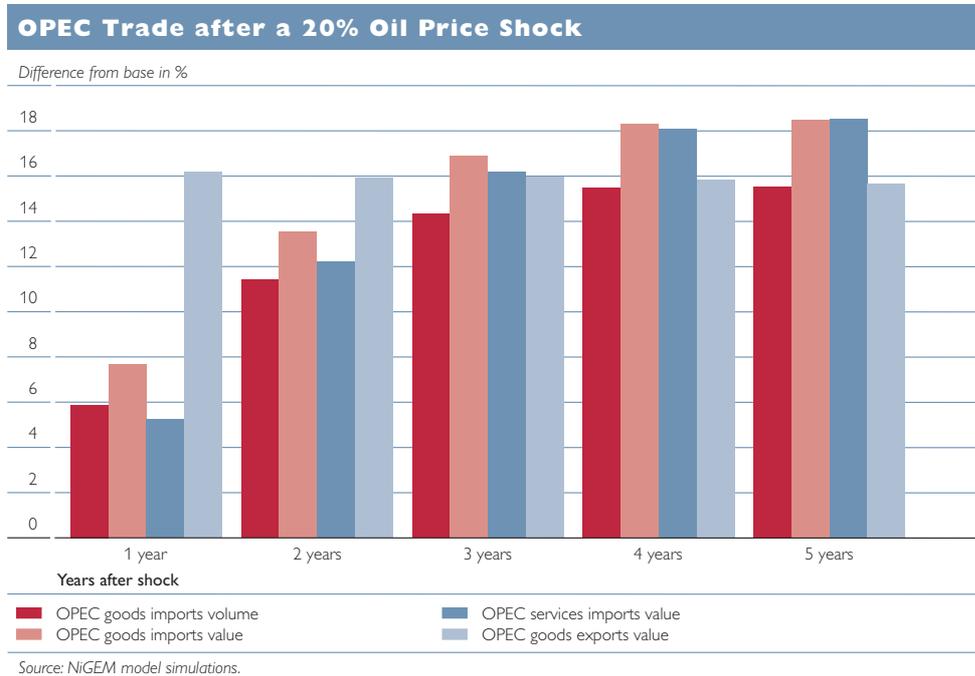
Chart 11



4.5 The Effects of Revenue Recycling by Oil Producers

Oil producers receive significant revenues from oil sales, and when the price rises, they have three options for these revenues. They may spend them on imports of goods into their own country, on imports of services (where spending takes place in other countries), or the money can be accumulated into net foreign assets. In the latter case the money is recycled, but in a sticky price world with sluggish adjustment, accumulation of assets takes time to feed through financial markets into spending by others. On NiGEM we assume that oil producers spend their export revenue on imports of goods and services, and that they have a long-run structural capital flow that absorbs some revenue. If revenue rises, it is recycled into goods and services, but with a delay, as we can see from chart 12. In the long run, if export values rise by 20%, imports of both goods and services rise by 20%. However, initially the increase in spending is well below the increase in revenues, and hence spending is diverted in the world economy from goods and services, and output will be reduced because of low demand. The longer the period before the spending builds up, the greater the impact of an oil price rise on output within the OECD countries.

Chart 12



We undertake an experiment to evaluate the importance of the speed at which oil producers recycle their revenues into goods and services. In our model, revenue not spent builds up into assets, and these become liabilities of another country. As a result, asset prices change, and this would eventually increase spending, but only slowly. We analyze the effect of halving the recycling of revenues into spending on goods and services by changing the dynamics of adjustment for oil importers' imports equations.⁸ Chart 13 plots the output effects in our baseline experiment alongside the effects in a slower spending scenario under the same policy rules. The output effects of the 20% rise in oil prices are almost 50% higher in the OECD as a whole and in the euro area in particular. The effects on the U.S.A. and to a lesser extent on the U.K. are relatively similar under the two scenarios. The 1970s and even the early 1980s may have seen worse impacts from oil price shocks than those we experience now, as OPEC has itself changed and become more geared to spending revenue quickly. If this were to change, the output effects in our model simulations would have to be larger.

The effects of a slowdown in oil producers' spending on imports of goods and services could hit the new Member States rather more than the other Europeans. As we can see from table 9, which reports the difference between output effects in our base case and where we slow oil exporters' revenue spending, output effects are worse for all European countries. The impacts of slower spending of oil revenues builds up into the second year, where the difference in output effects rises to a maximum of -0.26 for the core European countries and reaches only -0.16 for Germany. However, if oil revenues are recycled more

⁸ Our spending equation for OPEC imports of goods exhibits a significant break in 1985, and before that date the speed of recycling into goods and services imports was around half of that seen since.

slowly, the new Member States (in this case Hungary, the Czech Republic and to a lesser extent Poland) are noticeably more affected. This reflects their relatively high continuing dependence on trade with the former Soviet Union. Our model results reflect the decline in the importance of such trade, and the additional effects from low rates of revenue spending on the Czech Republic and Hungary are likely to be significantly larger than for the rest of Europe.

Chart 13

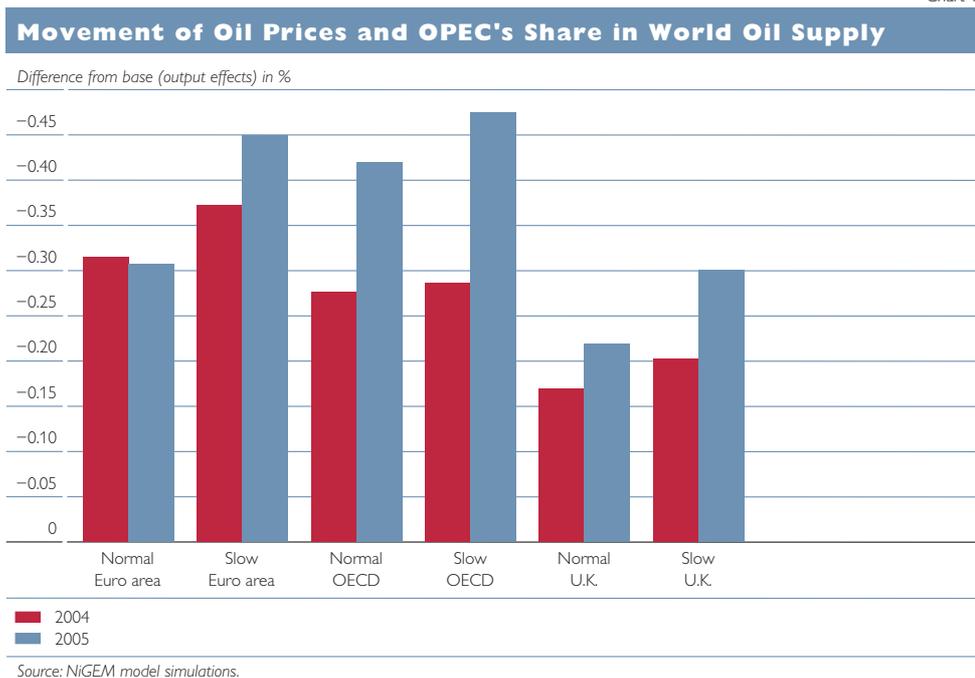


Table 9

Additional Intra-European Output Effects of a 20% Permanent Rise in Oil Prices¹
under the Assumption that Oil Producers Spend Revenues More Slowly

	Belgium	France	Germany	Italy	Netherlands	Spain	Czech Republic	Finland	Hungary	Austria	Poland	Sweden
2004	-0.06	-0.05	-0.06	-0.05	-0.05	-0.02	-0.31	-0.07	-0.18	-0.14	-0.10	-0.04
2005	-0.21	-0.10	-0.16	-0.12	-0.13	-0.07	-0.74	-0.18	-0.41	-0.26	-0.24	-0.10

Source: NiGEM model simulations.

¹ Difference from base (GDP) in percentage points.

5 Conclusions

It is common to ask what the effects of a rise in oil prices are on the world economy. We analyze such a rise of around USD 7.5 a barrel from the beginning of 2004. Permanent oil price shocks should always reduce output in the long run, as they change the OECD's terms of trade and raise the real interest rate. However, although we can produce estimates of output and inflation effects that are of use in the monetary policy discussion, we have to add warnings to those. The most important warning concerns the policy response from central banks. The short-run impacts on output can be largely or even completely offset by monetary policymakers, but only at the cost of higher inflation in the short run and higher prices in the long run. Monetary authorities can, for instance, halve the short-run output effects and double the inflationary consequences if

they choose to do so, while the output effects in the long run remain largely unchanged.

The impacts of oil shocks also depend on whether the shocks are temporary or permanent. A permanent shock should change the equilibrium real rate of interest and equilibrium output. In a forward-looking world, real interest rates will rise more if the shock is seen to be permanent, and hence output will decline more in the short run for a given monetary response. Hence the inflation consequences of a permanent shock are likely to be smaller than those of a sustained, but temporary shock. Analyses of oil shocks undertaken on the assumption that financial and labor markets are myopic and do not use rational expectations of the future will give misleading results, especially as they will be unable to distinguish between the effects of a shock that is expected to be permanent and one that is expected to be temporary.

The oil intensity of output also affects the impact of oil shocks; over the last 20 years, the oil intensity of output has declined significantly, however. Hence we would expect oil shocks to have less impact now than in the 1970s. In addition, the output effects of an oil shock in the OECD countries depend upon the behavior of oil-exporting countries. If they do not spend revenues quickly, output effects in the OECD countries will be larger in the short run. This may indeed further explain why the impact of the 1970s oil shocks on output seemed large, as spending of oil revenues on goods and services then took place more slowly than it has since 1985. Models and tools that cannot take account of this difference may produce misleading results.

All these conclusions indicate that great care should be taken in using “ready reckoners” for the effects of oil prices on output and inflation. Such estimates should always be seen as conditional on the assumptions made by the investigators and on the tools they use.

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HIGHLIGHTS

About a year ago, the Foreign Research Division of the OeNB launched the CEEC Research Platform, a website designed to provide access to research and to provide the public and experts with information about the economic, monetary and financial integration of the CEECs. Given the high number of visits to our website, it has proved to be a success. We highly appreciate the interest of thousands of users worldwide. The *ceec.oenb.at* website will serve us to present a growing volume of research and related activities to readers interested in integration, convergence and transition-related topics in the new EU Member States, the current EU candidate countries and in other transition countries in the Western Balkans and the CIS. Finally, we would like to thank you for your input and feedback, which were decisive for the changes we have undertaken: we have revised menu navigation, introduced a new design and provided new access options.

Menu Navigation: Informative and User Friendly

In this busy day and age, concise and user-friendly menu navigation has top priority for a website. Hence, we have revised menu navigation and added new menu items.

You can find the following material on our website in German and English (wherever available):

- The OeNB's publication on CEE and SEE, Focus on European Economic Integration, the successor to Focus on Transition (all available back issues may be accessed in the archives)
- Studies published in OeNB publications by OeNB staff and other authors and in external publications by OeNB staff on
 - monetary policy
 - exchange rates
 - the banking sector and financial stability
 - trade and direct investment
 - fiscal policy (including pension systems)
 - the real economy, labor markets, inflation
 - institutional issues
 - EU enlargement
- In-depth analyses of economic developments in Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, the Slovak Republic, Slovenia and Russia
- Statistics providing an overview both by countries and by economic indicators
- Information about the technical cooperation activities with CEE transition countries including the Western Balkans and the CIS
- Schedules of and reports on the OeNB's CEE-related activities
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New Design

The OeNB has relaunched its public website at www.oenb.at, which provides access to the wide range of OeNB research as well as to information about other OeNB activities. While the CEEC Research Platform has also been integrated into the OeNB's public website, you may still reach it directly at ceec.oenb.at.

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The selected abstracts below alert readers to studies on CEEC topics published in other OeNB publications.

The Transformation of the Romanian Financial and Banking Sector

Stephan Barisitz

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

Published in Financial Stability Report 7 available at http://www.oenb.at/en/presse_pub/period_pub/periodische_publicationen.jsp.

Central and Eastern Europe – The Growth Market for Austrian Banks

Peter Breyer

Although the Central and Eastern European banking market (excluding Russia) is relatively small with total assets of some EUR 350 billion (by comparison, total bank assets in Austria were some EUR 605 billion at the end of 2003), it is nevertheless a growth market. In addition to higher economic growth, the low degree of bank intermediation suggests strong growth potential for banks in Central and Eastern Europe (CEE) in the coming years.

Above-average growth potential, higher interest margins than in Western Europe and restructuring potential have led Western European banks to invest heavily in the CEE banking sector. Approximately 70% of the CEE banking market is currently controlled by Western European banking groups. Austrian banks were among the first to invest in Central and Eastern European countries and are now some of the best-known Western European banks in the region. As early as 2002 and 2003, steady expansion in the CEE region had a positive impact on the profitability of Austria's consolidated banking sector.

Favorable reports on the CEE banking market, however, often ignore potential risks. Key sources of risk in the Central and Eastern European banking market are macroeconomic imbalances, the risk of growing exchange rate volatility, credit risk, increasingly fierce competition and political risks.

Published in Monetary Policy and the Economy 3/2004 available at http://www.oenb.at/en/presse_pub/period_pub/periodische_publicationen.jsp.

The “East Jour Fixe” of the Oesterreichische Nationalbank

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. In the first half of 2004, two meetings continued this series.

The 51st East Jour Fixe on April 16, 2004, concentrated on selected theoretical and empirical aspects of financial systems in CEECs. In the first session, chaired by Doris Ritzberger-Grünwald, Head of the Foreign Research Division of the OeNB, Rafał Kierzenkowski of the Banque de France presented a theoretical work on the bank lending channel and the effectiveness of the Polish monetary policy transmission during transition. In the second session, chaired by Jarko Fidrmuc, Foreign Research Division of the OeNB, Márton Nagy and Csaba Mór , senior economists at Magyar Nemzeti Bank, presented a joint empirical paper on market structure and bank performance in CEECs. The last presentation by Peter Breyer, Banking Analysis and Inspections Division of the OeNB, focused on the activities of Austrian banks in the CEECs.

The 52nd East Jour Fixe took place on July 1, 2004. The highly topical meeting focused on energy against the background of the sharp rise in oil prices in recent months. The event again comprised two parts: In the first session, chaired by Markus Arpa, Deputy Head of the Foreign Research Division of the OeNB, Professor Ray Barrell of NIESR and Douglas Sutherland of the OECD discussed the macroeconomic impact of oil price shocks. The second session, chaired by Doris Ritzberger-Grünwald, Head of the Foreign Research Division of the OeNB, covered selected aspects of the energy sector. Wolfgang Ernst of the Austrian oil company OMV discussed the implications for Austria of current oil prices, while Nebojsa Nakicenovic of the IIASA and the Vienna University of Technology addressed future technological options in the energy sector and geographical implications with a focus on the future role of Russia and China.

A synopsis of the meetings is provided below.

51st East Jour Fixe

Financial Systems in CEECs

On April 16, 2004, the Oesterreichische Nationalbank organized the 51st East Jour Fixe meeting on “Financial Systems in CEECs.” The seminar was organized in two sessions, focusing on the transmission mechanism and the banking sector, respectively. A special feature was that two of three papers presented at the event received the Olga Radzyner Award in 2003.

The first session was chaired by Doris Ritzberger-Grünwald, Head of the Foreign Research Division of the OeNB. She introduced the topic of the meeting, stressing the importance of the transmission mechanism and the role of the banking sector for the countries on the edge of full membership in the European Union. Rafał Kierzenkowski, Banque de France, then presented his paper on “The Multi-Regime Bank Lending Channel and the Effectiveness of the Polish Monetary Policy Transmission During Transition.”¹ The speaker started with

¹ The contribution is based on the author’s Ph.D. thesis at the University of Paris Dauphine, which received the Olga Radzyner Award in 2003. The presented version of the paper is forthcoming in the *Journal of Comparative Economics*.

a short discussion of capital markets in Poland, which are still fairly narrow by international standards. Furthermore, the financial system is based heavily on banks collecting savings and providing loans to investors. Starting from the structure of the financial system in Poland, which is typical of that in several new EU Member States, Mr. Kierzenkowski described a generalized monetary transmission model with a bank lending channel.

The standard models show that the bank lending channel amplifies monetary policy actions: monetary policy becomes more restrictive when the banking sector reduces loan supply in response to a negative monetary shock. By contrast, Mr. Kierzenkowski's results show that the standard findings depend crucially on several assumptions. If these assumptions are relaxed, the bank lending channel can generate several regimes in the transmission process. It may either amplify (standard case) or attenuate, i.e. smooth, the effects of monetary shocks, depending on the model parameters. Furthermore, the spread between loan and bond interest rates is a good indicator of which regime is actually working in an economy.

In the second part of his presentation, Mr. Kierzenkowski calibrated the model for Poland between 1994 and February 2002. The results show that the bank lending channel was in the attenuation regime at the beginning of the period (1996–98) and in a neutral position afterwards. The exchange rate could be a driving force behind the change, as the structural break coincides with the adoption of a floating exchange rate system in Poland.

Mr. Kierzenkowski's contribution was discussed by Sylvia Kaufmann of the Economic Studies Division of the OeNB. She pointed out the new contributions the author made to the modeling transmission mechanism in general as well as in the acceding countries. Then, she addressed possible differences between fixed and floating exchange rate regimes, the relationship between the bank lending channel and the credit channel, and the role of time-changing parameters during accession to the European Union.

The second session on banking systems in the acceding countries was chaired by Jarko Fidrmuc, Foreign Research Division of the OeNB. Mr. Fidrmuc linked the papers of the second session to the previous contribution, which had already stressed the importance of the banking sector in the transmission mechanisms of the CEECs. Subsequently, Márton Nagy and Csaba Mór , senior economists at Magyar Nemzeti Bank, presented their joint paper on “The Relationship between Market Structure and Bank Performance: Empirical Evidence for Central and Eastern Europe.”² The contribution analyzes the role of market structure in the pricing behavior and profitability of banks in the CEECs. In particular, the authors discuss two relationships: first, the structure-conduct-performance paradigm (SCP), which supposes that higher concentration allows for higher prices and extra profits and second, the relative market power (RMP) hypothesis, which states that banks with large market shares and well-differentiated products can increase their profitability. The estimations using the individual bank data of eight CEECs between 1998 and 2001 confirm the RMP hypothesis but reject the SCP hypothesis. Furthermore, costs, risks,

² *The Olga Radzyner Award-winning paper was published as MNB Working Paper 2003/12 available at http://english.mnb.hu/dokumentumok/WP2003_12.pdf.*

reserve ratios and the depth of bank intermediation also play an important role in the banks’ performance.

Finally, Peter Breyer, Banking Analysis and Inspections Division of the OeNB, presented his recent analysis on “Central and Eastern Europe: An Expanding Market for Austrian Banks.”³ His presentation was mainly devoted to three issues. Mr. Breyer began by describing the role of Austrian banks in the region, which own about 22% of the banking assets in CEE. These investments are also very important from the domestic perspective of the Austrian banking sector. Austrian banks’ subsidiaries in Central and Eastern Europe account for about 10% of their total assets. Second, Mr. Breyer argued that there was still a significant growth potential in CEE banking based on GDP growth forecasts and the low levels of financial intermediation. This is likely to improve the Austrian banking sector’s profitability in the coming years. Finally, the speaker addressed possible risks in CEE with respect to overall macroeconomic developments (twin deficits and currency risk) as well as to sectoral developments (closing of currently high interest margins and credit risks). Correspondingly, Mr. Breyer stressed the importance of adequate risk-control measures. Overall, the growth in CEE banking is likely to outpace banking growth in Austria and Western Europe.

Thomas Url, senior economist at the Austrian Institute of Economic Research (WIFO), concentrated on the first paper in his discussion. He compared the presentation with similar results available for OECD countries, noting that some differences found for the CEECs may be due to data problems in these countries. Finally, Mr. Url also touched upon the economic policy implications of both papers.

52nd East Jour Fixe

The Oil Price: Prospects and Macroeconomic Implications

On July 1, 2004, the Oesterreichische Nationalbank organized the 52nd East Jour Fixe on “The Oil Price: Prospects and Macroeconomic Implications” in view of the recent development of oil prices. The willingness of the speakers to participate in this meeting at short notice and at the beginning of the summer season has to be highly appreciated.

The seminar was organized in two sessions, the first focusing on the macroeconomic effects of the current oil price hike on the EU and the world economy and the second on sectoral effects in selected countries. The first session was chaired by Markus Arpa, Deputy Head of the Foreign Research Division of the OeNB, who introduced the topic of the meeting with a quote by Sheik Ahmed Zaki Yamani, former Minister of Petroleum and Mineral Resources of Saudi Arabia: “The Stone Age did not end for the lack of stone, and the Oil Age will end long before the world runs out of oil.” First, Ray Barrell of the National Institute of Economic and Social Research, NIESR, in London

³ The full contribution may be found in the Oesterreichische Nationalbank’s quarterly publication *Monetary Policy and the Economy* 2/2004.

and the Imperial College London, presented a paper⁴ coauthored with Olga Pomerantz, also of NIESR, entitled “Oil Prices and the World Economy.” Ray Barrell stressed that the oil and energy intensities were now much lower than in the 1970s and 1980s. This also implies lower macroeconomic effects than during the oil price shocks, which simulations in the authors’ macroeconomic forecasting model (NiGEM) confirm. However, the new EU Member States are more energy intensive, which makes them more vulnerable to oil price hikes. Mr. Barrell concluded that the policy response of central banks and the behavior of oil exporting countries play a decisive role in the outcome of an oil price shock.

Douglas Sutherland of the Organisation for Economic Co-operation and Development, OECD, linked his presentation to the preceding contribution. The speaker analyzed OPEC and the supply side of the oil market in more detail. In real terms, the current oil price is relatively low in comparison to that during previous episodes of high oil prices, which, in combination with lower energy intensities particularly in the EU countries, reduces the macroeconomic effects of the current oil price jump. The speaker gave an outlook of the development of production shares, with an increase in the share of OPEC expected in the medium term.

Doris Ritzberger-Grünwald, Head of the Foreign Research Division of the OeNB, headed the second session, opening with broader issues related to the energy sector in general and the impact on selected countries. Wolfgang Ernst (OMV, Corporate Strategy, Vienna) focused on the impact on Austria in “Oil Price: The Austrian Perspective.” The presentation started with basic aspects from the oil industry’s point of view. Recent price increases are not caused by fears of oil running out, stated Mr. Ernst. Proven reserves have been growing for decades as a result of new discoveries and improving technologies of exploitation. The cost curve of upstream business and oil companies’ price assumptions are well below the range forecast today. However, geopolitics, financial markets, oil product imbalances and taxes also determine consumer prices. Mr. Ernst continued by recounting conditions in Austria. Austria’s energy supply is characterized by a shift from coal and oil to gas and renewables. This shift and some flexibility on the consumer side decrease the impacts on the economy.

In the final contribution, Nebojsa Nakicenovic, International Institute for Applied Systems Analysis (IIASA) and Vienna University of Technology, added a further dimension to the theme in his presentation “Global Oil and Gas Perspectives: A Possible Role of Russia.” In his compelling lecture, Mr. Nakicenovic reviewed alternatives to oil as the major energy source. According to his analysis, oil will be replaced well before this natural resource is exhausted. Natural gas, renewables and methane hydrate could play an important role in this process. However, it is very difficult to foresee the trends in the next decades. Mr. Nakicenovic moved on to address Russia’s role as an energy supplier and China’s position as an energy importer, stressing that these countries were likely to gain importance in the next decades.

The discussion in both sessions addressed the issue of energy intensities in Austria and the European Union, in particular in the new Member States.

⁴ The full version of the contribution is published in *Focus on European Economic Integration* 1/2004.

Long-run price relations between various energy products were discussed as well. More detailed questions covered the structure of the consumer price index in Austria and the adequate response of policymakers to an oil price shock. Last but not least, the discussion of alternative energy resources continued well after the seminar.

STATISTICAL ANNEX

Table A1

Gross Domestic Product

Annual real change in %	2001	2002	2003	2002 Q4	2003 Q1	2003 Q2	2003 Q3	2003 Q4	2004 Q1
Albania	6.8	4.7	6.0	x	x	x	x	x	x
Bosnia and Herzegovina	4.4	5.5	3.5	x	x	x	x	x	x
Bulgaria	4.1	4.9	4.3	3.5	3.5	4.2	4.4	4.9	5.3
Croatia	4.4	5.2	4.3	5.9	4.9	5.0	3.9	3.3	4.2
FYR Macedonia ¹	-4.5	0.9	3.2	x	x	x	x	x	x
Romania	5.7	5.0	4.9	5.6	4.4	4.3	5.4	4.6	6.1
Russia	5.1	4.7	7.3	6.0	7.5	7.9	6.5	7.6	7.4
Serbia and Montenegro	5.1	3.0	x	x	x	x	x	x	x
Turkey	-7.5	7.9	5.8	11.7	8.1	3.9	5.5	6.1	10.1
Ukraine	9.2	5.2	9.4	x	x	x	x	x	x

Source: Eurostat, wiw, national sources.

¹ Former Yugoslav Republic of Macedonia.

Table A2

Industrial Production

Annual real change in %	2001	2002	2003	Jan. 04	Feb. 04	Mar. 04	Apr. 04	May 04	June 04
Bosnia and Herzegovina	7.4	13.9	-7.8	18.8	16.6	x	x	x	x
Bulgaria	2.5	4.7	15.3	12.7	20.6	17.8	13.6	x	x
Croatia	6.1	5.5	4.1	-1.5	7.2	10.4	3.0	1.0	x
FYR Macedonia	-3.1	-5.3	4.7	x	x	x	x	x	x
Romania	8.3	4.4	3.2	0.8	6.9	9.5	1.5	x	x
Russia	4.9	3.7	7.0	7.5	8.7	6.6	6.7	5.5	x
Serbia and Montenegro	0.0	1.7	-2.7	x	x	x	x	x	x
Turkey	-8.5	9.2	8.4	5.7	15.2	13.0	15.6	16.5	15.7
Ukraine	14.2	7.0	15.8	16.1	18.2	18.8	17.7	16.9	x

Source: wiw, EBRD, national sources.

Table A3

Average Gross Wages

Annual nominal change in %	2001	2002	2003	2002 Q4	2003 Q1	2003 Q2	2003 Q3	2003 Q4	2004 Q1
Albania ¹	15.9	22.7	7.4	x	14.4	11.9	3.4	5.0	9.5
Bosnia and Herzegovina ²	20.5	1.4	8.4	x	9.3	9.1	8.0	7.1	x
Bulgaria ³	11.8	7.0	4.0	6.0	3.8	3.8	3.9	4.7	6.5
Croatia ⁴	6.5	5.0	5.9	6.4	7.5	5.7	5.6	5.0	6.1
FYR Macedonia ⁴	3.5	6.9	4.8	x	x	x	x	x	x
Romania ⁴	40.5	27.1	25.4	23.0	27.9	24.4	24.7	24.9	24.6
Russia ³	45.7	34.5	24.8	29.6	24.9	24.4	22.3	27.3	28.6
Serbia and Montenegro ⁴	114.3	66.1	24.9	x	x	x	x	x	x
Turkey ⁵	35.3	32.1	17.2	55.5	35.3	32.1	17.2	17.7	x
Ukraine ³	35.2	21.0	22.8	17.9	20.3	22.5	24.4	24.5	28.8

Source: wiw, national sources.

¹ Monthly earning in the state sector.

² Excludes Brcko district wages.

³ Total economy, gross.

⁴ Total economy, net.

⁵ Monthly manufacturing earnings.

Table A4

Unemployment Rate

End of period in %	2001	2002	2003	Jan. 04	Feb. 04	Mar. 04	Apr. 04	May 04	June 04
Albania	14.6	15.8	15.0	x	x	x	x	x	x
Bosnia and Herzegovina	40.3	40.9	42.0	42.2	42.3	44.5	44.5	44.4	x
Bulgaria ¹	17.5	17.4	14.3	14.5	14.2	13.7	13.2	12.6	x
Croatia ¹	22.0	22.3	19.5	19.1	19.2	19.1	18.6	x	x
FYR Macedonia ²	30.5	31.9	36.7	x	x	x	x	x	x
Romania ¹	9.0	10.2	7.6	7.6	7.7	7.7	7.3	x	x
Russia ²	9.0	8.0	8.3	8.8	9.2	8.8	8.5	8.1	x
Serbia and Montenegro ²	12.9	13.8	14.0	x	x	x	x	x	x
Turkey ²	8.4	10.4	10.5	x	x	x	x	x	x
Ukraine ²	11.1	10.1	9.1	x	x	x	x	x	x

Source: *wiiv, national sources.*

¹ Registered, period average.

² LFS, period average.

Table A5

Industrial Producer Price Index

Period average, annual change in %	2001	2002	2003	Jan. 04	Feb. 04	Mar. 04	Apr. 04	May 04	June 04
Albania	x	x	x	x	x	x	x	x	x
Bosnia and Herzegovina	3.9	-0.3	-0.1	0.0	0.1	x	x	x	x
Bulgaria	3.8	1.4	5.0	3.1	1.0	1.4	6.1	x	x
Croatia	3.4	-0.5	1.9	0.8	0.1	-0.5	1.3	4.4	x
FYR Macedonia	2.0	-0.9	-0.3	x	x	x	x	x	x
Romania	38.7	23.2	19.6	19.3	17.6	17.0	18.3	x	x
Russia	19.1	11.7	15.6	17.3	19.6	20.1	21.6	24.4	x
Serbia and Montenegro	-10.4	-41.3	-3.8	x	x	x	x	x	x
Turkey	61.6	50.1	25.6	10.8	9.1	8.0	8.9	9.6	10.5
Ukraine	8.6	3.1	7.8	12.4	14.9	15.0	18.4	20.6	x

Source: *wiiv, national sources.*

Table A6

Consumer Price Index

Period average, annual change in %	2001	2002	2003	Jan. 04	Feb. 04	Mar. 04	Apr. 04	May 04	June 04
Albania	3.1	5.2	2.3	3.3	4.3	4.0	3.2	2.6	2.9
Bosnia and Herzegovina ¹	0.9	0.2	0.6	0.6	0.5	x	x	x	x
Bulgaria	7.4	5.8	2.3	6.4	6.6	6.1	6.1	6.8	7.3
Croatia ²	5.0	1.7	1.8	2.1	1.8	1.4	1.9	2.4	x
FYR Macedonia	5.2	1.4	2.4	2.5	x	x	x	x	x
Romania	34.5	22.5	15.3	13.9	13.7	13.1	12.5	12.3	x
Russia	21.6	16.0	13.6	11.3	10.7	10.3	10.3	10.2	x
Serbia and Montenegro	88.9	16.5	9.4	x	x	x	x	x	x
Turkey	54.4	45.0	25.3	16.2	14.3	11.8	10.2	8.9	8.9
Ukraine	12.0	0.8	5.2	8.1	7.4	6.6	6.6	7.4	x

Source: *Eurostat, wiiv, national sources.*

¹ Retail prices.

² Retail prices until 2001.

Table A7

Trade Balance

% of annual GDP	2001	2002	2003	2002 Q4	2003 Q1	2003 Q2	2003 Q3	2003 Q4	2004 Q1
Albania	x	x	x	x	x	x	x	x	x
Bosnia and Herzegovina	x	x	x	x	x	x	x	x	x
Bulgaria	-11.7	-10.2	-12.5	-15.8	-7.8	-15.8	-9.2	-16.5	-12.3
Croatia	-20.8	-24.2	-26.9	-25.4	-23.2	-28.8	-26.7	-28.5	-23.3
FYR Macedonia	x	x	x	x	x	x	x	x	x
Romania	-6.7	-5.8	-7.9	-5.9	-4.5	-10.4	-5.9	-9.9	-6.0
Russia	15.7	13.4	13.9	12.7	16.7	13.5	13.1	12.8	14.4
Serbia and Montenegro	x	x	x	x	x	x	x	x	x
Turkey	-3.2	-4.6	-5.7	-5.4	-5.7	-6.1	-5.0	-6.3	-8.8
Ukraine	x	x	x	x	x	x	x	x	x

Source: *National central banks.*

Table A8

Current Account Balance									
% of annual GDP	2001	2002	2003	2002 Q4	2003 Q1	2003 Q2	2003 Q3	2003 Q4	2004 Q1
Albania	x	x	x	x	x	x	x	x	x
Bosnia and Herzegovina	x	x	x	x	x	x	x	x	x
Bulgaria	-7.2	-5.6	-8.5	-14.4	-10.0	-13.3	3.7	-15.7	-12.2
Croatia	-3.9	-8.5	-6.8	-16.8	-17.4	-19.8	24.9	-19.5	-19.3
FYR Macedonia	x	x	x	x	x	x	x	x	x
Romania	-5.0	-3.6	-5.7	-4.3	-1.6	-10.0	-2.6	-7.8	-2.7
Russia	11.0	8.5	8.3	8.3	12.7	8.4	7.1	5.9	10.4
Serbia and Montenegro	x	x	x	x	x	x	x	x	x
Turkey	2.4	-0.9	-2.8	-2.1	-6.6	-4.4	1.7	-4.5	-8.6
Ukraine	x	x	x	x	x	x	x	x	x

Source: National central banks.

Table A9

Net Foreign Direct Investment									
% of annual GDP	2001	2002	2003	2002 Q4	2003 Q1	2003 Q2	2003 Q3	2003 Q4	2004 Q1
Albania	x	x	x	x	x	x	x	x	x
Bosnia and Herzegovina	x	x	x	x	x	x	x	x	x
Bulgaria	5.9	5.7	7.0	5.5	6.9	9.4	5.5	6.5	7.9
Croatia	7.1	2.5	6.3	5.1	4.7	8.8	1.6	10.3	3.2
FYR Macedonia	x	x	x	x	x	x	x	x	x
Romania	2.6	2.4	3.1	2.3	4.1	3.5	2.3	3.0	4.1
Russia	0.1	0.0	-0.7	-0.7	0.9	0.5	-1.5	-2.0	-0.3
Serbia and Montenegro	x	x	x	x	x	x	x	x	x
Turkey	1.9	0.5	0.4	0.4	0.3	0.2	0.6	0.6	0.6
Ukraine	x	x	x	x	x	x	x	x	x

Source: National central banks.

Table A10

Reserve Assets excluding Gold										
End of period, % of annual GDP	2000	2001	2002	2003	2002 Q4	2003 Q1	2003 Q2	2003 Q3	2003 Q4	2004 Q1
Albania	x	x	x	x	x	x	x	x	x	x
Bosnia and Herzegovina	11.0	26.1	..	..	x	x	x	x	x	x
Bulgaria ¹	24.7	24.5	25.6	28.2	25.6	24.3	26.5	27.3	28.2	27.9
Croatia ¹	18.9	24.0	23.3	25.7	23.3	23.6	23.8	24.5	25.7	23.8
FYR Macedonia	12.0	21.7	19.0	..	x	x	x	x	x	x
Romania ¹	6.7	10.0	12.3	12.7	12.3	12.1	11.4	13.5	12.7	13.2
Russia ¹	0.0	0.0	0.0	0.0	11.6	13.3	14.5	13.6	15.2	16.3
Serbia and Montenegro	x	x	x	x	x	x	x	x	x	x
Turkey ¹	11.0	13.4	13.4	12.4	13.4	13.0	13.2	13.9	12.4	12.1
Ukraine	4.3	7.8	10.2	13.6	x	x	x	x	x	x

Source: wiiv, IMF.

¹ Quarterly data on the basis of rolling four-quarter GDP.

Table A11

Gross External Debt				
End of period, % of annual GDP	2000	2001	2002	2003
Albania	31.7	28.2	24.4	23.2
Bosnia and Herzegovina	62.8	50.0	41.2	34.7
Bulgaria	87.8	79.0	64.9	59.3
Croatia	59.4	57.9	60.7	73.1
FYR Macedonia	41.5	39.8	40.2	36.1
Romania ¹	30.3	33.5	33.3	31.6
Russia	56.0	47.3	39.4	38.3
Serbia and Montenegro	132.5	103.2	75.6	68.5
Turkey	59.2	81.5	65.5	54.3
Ukraine	37.8	31.8	30.8	27.9

Source: National central banks, EBRD.

¹ Medium- and long-term debt.

Table A12

Central Government Balance

% of GDP	2000	2001	2002	2003	2002 Q4	2003 Q1	2003 Q2	2003 Q3	2003 Q4	2004 Q1
Albania	-9.1	-8.3	-6.2	-4.4	x	x	x	x	x	x
Bosnia and Herzegovina	-7.0	-3.3	-2.2	0.4	x	x	x	x	x	x
Bulgaria ¹	-1.0	-0.9	-0.6	0.0	-7.9	1.5	6.4	2.3	-8.9	2.8
Croatia	-4.0	-2.6	-2.0	-1.1	-1.5	-6.2	-2.7	-0.2	4.0	-5.3
FYR Macedonia ¹	1.8	-7.2	-5.7	-1.6	x	x	x	x	x	x
Romania	-3.6	-3.1	-3.1	-1.5	-3.1	-2.4	-2.1	1.0	-2.8	-1.5
Russia	2.4	3.0	1.4	1.7	-3.0	3.1	3.1	1.5	-0.3	3.7
Serbia and Montenegro ¹	-0.9	-1.3	-4.5	-2.5	x	x	x	x	x	x
Turkey ¹	-10.3	-16.0	-14.1	-11.1	-17.5	-15.8	-17.4	-4.5	-10.2	-8.7
Ukraine ¹	-1.3	-1.6	0.5	-0.2	x	x	x	x	x	x

Source: wiw, EBRD, national sources.

¹ General government debt.

Table A13

Gross General Government Debt

% of annual GDP	2000	2001	2002	2003
Albania	71.6	67.7	63.2	61.3
Bosnia and Herzegovina	x	x	x	x
Bulgaria	73.6	66.2	56.2	50.5
Croatia	39.5	40.6	41.1	43.2
FYR Macedonia	x	x	x	x
Romania	23.9	23.2	22.7	22.3
Russia	x	x	x	x
Serbia and Montenegro	x	x	x	x
Turkey	57.4	105.3	94.3	87.4
Ukraine	45.1	37.5	34.3	29.4

Source: Eurostat, EBRD.

Table A14

Broad Money

End of period, annual nominal change in %	2001	2002	2003	Jan. 04	Feb. 04	Mar. 04	Apr. 04	May 04	June 04
Albania (M3)	20.2	5.7	7.6	8.4	7.1	8.4	8.1	9.0	x
Bosnia and Herzegovina (M2)	89.3	8.6	8.4	11.7	13.2	17.0	18.0	19.8	x
Bulgaria (M3)	25.8	11.7	19.6	21.4	21.4	23.0	23.7	25.0	26.8
Croatia (M4)	45.2	9.5	11.0	10.5	9.1	5.9	8.5	7.0	x
FYR Macedonia	64.0	-9.3	18.0	x	x	x	x	x	x
Romania (M2)	46.2	38.2	23.3	27.1	24.8	30.3	26.9	29.4	x
Russia ¹	36.3	33.8	38.5	41.2	39.5	39.3	41.1	37.2	35.2
Serbia and Montenegro	92.0	52.7	27.9	x	x	x	x	x	x
Turkey ¹	86.2	29.1	14.2	17.0	15.7	15.4	23.9	29.2	x
Ukraine	41.9	41.8	46.5	47.4	47.9	45.1	45.0	47.9	x

Source: wiw, national sources.

¹ Monetary survey definition.

Table A15

Official Key Interest Rate

End of period in %	2001	2002	2003	Jan. 04	Feb. 04	Mar. 04	Apr. 04	May 04	June 04
Albania (repo rate) ¹	7.00	8.50	7.00	6.50	6.50	6.50	6.30	6.00	5.80
Bosnia and Herzegovina	x	x	x	x	x	x	x	x	x
Bulgaria (official refinancing rate) ²	4.65	3.31	2.83	2.51	2.41	2.55	2.59	3.83	2.44
Croatia (official discount rate) ³	5.90	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
FYR Macedonia (basic rate of the national bank)	10.70	10.70	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Romania (official refinancing rate) ⁴	35.00	20.40	20.41	21.25	21.25	21.25	21.25	21.25	21.25
Russia (official refinancing rate) ⁵	25.00	21.00	16.00	14.00	14.00	14.00	14.00	14.00	13.00
Serbia and Montenegro (discount rate)	16.40	9.50	9.00	x	x	x	x	x	x
Turkey (overnight deposit rate) ⁶	59.00	44.00	26.00	26.00	24.00	22.00	22.00	22.00	22.00
Ukraine (refinancing rate)	12.50	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00

Source: Eurostat, Bloomberg, wiw, IMF.

¹ The Bank of Albania's basic interest rate.

² The Bulgarian National Bank's basic interest rate.

³ Hrvatska narodna banka's basic rate for lending to commercial banks.

⁴ From February 1, 2002, reference rate of Banca Națională a României.

⁵ Charged by the the Central Bank of the Russian Federation on three-month loans to commercial banks.

⁶ The interest rate paid by Türkiye Cumhuriyet Merkez Bankasi on overnight deposits.

Table A16

Three-Month Interbank Rate¹

End of period in %	2001	2002	2003	Jan. 04	Feb. 04	Mar. 04	Apr. 04	May 04	June 04	July 04
Albania	x	x	x	x	x	x	x	x	x	x
Bosnia and Herzegovina	x	x	x	x	x	x	x	x	x	x
Bulgaria	x	x	3.50	3.28	3.57	3.67	4.41	5.29	3.51	3.46
Croatia	6.25	3.93	8.33	7.25	8.29	8.13	6.03	5.57	5.81	7.41
FYR Macedonia	x	x	x	x	x	x	x	x	x	x
Romania	36.62	20.47	22.31	22.38	22.50	22.50	22.50	22.38	21.38	20.25
Russia	23.84	13.35	6.20	6.26	5.84	6.03	8.93	10.28	10.07	9.05
Serbia and Montenegro	x	x	x	x	x	x	x	x	x	x
Turkey	66.00	49.00	26.00	26.00	25.00	23.00	24.00	24.00	25.00	25.00
Ukraine	x	x	4.75	13.40	8.00	11.00	8.02	7.16	9.71	17.00

Source: Bloomberg, Thomson financial.

¹ Ask rate.

Table A17

Exchange Rate

Period average, national currency per EUR (ECU)

	2001	2002	2003	Jan. 04	Feb. 04
Albania	128.50	132.46	137.57	133.95	132.91
Bosnia and Herzegovina	x	x	x	x	x
Bulgaria	1.95	1.95	1.95	1.96	1.95
Croatia	7.47	7.41	7.56	7.69	7.65
FYR Macedonia	60.91	60.98	61.26	x	x
Romania	26,000.25	31,234.75	37,543.00	41,107.00	40,563.00
Russia	26.13	29.65	34.55	36.38	36.09
Serbia and Montenegro	59.44	60.79	65.26	x	x
Turkey	1,102,414.00	1,435,800.50	1,696,322.25	1,698,262.00	1,682,658.00
Ukraine	4.81	5.03	6.02	6.73	6.74

	Mar. 04	Apr. 04	May 04	June 04	July 04
Albania	130.46	128.16	127.54	124.68	124.38
Bosnia and Herzegovina	x	x	x	x	x
Bulgaria	1.95	1.95	1.95	1.95	1.96
Croatia	7.50	7.51	7.43	7.38	7.38
FYR Macedonia	x	x	x	x	x
Romania	40,029.00	40,683.00	40,554.00	40,753.00	40,962.00
Russia	35.02	34.45	34.82	35.27	35.67
Serbia and Montenegro	x	x	x	x	x
Turkey	1,620,374.00	1,637,423.00	1,818,487.00	1,814,266.00	1,784,116.00
Ukraine	6.54	6.39	6.40	6.46	6.52§

Source: Eurostat, wiw, Bloomberg, national sources, Thomson financial.

NOTES

Legend, Abbreviations and Definitions

Legend

- x = not available or not applicable
– = new series

Discrepancies may arise from rounding.

Abbreviations

CEE	Central and Eastern Europe
CEECs	Central and Eastern European countries
CEFTA	Central European Free Trade Agreement
CIS	Community of Independent States
CMEA	Council for Mutual Economic Assistance
COLI	cost-of-living index
CPI	consumer price index
DG ECFIN	Directorate General for Economic and Financial Affairs (EU)
EBRD	European Bank for Reconstruction and Development
ECB	European Central Bank
ECU	European Currency Unit
EMS	European Monetary System
EPL	employment protection legislation
ERM	exchange rate mechanism
ERM II	exchange rate mechanism II
ESA	European System of Accounts
EU	European Union
EUR	euro
FATF	Financial Action Task Force on Money Laundering
FDI	foreign direct investment
FPG	financial-industrial group (Russia)
FTE	full-time equivalent
GARCH	Generalized Autoregressive Conditional Heteroscedasticity model
GDP	gross domestic product
GKO	short-term treasury bill (Russia)
HICP	Harmonized Index of Consumer Prices
ILO	International Labor Organization
IMF	International Monetary Fund
MEBO	management and employee buyout
NCB	national central bank
NIESR	National Institute for Economic and Social Research
NiGEM	National Institute's Global Econometric Model
NMS	new Member States (EU)
OECD	Organisation for Economic Co-operation and Development
OeNB	Oesterreichische Nationalbank
PEP	Preaccession Economic Program
PPI	producer price index
PPP	purchasing power parity

RAS	Russian accounting standards
RMP hypothesis	relative market power hypothesis
ROE	return on equity
SCP paradigm	structure-conduct-performance paradigm
SETAR model	Self-Exciting Threshold Autoregressive model
SMEs	small and medium-sized enterprises
Treaty	Treaty on European Union
ULC	unit labor costs
VAT	value-added tax
WIFO	Österreichisches Institut für Wirtschaftsforschung – Austrian Institute of Economic Research
wiiw	Wiener Institut für internationale Wirtschaftsvergleiche – The Vienna Institute for International Economic Studies

Definitions

Bulgaria is a candidate country within the EU enlargement process. A candidate country is a country that has formally applied to the European Union for membership and has been officially recognized by the European Council as a candidate for membership. As accession negotiations are currently ongoing, Bulgaria is often termed an accession country.

Bulgaria applied for EU membership on December 15, 1995, and was formally recognized as a candidate country at the Helsinki European Council meeting on December 10 and 11, 1999. Accession negotiations were opened on February 15, 2000. By June 2004 all negotiation chapters had been provisionally closed, and the negotiations are planned to be formally concluded at the European Council meeting in December 2004.

Romania is a candidate country within the EU enlargement process. A candidate country is a country that has formally applied to the European Union for membership and has been officially recognized by the European Council as a candidate for membership. As accession negotiations are currently ongoing, Romania is often termed an accession country.

Romania applied for EU membership on June 22, 1995, and was formally recognized as a candidate country at the Helsinki European Council meeting on December 10 and 11, 1999. Accession negotiations were opened on February 15, 2000, and are planned to be formally concluded at the European Council meeting in December 2004.

Croatia is a candidate country within the EU enlargement process. A candidate country is a country that has formally applied to the European Union for membership and has been officially recognized by the European Council as a candidate for membership. As the European Council has already taken the decision to open negotiations with Croatia without any further preconditions, Croatia may already be termed an accession country.

Croatia applied for EU membership on February 21, 2003, and was formally recognized as a candidate country at the Brussels European Council meeting on June 17 and 18, 2004. Negotiations are planned to be opened early in 2005.

Turkey is a candidate country within the EU enlargement process. A candidate country is a country that has formally applied to the European Union for membership and has been officially recognized by the European Council as a candidate for membership.

Turkey applied for EU membership on April 14, 1987, and was formally recognized as a candidate country at the Helsinki European Council meeting on December 10 and 11, 1999. The European Council meeting in December 2004 will decide on the basis of a report and recommendations by the European Commission whether Turkey fulfills the Copenhagen political criteria and whether accession negotiations will be opened.

The *Former Yugoslav Republic of Macedonia* is an applicant country within the EU enlargement process. An applicant country is a country that has formally applied to the European Union for membership.

The Former Yugoslav Republic of Macedonia applied for EU membership on March 22, 2004.

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