



OESTERREICHISCHE NATIONALBANK  
EUROSYSTEM

# FOCUS ON EUROPEAN ECONOMIC INTEGRATION

Stability and Security.

Q4/09

The Focus on European Economic Integration (FEEI) is a channel for communicating the OeNB's ongoing research on Central, Eastern and Southeastern European (CESEE) countries, thus reflecting a strategic regional research priority of the OeNB. Contributions to the quarterly FEEI include peer reviewed studies dealing primarily with macrofinancial and monetary integration as well as economic country analyses and cross-regional comparisons.

**Editors in chief**

*Peter Mooslechner, Doris Ritzberger-Grünwald*

**General coordinator**

*Peter Backé*

**Scientific coordinator**

*Markus Eller*

**Editing**

*Anike Boeckler, Dagmar Dichtl, Ingrid Haussteiner, Elisabeth Keable, Rena Mühldorf, Ingeborg Schuch, Susanne Steinacher*

**Technical production**

*Peter Buchegger (design)  
Walter Grosser, Susanne Sapik, Birgit Vogt (layout, typesetting)  
OeNB Web and Printing Services (printing and production)*

**Inquiries**

*Oesterreichische Nationalbank, Communications Division  
Postal address: PO Box 61, 1011 Vienna, Austria  
Phone: (+43-1) 404 20-6666  
Fax: (+43-1) 404 20-6698  
E-mail: [oenb.info@oenb.at](mailto:oenb.info@oenb.at)*

**Orders/address management**

*Oesterreichische Nationalbank, Documentation Management and Communications Services  
Postal address: PO Box 61, 1011 Vienna, Austria  
Phone: (+43-1) 404 20-2345  
Fax: (+43-1) 404 20-2398  
E-mail: [oenb.publikationen@oenb.at](mailto:oenb.publikationen@oenb.at)*

**Imprint**

*Publisher and editor:  
Oesterreichische Nationalbank  
Otto-Wagner-Platz 3, 1090 Vienna, Austria  
Günther Thonabauer, Communications Division  
Internet: [www.oenb.at](http://www.oenb.at)  
Printed by: Oesterreichische Nationalbank, 1090 Vienna, Austria  
© Oesterreichische Nationalbank, 2009  
All rights reserved.  
May be reproduced for noncommercial, educational and scientific purposes with appropriate credit.*

**DVR 0031577**

**Vienna, 2009**



# Contents

## Recent Economic Developments

- Developments in Selected CESEE Countries: Gradual Recovery in the Offing –  
Moderating External Imbalances, but Vulnerabilities Remain an Issue 7

*Compiled by Josef Schreiner*

- Box 1: Financial Market Developments in CESEE:  
Markets Are in the Process of Stabilizing as Global Risk Appetite Rebounds 20

- Box 2: OeNB-BOFIT Outlook for CESEE Countries:  
The Region Is Reaching the Trough, a Gradual Recovery,  
Mainly Driven by External Demand, to Be Seen from 2010 Onwards 28

## Studies

- The Shock-Absorbing Capacity of the Flexible Exchange Rate in Poland 54

*Agnieszka Stążka-Gawrysiak, Olga Radzyner Award winner 2008*

- CESEE Households amid the Financial Crisis:  
Euro Survey Shows Darkened Economic Sentiment and Changes in Savings Behavior 71

*Sandra Dvorsky, Thomas Scheiber, Helmut Stix*

- Simple but Effective: The OeNB's Forecasting Model for Selected CESEE Countries 84

*Jesús Crespo Cuaresma, Martin Feldkircher, Tomáš Slačák, Julia Wörz*

## Highlights

- The Euro's Contribution to Economic Stability in CESEE  
Conference on European Economic Integration 98

*Compiled by Andreas Breitenfellner*

- 65<sup>th</sup> East Jour Fixe: Credit Default Swaps – Blessing or Curse? 109

*Compiled by Sándor Gardó and Mathias Lahnsteiner*

- IMF Outlook for Europe: Securing Recovery 115

*Compiled by Christina Lerner*

- Olga Radzyner Award Winners 2009 117

- Selected Abstracts 118

## Statistical Annex

- Compiled by Angelika Knollmayer* 120

## Notes

- Legend, Abbreviations and Definitions 126

- Periodical Publications of the Oesterreichische Nationalbank 130

- Addresses of the Oesterreichische Nationalbank 132

*Opinions expressed by the authors of studies do not necessarily reflect  
the official viewpoint of the Oesterreichische Nationalbank or of the Eurosystem.*

Visit our CEEC website  
<http://ceec.oenb.at>



The screenshot displays the website of the Oesterreichische Nationalbank (OENB). The header features the OENB logo and the text "OESTERREICHISCHE NATIONALBANK EUROSYSTEM". The main navigation bar includes links for "Home", "Monetary Policy and Economics", "Central and Eastern Europe", "Money", "Interest", "Exchange", "Credit", "Capital and Securities", "Central", "Banking System", and "Search".

The left sidebar contains a menu with categories such as "About the OENB", "All about Money", "Monetary Policy and Economics", "Financial Market and Stability", "Statistics and Reporting", "Payment Processing", "Media and Publications", and "Services and Events".

The main content area is titled "Central and Eastern Europe" and features several sections:

- CEEC Research Platform (ceec.oenb.at)**: A section describing the research platform, which offers reports, analyses, and studies on economic developments in Central and Eastern Europe.
- Developments in Selected CEE/SEE Countries**: A section with a sub-heading "Recent Economic Developments in selected CEE/SEE Countries" and a small image of a globe.
- Focus on European Economic Integration**: A section with a sub-heading "Focus on European Economic Integration Q209" and a small image of a map of Europe.
- OENB EuroSurvey**: A section with a sub-heading "The Euro in Central, Eastern and Southeastern Europe" and a small image of the Euro symbol.
- Financial Stability Report**: A section with a sub-heading "Financial Stability Report 2017" and a small orange square icon.

# Recent Economic Developments

# Developments in Selected CESEE Countries:

## Gradual Recovery in the Offing – Moderating External Imbalances, but Vulnerabilities Remain an Issue<sup>1,2,3,4</sup>

### 1 Introduction

In the months after the collapse of Lehman Brothers, Central, Eastern and South-eastern European (CESEE) financial markets experienced substantial disruptions and posted pronounced losses. Negative sentiment, tight international liquidity and decreasing capital flows to the region triggered currency pressures, negatively impacted the financing of current account deficits and maturing external debt, and ultimately led to the adoption of international rescue packages for some countries of the region (among them Hungary and Romania). Along with rising confidence in global markets and some regained risk appetite, this stepped-up international support contributed to an easing of financial market strains, which had started at the end of the first quarter of 2009 and continued during the review period. Support packages were often accompanied by coordinated commitments by European banking groups to keep their overall exposure to the countries concerned steady. Such commitments helped dispel concerns about a possible meltdown of financial systems in the region.

Money and debt markets stabilized and asset prices began to reverse in late February and early March. These improvements were broad-based, visible in all financial market segments and across all countries (although to a different extent, depending on country-specific vulnerability profiles). Especially CDS premiums, eurobond yield spreads and equity prices recovered substantial parts of post-Lehman losses. However, most financial instruments are still trading below their values of summer 2008, i.e. shortly before the crisis hit the CESEE region (see box 1), and markets tend to remain fickle in an environment of elevated uncertainty.

After a pronounced increase during the last months of 2008 and in early 2009, the macrofinancial risks of the countries of the region have diminished somewhat. Again, this development was mainly brought about by international support for the region. In addition, improvements in fundamentals – especially in external accounts and inflation – may have played a role. However, macrofinancial risks in CESEE, while being rather heterogeneous across countries, persist, given the marked deterioration in the international economic environment and the ongoing and prospective impact of the crisis fallout in the real sector, in particular on banks balance sheets and profits.<sup>5</sup>

While financial markets have broadly stabilized, the crisis fully fed through into the real economy in the review period. Although a marked economic slow-

Financial markets are beginning to stabilize and macrofinancial risks are decreasing somewhat

... while the economic downturn has deepened

<sup>1</sup> Compiled by Josef Schreiner with input from Stephan Barisitz, Markus Eller, Sándor Gardó, Mathias Lahnsteiner, Thomas Reiningger, Tomáš Slačik, Zoltan Walko and Julia Wörz.

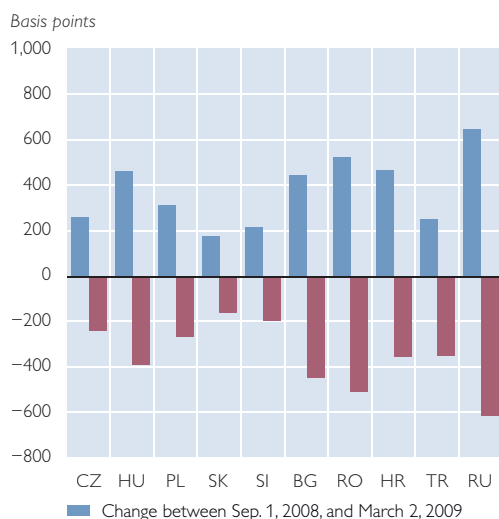
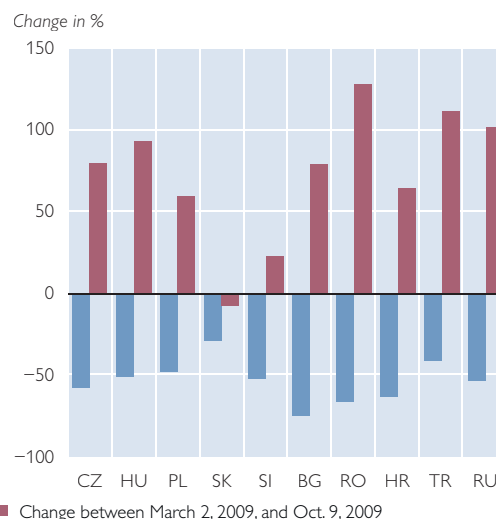
<sup>2</sup> Cutoff date: October 9, 2009 (and November 3, 2009, for fiscal data). This report focuses primarily on data releases and developments from April 2009 up to the cutoff date; earlier developments are recalled where it appears necessary to put recent developments into perspective.

<sup>3</sup> This report covers the Czech Republic, Bulgaria, Hungary, Poland, Romania, Slovakia and Slovenia as well as Croatia, Turkey and Russia.

<sup>4</sup> For statistical information on selected economic indicators for CESEE countries not covered in this section (Albania, Bosnia and Herzegovina, FYR Macedonia, Serbia, Montenegro and Ukraine), see the Statistical Annex in this issue.

<sup>5</sup> A more comprehensive analysis of macrofinancial developments in CESEE countries can be found in the OeNB's Financial Stability Report 18 (publication scheduled for December 2009).

Chart 1

**Development of Selected Financial Market Indicators**
**Credit default swap premiums**

**Equity indices**


Source: Thomson Reuters.

down had already been visible in the fourth quarter of 2008, it turned into a fully-fledged recession in the first quarter of 2009. Until then, CESEE had still outperformed the euro area in terms of growth, and growth prospects had also been somewhat more favorable. The crisis of the real economy intensified as declining external demand put a damper on export growth. This in turn negatively impacted the highly export-oriented industrial sector of the region, sparking cut-backs on investment and a substantial reduction of inventories. Low investment demand also had an adverse effect on imports, which contracted even more strongly than exports in most CESEE countries. Alongside, consumer confidence weakened substantially, reducing private consumption.

Average annual growth in the countries covered in this report declined from around 0% in the last quarter of 2008 to -8.3% in the first quarter of 2009 before recovering slightly thereafter. Looking at individual countries, year-on-year growth reached negative territory in the first quarter of 2009 throughout the region, with the notable exception of Poland. Weak economic dynamics continued in the second quarter, which, however, saw slightly improving (though, apart from Poland, still negative) year-on-year growth rates in Slovakia and Croatia and a more pronounced improvement in Turkey, where the contraction in the first quarter had been deepest among the countries under review. This trend becomes more apparent when looking at quarterly changes in working day and seasonally adjusted data: Growth was again positive in Slovenia, Poland, the Czech Republic and above all in Slovakia and Turkey (no comparable data are available for Bulgaria and Croatia), while output declined quarter on quarter – albeit at a lesser pace – in the other countries.

Leading indicators developed somewhat more favorably during most of the recent months. An upward trend is especially visible in sentiment indicators, which have increased steadily since reaching their long-term lows in early 2009.

Table 1

**Gross Domestic Product***In real terms, annual change in % (nsa)*

	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
Slovakia	10.4	6.4	9.3	7.9	6.6	2.5	-5.6	-5.3
Slovenia	6.8	3.5	5.7	5.5	3.9	-0.8	-8.3	-9.3
Bulgaria	6.2	6.0	7.0	7.1	6.8	3.5	-3.5	-4.9
Czech Republic	6.1	2.7	2.7	4.2	3.9	0.0	-4.4	-5.8
Hungary	1.2	0.6	1.8	2.1	1.3	-2.5	-6.7	-7.5
Poland	6.8	4.9	6.3	5.8	5.5	2.4	1.1	1.1
Romania	6.2	7.1	8.2	9.3	9.2	2.9	-6.2	-8.7
Croatia	5.5	2.4	4.3	3.4	1.6	0.2	-6.7	-6.3
Turkey	4.7	0.9	7.2	2.8	1.0	-6.5	-14.3	-7.0
Russia	8.1	5.7	8.7	7.5	6.0	1.2	-9.8	-10.9
CESEE region	6.7	4.3	7.3	6.0	4.8	-0.2	-8.3	-7.7
Euro area	3.1	0.9	2.0	2.2	1.1	-1.6	-4.8	-4.9

*Source: Eurostat, national statistical offices.*

The inventory cycle should also help support GDP dynamics during the second half of 2009, as destocking had come to an end by mid-2009; moreover, on purely statistical grounds, positive base effects will give some boost to annual growth rates starting in the fourth quarter. Overall, this suggests that the decline in activity seen in the review period has broadly come to an end. Box 2 discusses the growth outlook of CESEE countries until the year 2011.

A remarkable feature of recent GDP developments is the change in the composition of GDP growth that was observed in the first half of 2009. While in 2008, GDP dynamics were mainly driven by domestic demand in most countries (with the exception of the Czech Republic), this component made a significant negative contribution to economic dynamics in the first half of 2009.

Within domestic demand, both gross fixed capital formation and inventories decreased substantially. In the second quarter, reductions of gross fixed capital formation ranged from -1.3% year on year in Poland to -27.3% in Slovenia. Moreover, compared to the first quarter, the decline in investment further accelerated in the second quarter (the only notable exception was Hungary, where investments were supported by large-scale public construction projects). The decline in construction investment was less pronounced than the overall reduction (it even increased markedly in Poland, possibly in the run-up to the 2012 European football championships). Thus, the brunt of the decrease in gross fixed capital formation took place in industry.

Sinking global demand and the general deterioration in the international economic environment led to shrinking production in the highly export-oriented industrial sector. In July industrial output in the countries under review fell by an average 11.5%, with the decreases ranging from 4.5% in Romania to 23.5% in Slovakia. Capacity utilization in industry has been on a downward trend since early 2008 and reached levels of between 75% in the Czech Republic and 52% in Slovakia in the third quarter; these were the lowest values that had been recorded for years and in some countries they were even the lowest values since

Recession leads to a shift in the composition of growth ...

... away from domestic demand

the beginning of data collection in the early 1990s. Still, the downswing was somewhat mitigated by spillover effects from fiscal stimuli in Western Europe (especially car scrapping schemes), which also benefited exports of key industrial sectors of the region. The outlined developments went hand in hand with substantial stock depletion, which was largely in line with the inventory cycle.

Private consumption was unbalanced throughout the region, but its decline was generally somewhat less pronounced than that of the other components. In the Czech Republic, Poland and Slovakia, private consumption growth even stayed in positive territory, a development which can partly be explained by comparatively good labor market developments (e.g. in Poland) or by policy stimuli (e.g. car scrapping schemes in Slovakia). Still, private consumption dynamics dampened GDP growth noticeably in Hungary, Bulgaria, Russia, Croatia and especially in Romania. Waning consumer confidence, deteriorating labor markets, declining real wage growth (which even turned negative in Hungary and Russia) and increased precautionary saving have apparently played a role in this context.

... to net exports

In contrast, net exports, which had dampened economic activity in many countries throughout 2008, took over as the most important driving source. Shrinking exports (in a range of -8.9% in Russia and -21.3% in Slovenia in the second quarter) caused by fading international demand were overcompensated by declining imports (between -17.8% in the Czech Republic and -37.9% in Russia). Imports suffered from generally weak domestic (especially investment) demand and were also somewhat impacted by weak international demand, as in CESEE, production intended for export is often characterized by a relatively high import content.

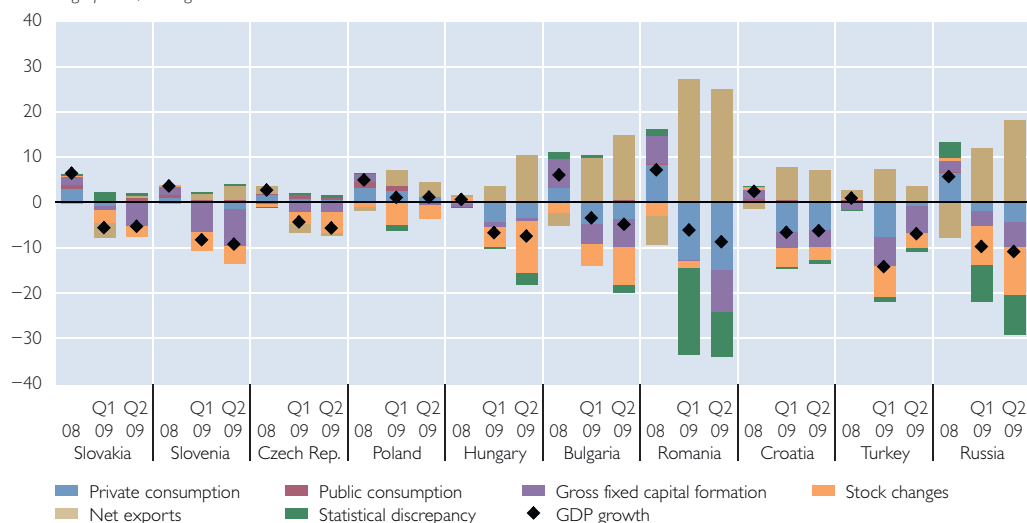
... and went hand in hand with adverse credit developments

Credit dynamics slowed down markedly as a consequence but possibly also a cause of subdued GDP dynamics. Annual growth rates (adjusted for exchange rate changes) declined in a range of between 6.8 percentage points in Croatia and as much as 20.1 percentage points in Russia between the first quarter and July. Lending to the private sector stagnated in Hungary and Russia and even turned negative in

Chart 2

### GDP Developments

Percentage points, GDP growth in %

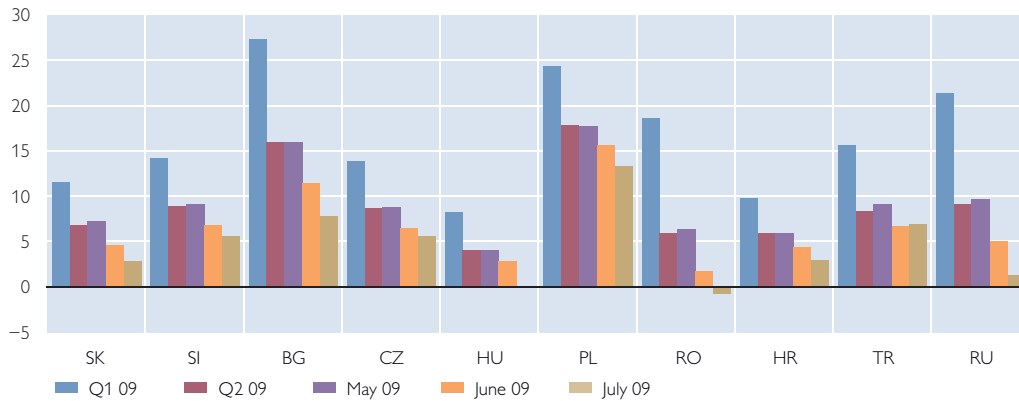


Source: Eurostat, national statistical offices.

Chart 3

### Growth of Credit to the Private Sector

Year-on-year growth in %, adjusted for exchange rate changes



Source: National central banks.

Note: Turkey: non-adjusted.

Romania on account of the widespread use of foreign currency credit and weaker currencies. Monthly credit growth figures (adjusted for exchange rate changes) have been negative since the start of the year in Hungary, Romania, Croatia and Russia, while some pick-up could recently be observed in Slovenia, the Czech Republic and Turkey.

Weak credit dynamics were primarily driven by the growth of credit to corporations, which decelerated more strongly than credit to households. This again relates mainly to the fact that the industrial sector was hit harder by the crisis than other sectors and, consequently, the demand for investment credit shrunk.

On the other hand, however, there are also signals that restrictions of bank lending contributed to subdued credit developments. Bank lending surveys conducted in Poland and Hungary<sup>6</sup> indicate that (especially nonprice) credit conditions were tightened in the first half of 2009 against the background of deteriorating debt servicing capacities of bank clients and uncertain economic prospects. As for the third quarter, Hungarian banks reported that they intended to relax their credit standards while Polish banks envisaged additional tightening.

Both surveys showed a worsening in credit portfolios as the economic downturn started to impair borrowers' ability to repay their loans. This can also be seen in nonperforming loans (NPL) figures: The share of nonperforming loans in total loans has started to pick up in all CESEE countries covered in this report since the second half of 2008. This development was particularly strong in Romania, where the NPL ratio rose to almost 20% in the second quarter of 2009, but also in Russia.<sup>7</sup>

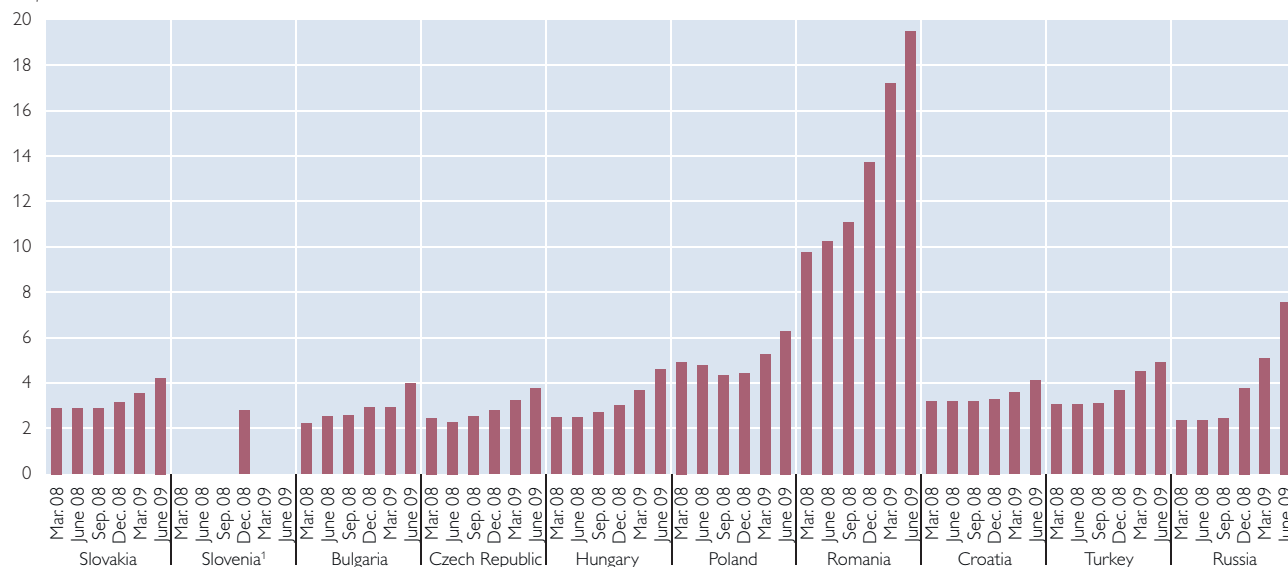
Quarter-on-quarter growth of banking sector deposits dipped into negative territory in Slovakia, Bulgaria and Croatia in the first quarter before turning positive again in the second quarter (except for Croatia, where it stayed negative). The

<sup>6</sup> Among the countries under review, only Poland and Hungary publish bank lending surveys.

<sup>7</sup> It should be noted that due to substantial differences in classification regulations, NPL figures cannot be compared across countries.

## Nonperforming Loans

% of total credit



Source: National central banks.

<sup>1</sup> Slovenia publishes nonperforming loan details only at annual frequency.

declines were caused mainly by deposit withdrawals by enterprises, while deposits of households remained stable or even increased somewhat (e.g. in Bulgaria and Croatia). This implies that at least to some extent enterprises resorted to deposits when access to credit became increasingly difficult.

A decrease in external imbalances is a positive side effect of weak real sector dynamics

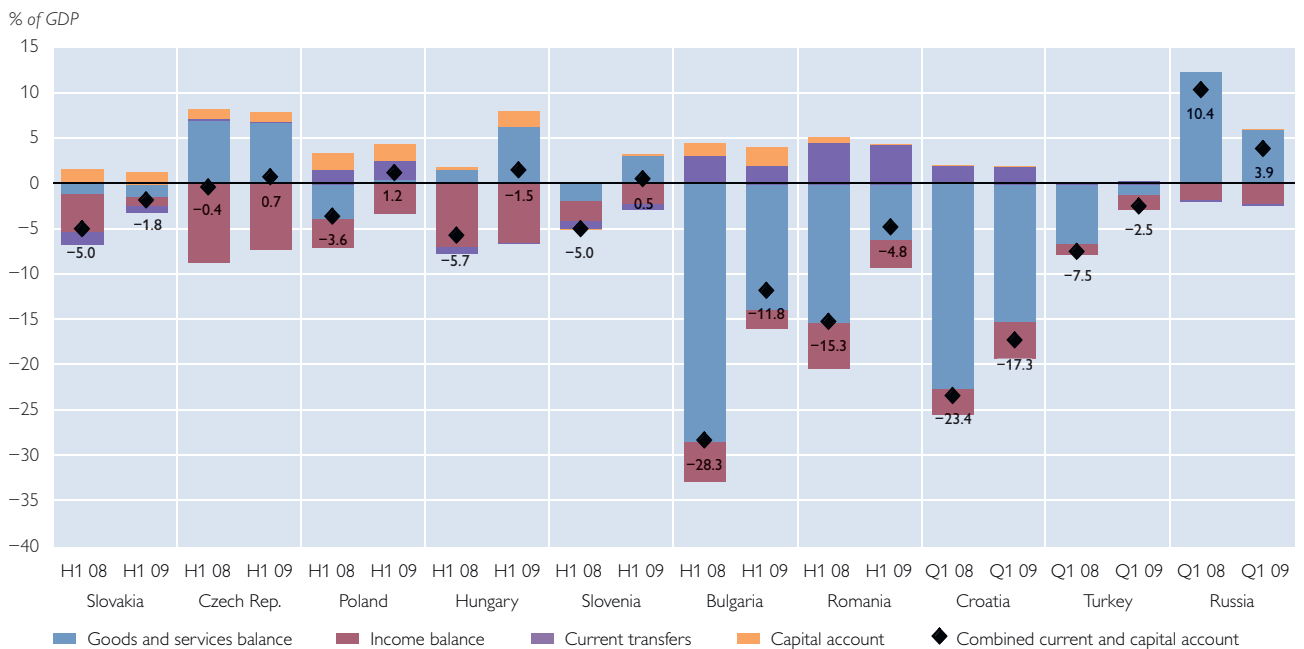
The economic downturn and the associated reduction in domestic demand led to a marked improvement in the external accounts of the countries of the region. Combined current and capital account deficits decreased throughout CESEE and in some countries even turned into a surplus (e.g. in the Czech Republic, Poland, Hungary and Slovenia) in the first half of 2009. Only Russia registered a lower surplus in its combined current and capital account as oil prices were lower in the first half of 2009 than in the same period of 2008.

Generally, the development was driven mainly by an improvement in the goods and services balance, as imports declined more strongly than exports, mirroring the development of net exports in the national accounts. This can be traced to weak domestic demand but also to exchange rate movements, which dampened import dynamics in countries with flexible exchange rate regimes. In some countries (especially the Czech Republic, Slovakia, Bulgaria and Romania), lower outflows in the income balance also positively impacted on external accounts, as outflows of investment income declined in line with corporate profit. A more notable decline in current transfers – most likely due to a reduction in workers' remittances – was observable in Bulgaria and Romania.

Compared to 2008, net foreign direct investment (FDI) flows into the region decreased in all countries in the first half of 2009. In Slovakia, Slovenia, Hungary and Russia, net FDI even turned negative. The development was fuelled by reductions in FDI inflows driven by both reductions in equity and reinvested earnings

Chart 5

### Balance of Payments



Source: National central banks.

and by other capital. Portfolio investment developed unevenly, with especially Slovakia and Hungary reporting more substantial net outflows. Other investment inflows decreased throughout most of the region, and in Slovenia, Romania, Bulgaria, Turkey and Russia, even negative figures were reported, most probably due to banking sector outflows, as for example evidenced by consolidated foreign claims of BIS reporting banks in the first quarter (BIS data for the second quarter are not yet available). A substantial increase could be observed in Hungary only as IMF money was disbursed.

Concerning quarterly dynamics, i.e. the change from the first to the second quarter, it needs to be noted that net FDI inflows decreased throughout most of the region. By contrast, net portfolio investment inflows, which had been negative in the first quarter in most of CESEE, improved in all countries and also often fully offset or even overcompensated adverse FDI developments. This also mirrors the broad stabilization in financial markets. Overall, however, financial account positions developed somewhat unequally as other investment flows did not show a uniform trend: They deteriorated in Hungary and Croatia and to some extent in the Czech Republic and Poland too, while remaining broadly unchanged or improving in the other countries.

The crisis had a profound impact on the currencies of CESEE countries with flexible exchange rate regimes.<sup>8</sup> Especially in late 2008 and early 2009, these countries' currencies came under severe pressure and traded at values not seen for

Currencies stabilized or appreciated somewhat, but could not recover the entire losses since fall 2008

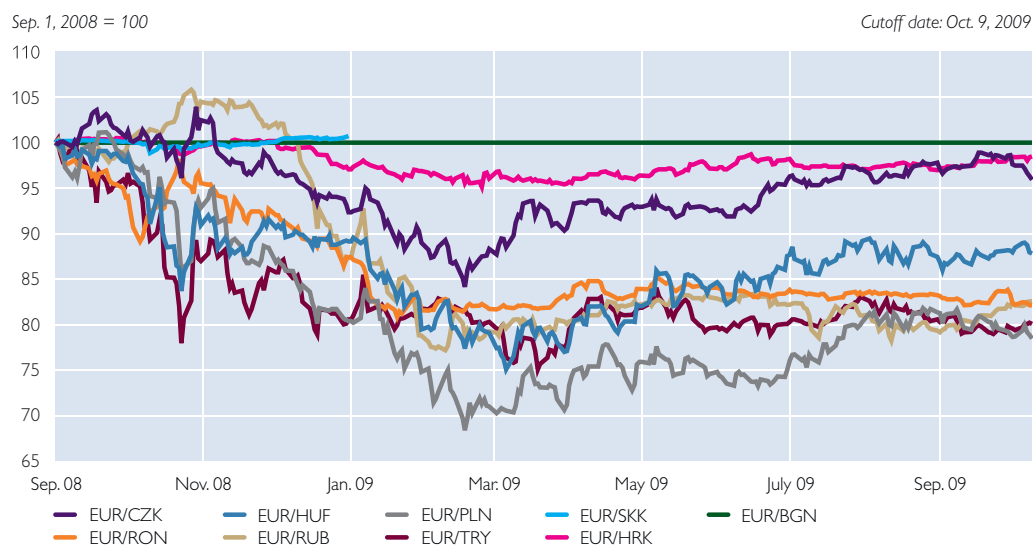
<sup>8</sup> Foreign exchange market developments in early 2009 are described in greater detail in *Focus on European Economic Integration Q2/09*, 6–53.

many years. Between mid-September and early March, losses against the euro amounted to between 14% in the Czech Republic and up to 30% in Poland. This weakening took place in close context with a heightened risk aversion vis-à-vis emerging markets in general after the Lehman collapse, continuous downward revisions of growth forecasts for CESEE countries and perceived adjustment needs resulting from substantial economic imbalances in a number of countries, all of which adversely affected sentiment vis-à-vis the region.

Since late February and early March, however, the situation has improved in line with gradually returning financial market confidence. In fact, since then, the

Chart 6

### Exchange Rate Developments



Source: Thomson Reuters.

Note: An increase in value denotes an appreciation.

Czech koruna, the Polish złoty and the Hungarian forint have firmed against the euro (by around 11% to 14%), while the Romanian leu and the Turkish lira have stabilized. The Russian ruble, whose exchange rate is managed against a basket of U.S. dollar and euro, weakened considerably despite substantial foreign exchange interventions, as its fluctuation band against the basket was gradually widened between November 2008 and January 2009.<sup>9</sup> Since then, the currency recovered and firmed by some 10% against its basket (caused mainly by its appreciation against the U.S. dollar). However, among the currencies with flexible exchange rates only the Czech koruna has again come close to reaching the trading levels seen before the collapse of Lehman Brothers, while some currencies still trade far below their value of September 2008 (especially the Turkish lira and the złoty, but also the ruble).

... which, however, improved the competitive position of some countries of the region

While industrial unit labor costs (ULCs) grew dynamically in the euro area in the review period against the background of falling productivity and roughly constant wages (+14.5% year on year in the second quarter), the majority of the

<sup>9</sup> See Focus on European Economic Integration Q2/09.

CESEE countries covered here reported declining ULCs (measured in euro) in the same period. Decreases in unit labor costs, in euro terms, were most pronounced in Poland, but also notable in Russia and Romania, i.e. in countries with flexible exchange rates. ULCs in Slovenia and Slovakia rose, albeit to a lesser extent than in the euro area, while ULCs in Bulgaria increased more strongly than those in the euro area.<sup>10</sup>

This implies that the price competitiveness of most CESEE countries vis-à-vis the euro area has improved in the review period. Also Slovakia and Slovenia, the two euro area countries covered in this report, managed to expand their competitive edge against the euro area as a whole. Bulgaria was the only country losing price competitiveness in the observation period.

Looking ahead, CESEE economies with flexible exchange rate regimes may not be in a position to fully sustain recent gains in price competitiveness, however. In fact, appreciating exchange rates in a number of these countries during the third quarter have already reversed some of the gains.

In most CESEE countries, ULC developments (measured in local currency) too were more favorable than in the euro area during the review period. While wages in industry tended to grow faster in CESEE countries than in the euro area – despite substantial wage moderation, particularly in Bulgaria and Romania, which had recorded very buoyant nominal wage dynamics until 2008 – this was more than offset by better productivity developments. This in turn suggests that the CESEE countries were faster in adjusting the amount of labor used in industry to lower output than the euro area countries (i.e. less labor hoarding in CESEE countries).

Table 2

### Development of Unit Labor Costs in Industry

	Nominal wages in industry				Unit labor costs in industry (in local currency)				Exchange rate of the local currency against the euro (year-on-year change in the period average)				Unit labor costs in industry (in EUR)			
	2007	2008	Q1 09	Q2 09	2007	2008	Q1 09	Q2 09	2007	2008	Q1 09	Q2 09	2007	2008	Q1 09	Q2 09
<i>Annual change in %</i>																
Slovakia	6.4	6.8	2.7	1.7	-3.1	7.0	13.5	3.0	10.2	8.0	9.7	4.2	6.8	15.6	24.5	7.3
Slovenia	6.7	7.8	-0.7	-1.0	1.3	9.6	8.5	10.8	0.0	0.0	0.0	0.0	1.3	9.6	8.5	10.8
Bulgaria	20.1	22.2	12.2	11.3	10.4	21.9	32.1	29.7	0.0	0.0	0.0	0.0	10.4	21.9	32.1	29.7
Czech Republic	8.6	8.3	2.7	2.9	1.9	8.3	9.7	3.4	2.1	11.2	-7.5	-7.0	4.1	20.5	1.4	-3.8
Hungary	8.4	6.6	3.6	3.3	-0.7	8.5	20.3	12.3	5.1	-0.2	-11.8	-13.3	4.3	8.3	6.1	-2.6
Poland	8.7	9.7	5.1	3.3	2.5	8.3	10.0	2.9	3.0	7.6	-20.6	-23.5	5.6	16.5	-12.7	-21.2
Romania	21.6	21.3	15.7	8.9	11.2	16.4	21.5	6.2	5.6	-9.4	-13.6	-13.0	17.4	5.5	5.0	-7.5
Croatia	5.5	7.2	0.4	0.4	3.1	6.0	0.0	-3.8	-0.2	1.6	-1.7	-1.4	2.9	7.7	-1.7	-5.1
Turkey	9.6	..	..	..	6.6	..	..	..	1.1	-6.3	-16.3	-7.9	7.8	..	..	..
Russia	26.0	24.0	5.4	2.2	20.4	20.6	13.6	9.5	-2.6	-3.9	-18.2	-15.7	17.3	15.9	-7.1	-7.7
Memo item:																
Euro area	2.7	3.0	0.5	-0.7	0.5	4.1	16.4	14.5	0.0	0.0	0.0	0.0	0.5	4.1	16.4	14.5

Source: Eurostat, national statistical offices, wiiw, ECB.

<sup>10</sup> There are no comparable data for ULCs in industry available for Turkey. Developments in manufacturing, however, suggest broadly constant ULCs in the second quarter.

Weak GDP dynamics have boosted unemployment ...

The economic downturn has begun to affect labor markets. Especially in the first quarter, seasonally adjusted unemployment rates increased markedly and continued to rise further – though at a somewhat slower pace – in the second quarter, when they stood at levels of between 5.8% in Slovenia and 13.2% in Turkey. In July and August, this trend was unabated in Slovakia, Bulgaria, the Czech Republic and Croatia, while unemployment stabilized in Slovenia and Poland. However, compared to the unemployment rate of 9.3% in the euro area (in the second quarter), the labor market situation in most CESEE countries still looks somewhat better. This is related to the tremendous labor market improvements in the boom period until late 2007 and early 2008, but presumably also to the fact that the crisis started to impact on the CESEE countries somewhat later than on the euro area. Latest data also show that the most vulnerable groups in the labor market suffered more from the effects of the crisis than the average employee: In Slovakia, Hungary and Croatia, youth unemployment rates soared to levels of up to 25% and are, on average, more than 10 percentage points above the total unemployment rate. Employment data also deliver information on the changing trends in CESEE labor markets. Employment growth has been negative in all countries but Poland since the beginning of the year, and employment rates have been decreasing concurrently.

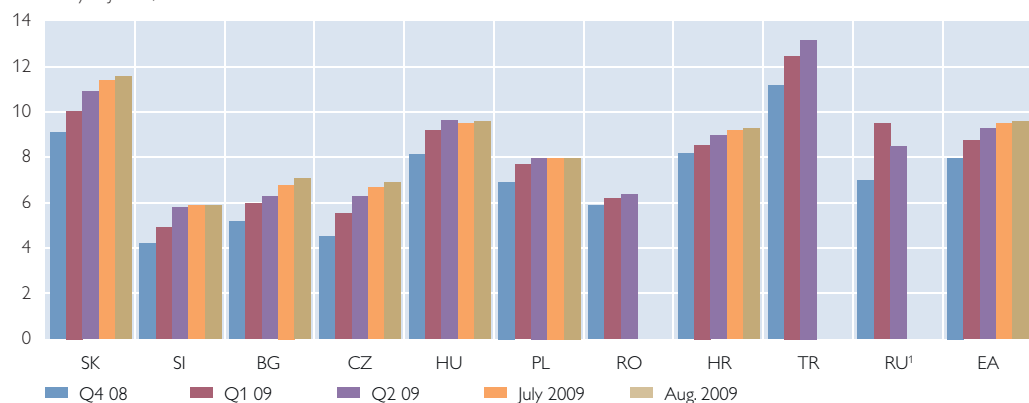
... and supported disinflation

Inflation in CESEE countries fell from average levels of 10.5% in 2008 to 7.5% year on year in August 2009. However, the reduction in price growth was somewhat uneven throughout the region: Generally, price pressures decreased more notably in countries with fixed exchange rate regimes, probably because they had not been exposed to the marked exchange rate depreciation in late 2008 and early 2009. While, for example, price growth slowed by 10.7 percentage points in Bulgaria, inflation remained broadly unchanged in Poland (partly because of previous exchange rate movements). In Hungary, it has even increased somewhat since July due to hikes in value-added tax. Slovenia and the Czech Republic are the only countries in the sample that experienced deflation in July, before price dynamics edged up again somewhat in August.

Chart 7

### Unemployment Rates

Seasonally adjusted, %



Source: Eurostat.

¹ Russia: non-seasonally adjusted.

The decline in inflationary pressures was brought about primarily by weak economic dynamics impacting on all inflation components. This is especially evident when looking at core inflation rates, which decreased just as strongly as headline inflation rates in most countries. In addition, commodity and energy prices that are lower today than a year ago and partly favorable base effects in food prices contributed to dampening price pressures.

CESEE central banks reacted to abating price pressures and declining medium-term inflation risks by lowering their policy rates (in a range of 25 basis points in Poland to 325 basis points in Turkey).<sup>11</sup> Fading depreciation pressures and stabilizing financial markets after March 2009 provided room for rate cuts.

Similar monetary policy responses to the crisis across the region

Table 3

### Consumer Price Index (HICP)

Annual change in %

	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
Slovakia	1.9	3.9	3.4	4.0	4.5	3.9	2.3	1.1
Slovenia	3.8	5.5	6.5	6.4	6.2	3.1	1.7	0.6
Bulgaria	7.6	12.0	12.4	14.0	12.5	9.0	5.1	3.1
Czech Republic	3.0	6.3	7.6	6.7	6.5	4.4	1.5	1.0
Hungary	7.9	6.0	6.9	6.8	6.3	4.2	2.7	3.6
Poland	2.6	4.2	4.5	4.3	4.4	3.6	3.6	4.3
Romania	4.9	7.9	8.0	8.6	8.2	6.9	6.8	6.1
Croatia <sup>1</sup>	2.9	6.1	5.9	6.6	7.4	4.5	3.8	2.9
Turkey	8.8	10.4	8.8	10.3	11.7	10.9	8.4	5.7
Russia <sup>1</sup>	9.1	14.1	12.8	14.8	14.9	13.8	13.9	12.6
CESEE region	7.2	10.5	9.7	10.9	11.2	10.0	9.2	8.1
Euro area	2.1	3.3	3.4	3.6	3.8	2.3	1.0	0.2

Source: Eurostat, national statistical offices, wiiv.

<sup>1</sup> CPI.

CESEE countries' fiscal policy responses to the crisis have been manifold, with Russia being the only country where a major stimulus package was launched. This variety in countermeasures was due to three partly interrelated reasons. First, government balances were already under stress in several countries, which limited room for increased deficit spending. Second, most of the countries of the region are small and open economies. A strong fiscal stimulus would thus have leaked into imports (delaying the correction of external imbalances) rather than propelled domestic demand. Third, for countries with high external financing needs, fiscal expansion could have heightened international investors' risk aversion and thus complicated access to foreign funds. Therefore these countries tended to take procyclical fiscal tightening measures in order to underpin investor confidence.

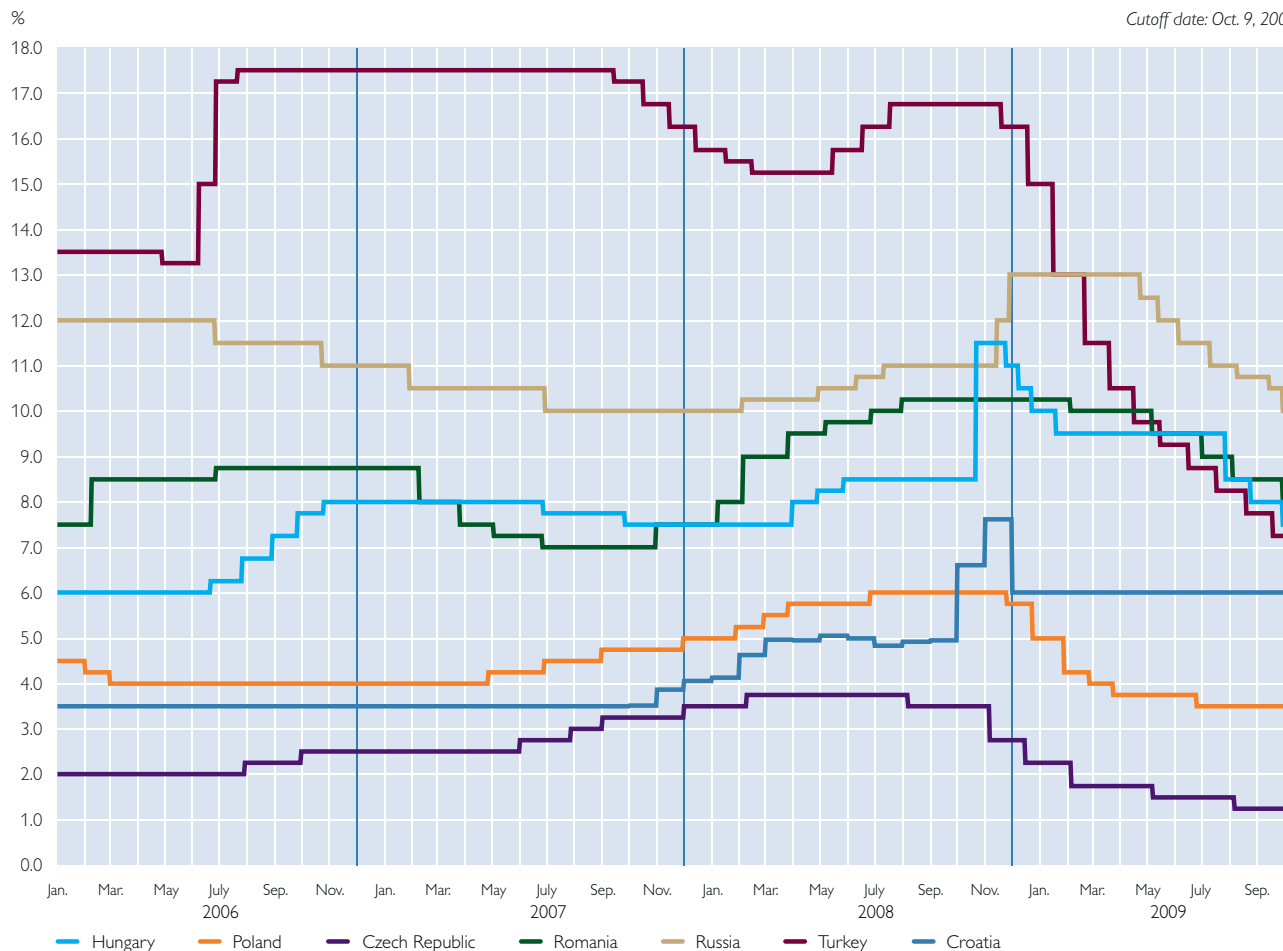
Fiscal deficits on the rise

While some governments in the region reacted to the crisis with (moderate) initial fiscal impulses, most of them switched to consolidation measures (especially expenditure cuts in the public sector) in the course of 2009 in order to counter

<sup>11</sup> The ECB policy rates apply for Slovakia and Slovenia. Due to its currency board arrangement, there is no policy rate for Bulgaria.

**Policy Rate Developments in CESEE**

Cutoff date: Oct. 9, 2009



Source: National central banks.

adverse budgets dynamics. This became necessary as initial fiscal targets for 2009 were often based on growth assumptions that were soon outdated once the crisis' full effects hit the real economy. Upward revisions of budget deficit targets made in the course of the year were partly substantial and amounted to around 5% of GDP in Slovenia and Slovakia (although some consolidation measures were taken at the same time) and to more than 10% of GDP in Russia. Supplementary budgets or budget amendments have been approved in Poland, Slovenia, Croatia and Russia. According to recent forecasts, the current budgetary targets of Bulgaria, the Czech Republic, Poland, Croatia and Turkey for 2009 still appear ambitious.

Hungary has been subject to an excessive deficit procedure (EDP) since 2004, and in July 2009, EDPs were opened for Romania and Poland. Given the risk that the Czech Republic, Slovenia and Slovakia will be in an excessive deficit situation in 2009, the European Commission has prepared a report in line with article 104(3) of the Treaty establishing the European Community that could lead to the opening of an EDP by the Ecofin Council in early December 2009. According to current European Commission forecasts, public households will deteriorate

Chart 9

**Comparison of 2009 Budget Targets with Forecasts**



Source: National sources, European Commission.

substantially in 2009 and only Bulgaria will not surpass the 3% of GDP threshold for budget deficits. For 2010, European Commission projections assume somewhat decreasing or at least roughly unchanged deficits throughout the region, with more notable increases expected only for Slovakia and Poland.

The accession negotiations with the EU candidate countries Croatia and Turkey progressed in the review period. Croatia opened six new chapters and closed five in its accession negotiations with the EU in October, after talks were resumed in the wake of a rapprochement between Croatia and Slovenia over a bilateral border dispute. A final agreement concerning this dispute is now in preparation. After this breakthrough, negotiations are progressing in 16 chapters while 12 chapters have already been closed provisionally.

Some progress in EU accession negotiations

Turkey and the EU have opened 11 negotiation chapters and so far only one chapter has been closed provisionally. As Turkey does not yet meet all of its statutory obligations – particularly with regard to the extension of the customs union with the EU to Cyprus – the opening of the chapters on these matters has been delayed. Moreover, the EU will not close any other chapter provisionally before Turkey has not met all of its statutory obligations.

### Financial Market Developments in CESEE: Markets Are in the Process of Stabilizing as Global Risk Appetite Rebounds

Following months of stressed financial markets in CESEE triggered by the collapse of Lehman Brothers in September 2008, market tensions started to ease in February and March 2009 (see box 1 in Focus on European Economic Integration 2/08 and Q2/09). Over the review period (April 10, 2009, to September 30, 2009), stabilization tendencies continued and some financial market segments even performed rather strongly. Global risk appetite and investor confidence in emerging markets increased further, also thanks to the global policy response to the crisis and its spillover effects on emerging markets (i.a. increase of IMF resources, formally agreed at the G-20 summit in April). Multilateral support programs for CESEE countries remained on track and presumably also had positive external effects on the countries of the region that have not been accorded such packages. Money market spreads against the euro area mostly declined, while local currency bond spreads remained broadly stable, with remarkable spread contractions in Turkey and Hungary. Eurobond as well as CDS spreads continued to retreat and came back close to the levels seen prior to the collapse of Lehman. Equity prices sustained their recovery, while exchange rates of currencies with free floats or managed floats either stabilized or continued to strengthen against the euro. In turn, the stabilization tendencies in foreign exchange markets gave central banks more room to cut interest rates in response to falling inflation and rising negative output gaps.

Over the review period, three-month money market spreads against the euro area mostly trended downwards. Spreads contracted most noticeably in Russia (–850 basis points), Romania (–400 basis points), Turkey (–240 basis points) and Hungary (–160 basis points). Money market spread contractions were largely associated with sizeable interest rate cuts (see introductory part of this report). In Russia and Romania, liquidity conditions have apparently improved considerably, as witnessed by money market rates moving towards policy rates (i.e. money market rates fell more strongly than policy rates). Also in Croatia (–75 basis points) and Bulgaria (–45 basis points), money market spreads decreased noticeably. By contrast, money market spreads remained broadly unchanged in the Czech Republic while they widened in Poland (+70 basis points).<sup>1</sup>

Spreads of government bonds denominated in local currency remained broadly stable over the review period with the exception of those in Turkey, Hungary and Bulgaria. Turkey performed best, with spreads tightening by 400 basis points, while in Hungary, spreads were down by 200 basis points. By contrast, spreads widened by 100 basis points in Bulgaria. On average, the CESEE region performed better in this market segment than other emerging market regions, thus reversing the poorer performance in the first few months after the Lehman crisis. The J.P. Morgan Government Bond Index spread for emerging Europe declined by 80 basis points, while the corresponding spreads for Asia, Latin America and Middle East/Africa increased by about 60 basis points.

Across the CESEE region, eurobond spreads retreated substantially from their highs seen in late 2008 and early 2009. However, despite the notable downward movements in recent months, eurobond spreads have so far not fully returned to the levels preceding the collapse of Lehman. Between April and September 2009, spreads on euro-denominated eurobonds tightened by more than 200 basis points in Croatia, Hungary and Romania, by about 150 basis points in Poland and Bulgaria and by 80 basis points in Turkey. Turkey's eurobond spread had already peaked in October 2008 and began to decline somewhat earlier than those of the other countries. In Croatia, Hungary and Romania, eurobond spreads fell more strongly than the average emerging market spread (J.P. Morgan Euro EMBI Global Index, –170 basis points) during the review period, after having recorded sharp increases following the collapse of Lehman. Spreads on Russian U.S. dollar-denominated eurobonds decreased by 230 basis points, which was broadly in line with developments seen for the overall market (J.P. Morgan EMBI Global Index).

<sup>1</sup> The development in Poland may be explained inter alia by changing market expectations about future policy rate cuts.

Similar to developments observed in the eurobond market, CDS spreads of CESEE countries tightened significantly in recent months (on CDS spreads, see also the report on a recent East Jour Fixe at the OeNB in the Highlights section of this report). The downward trend continued throughout the review period, interrupted only by temporary hikes in early summer. At end-September 2009, however, spreads were still trading slightly above the levels seen prior to the collapse of Lehman Brothers. CDS spreads of Slovakia and the Czech Republic returned closest to this level. Countries that recorded the largest widening of CDS spreads after the bankruptcy of Lehman Brothers (Hungary, Bulgaria, Romania, Russia and Turkey) also saw the most pronounced contractions in absolute terms (about 150 to 200 basis points). After these countries had been trading in a wide range in the first quarter of 2009 (the differential between Turkey at the lower end and Russia at the upper end reached about 400 basis points), spreads converged to about 200 basis points at end-September 2009. In the other countries, CDS spreads declined by between 60 basis points (Slovakia, Czech Republic) and 100 basis points (Poland, Croatia) over the review period.

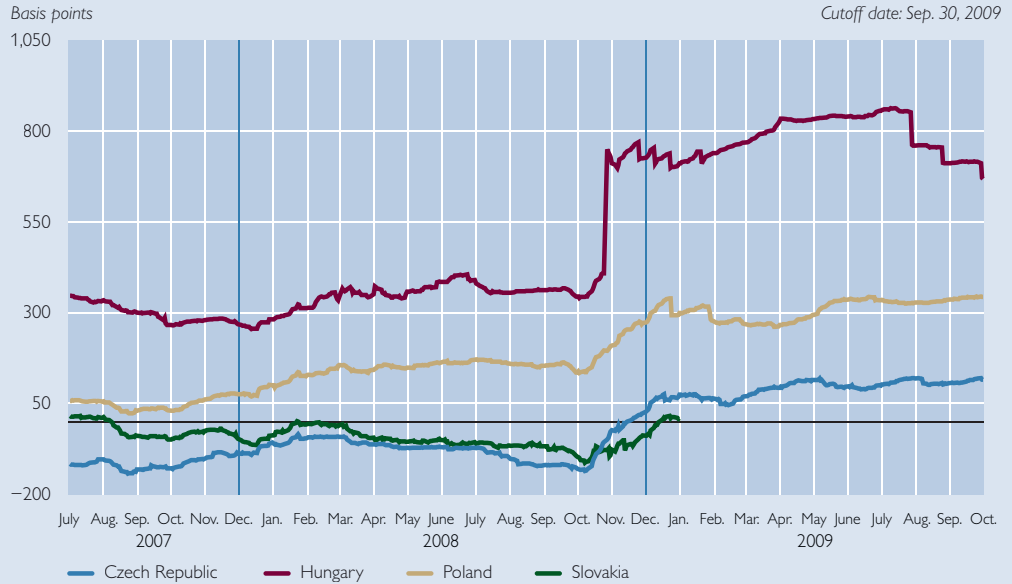
Easing market tensions were also evident in equity markets, with most CESEE equity indices rising considerably in recent months. Over the review period, all equity indices except for Slovakia's (-10%) supported the recovery, which started in February and March 2009.<sup>2</sup> It is noteworthy that during the summer, Turkey's and Hungary's equity indices already surpassed levels reached before the collapse of Lehman Brothers, while most other indices moved closely towards this threshold. Equity price gains during the review period ranged from 20% in Poland to about 60% in Hungary, Bulgaria and Turkey. The Morgan Stanley Capital International Emerging Markets Eastern Europe Index (covering the Czech Republic, Hungary, Poland and Russia) performed only slightly better than mature stock markets, increasing by 30% while the EUROSTOXX 50 rose by 28% and the Dow Jones Industrial Average by 20%. However, its performance was slightly worse than the emerging markets' average (MSCI Emerging Markets index: +35%). A comparison among emerging markets reveals that emerging Asia, as represented by the MSCI EM Asia Index (+40%), outperformed all other emerging market regions.

While equity indices rebounded, CESEE currencies either stabilized or continued to recover a part of their earlier losses. Over the review period, the Hungarian forint, the Czech koruna and the Polish zloty strengthened against the euro. After a notable recovery during the summer, the zloty lost some of its value more recently, while the other currencies stayed broadly stable. Still, at end-September 2009, all floating currencies, except for the Czech koruna, were traded way off the levels seen before the collapse of Lehman Brothers.

<sup>2</sup> However, Slovakia's equity market developed more strongly than those of other CESEE countries in the years 2007 and 2008, so that its medium-term performance compares well with that of other stock markets in the region.

Chart 1a

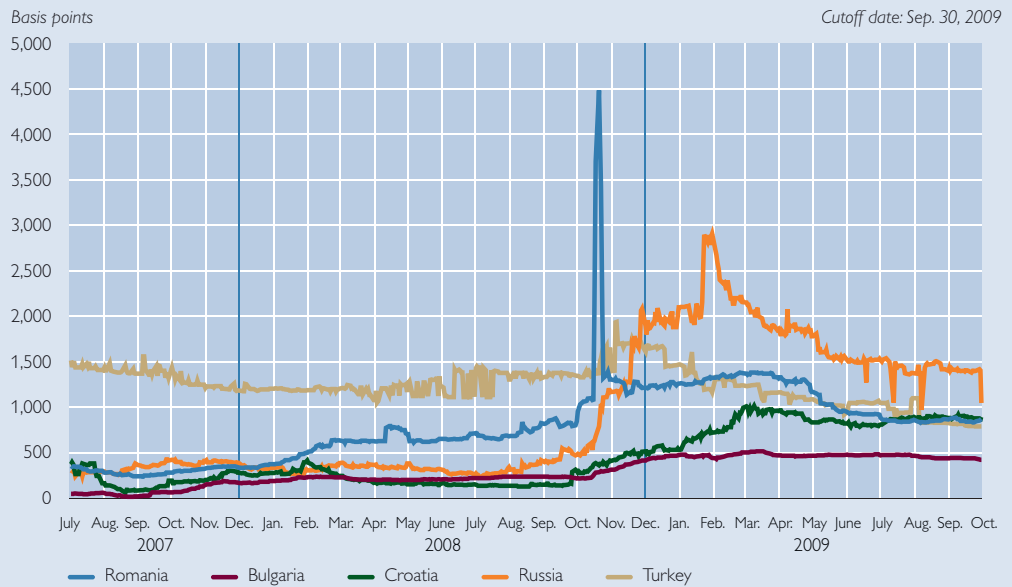
### 3-Month Money Market Rate Spreads against the Euro Area



Source: Bloomberg.

Chart 1b

### 3-Month Money Market Rate Spreads against the Euro Area



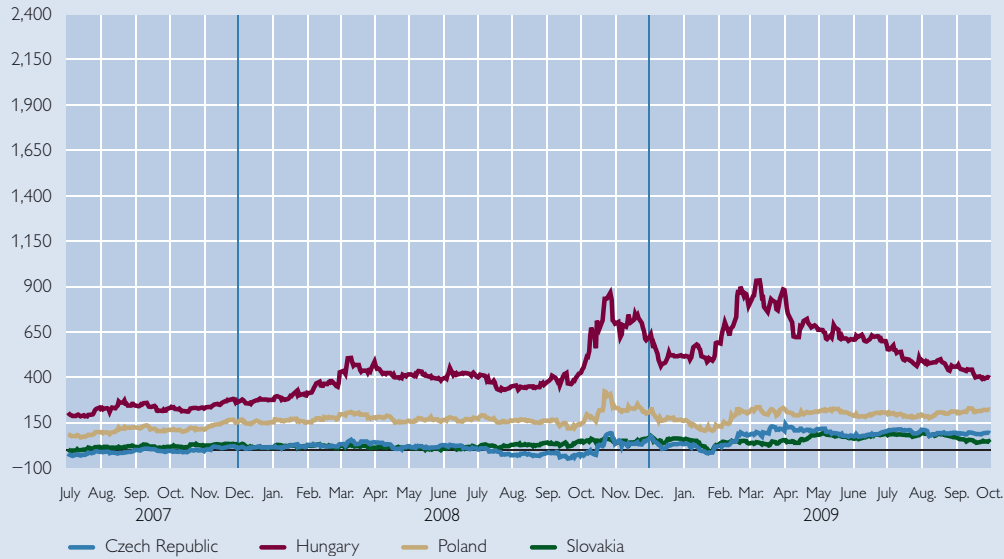
Source: Bloomberg.

Chart 2a

### Local Currency Government Bond Yield Spreads against the Euro Area

Country subindices of JPM EM-GBI, basis points

Cutoff date: Sep. 30, 2009



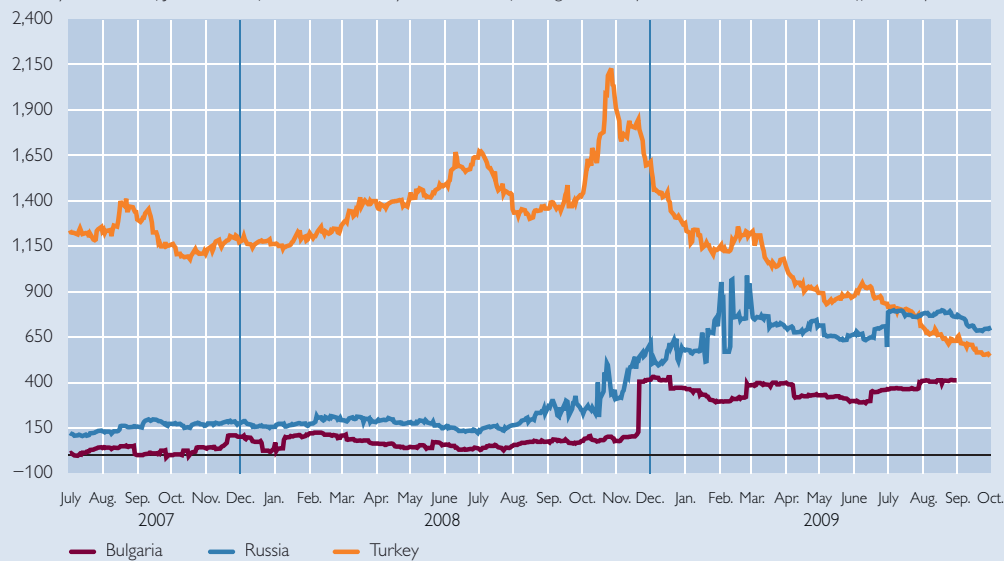
Source: Bloomberg, OeNB.

Chart 2b

### Local Currency Government Bond Yield Spreads against the Euro Area

Country subindices of JPM EM-GBI for Russia and Turkey, Eurostat data for Bulgaria, basis points

Cutoff date: Sep. 30, 2009



Source: Bloomberg, Eurostat, OeNB.

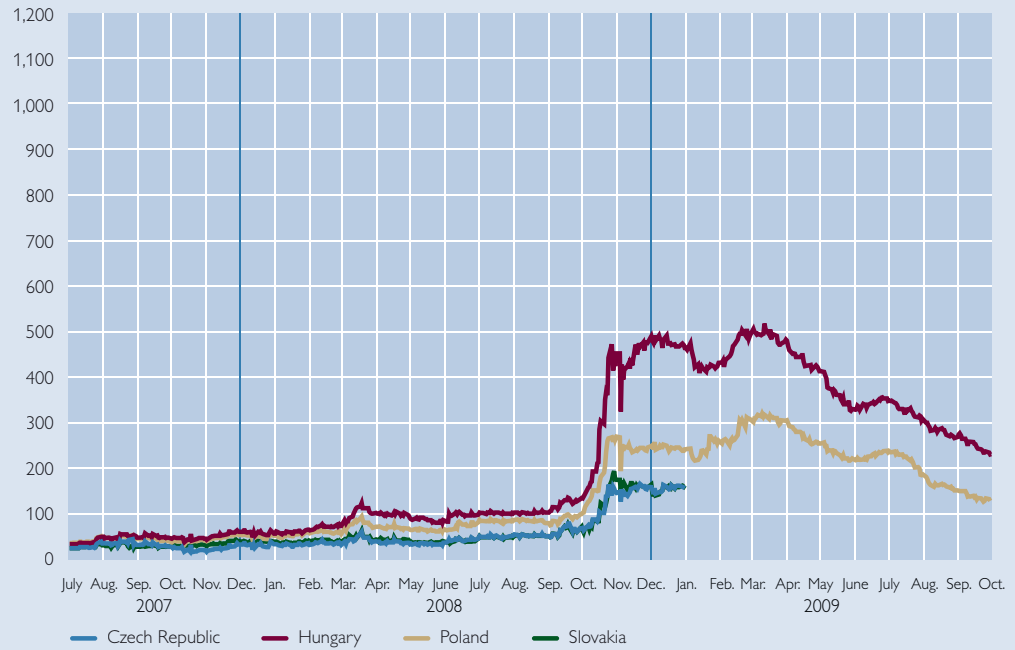
Note: The latest observation period for Bulgaria is Aug. 31, 2009.

Chart 3a

### Euro-Denominated Eurobond Yield Spreads

JPM Euro-EMBI global index, basis points

Cutoff date: Sep. 30, 2009



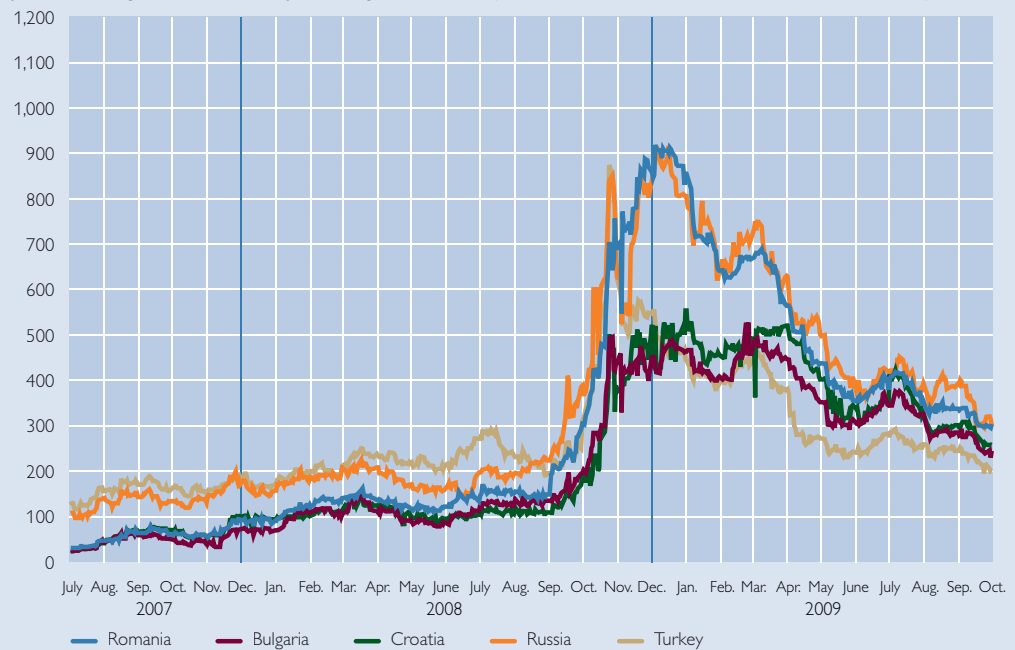
Source: Bloomberg, OeNB.

Chart 3b

### Euro-Denominated Eurobond Yield Spreads

JPM Euro-EMBI global index, for Russia JPM EMBI global index, basis points

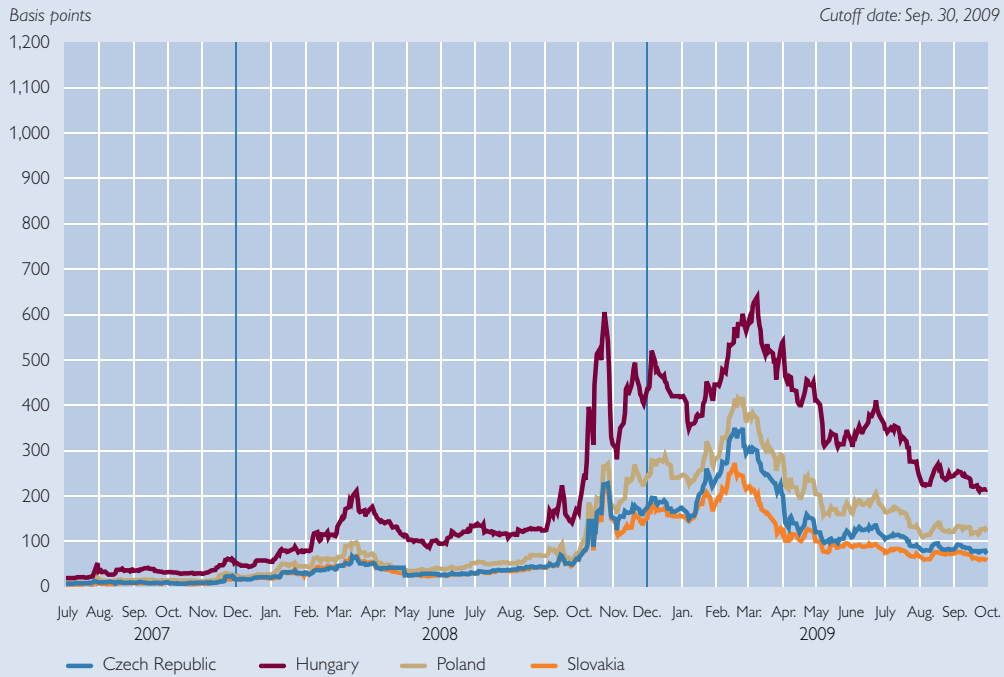
Cutoff date: Sep. 30, 2009



Source: Bloomberg, OeNB.

Chart 4a

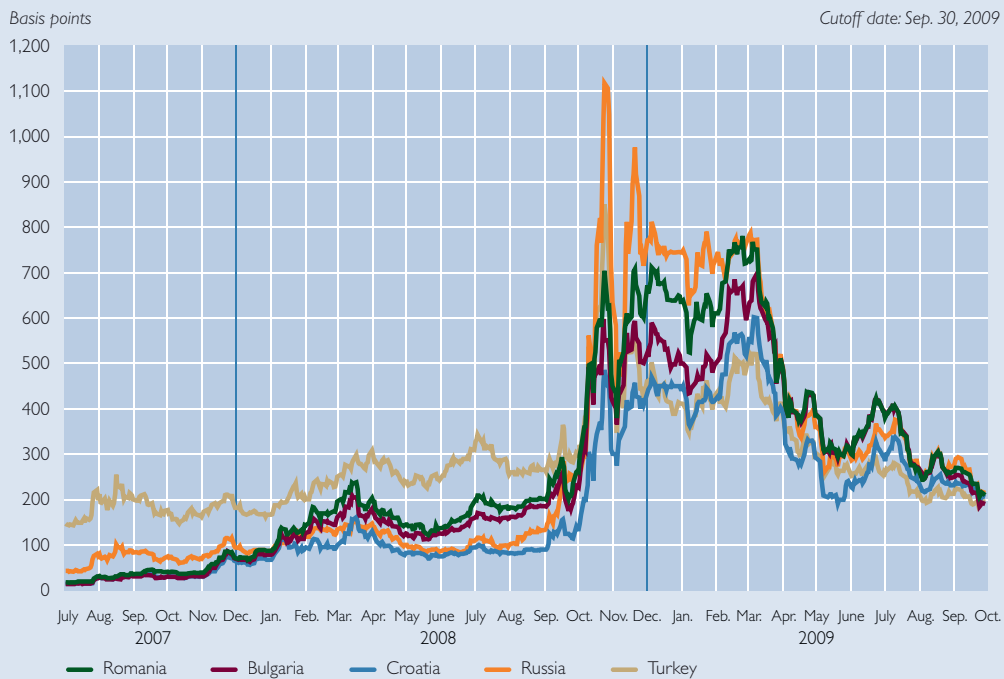
### Sovereign 5-Year Credit Default Swap Spreads



Source: Thomson Reuters, OeNB.

Chart 4b

### Sovereign 5-Year Credit Default Swap Spreads



Source: Thomson Reuters, OeNB.

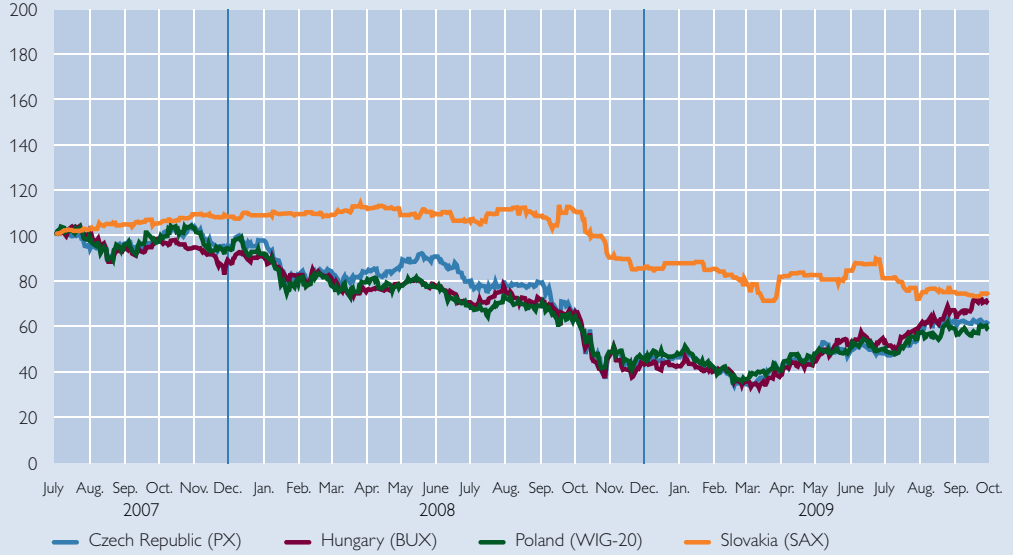
Note: Bulgaria and Russia USD-based.

Chart 5a

**Stock Market Developments**

June 29, 2007 = 100

Cutoff date: Sep. 30, 2009



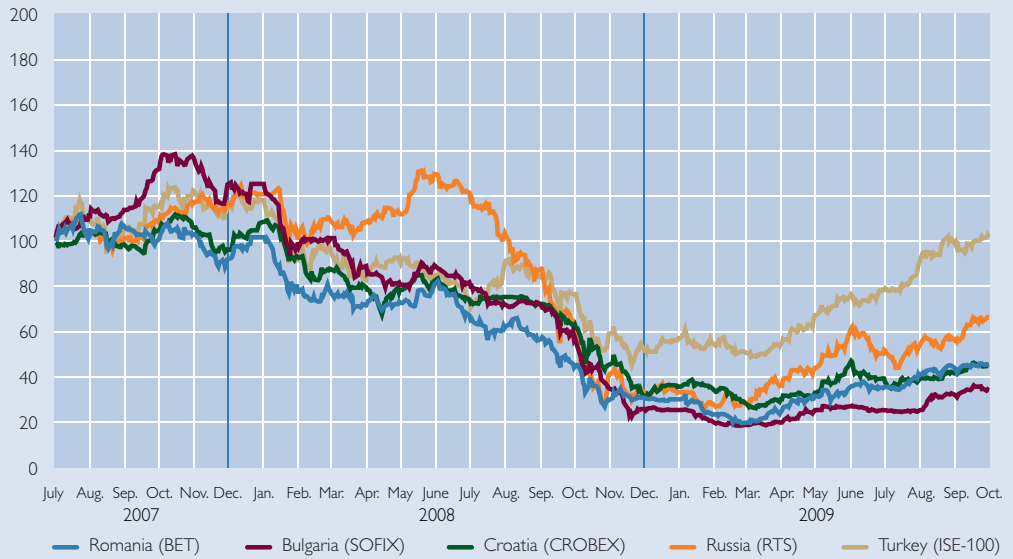
Source: Thomson Reuters, OeNB.

Chart 5b

**Stock Market Developments**

June 29, 2007 = 100

Cutoff date: Sep. 30, 2009



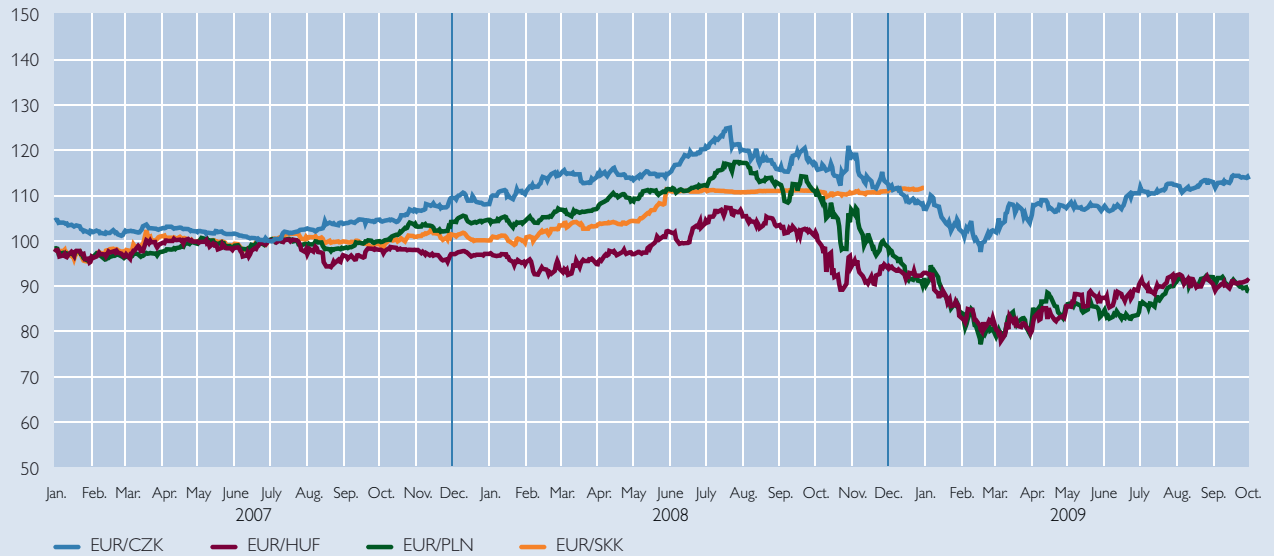
Source: Thomson Reuters, OeNB.

Chart 6a

### Exchange Rate Developments

June 29, 2007 = 100

Cutoff date: Sep. 30, 2009



Source: Eurostat, OeNB.

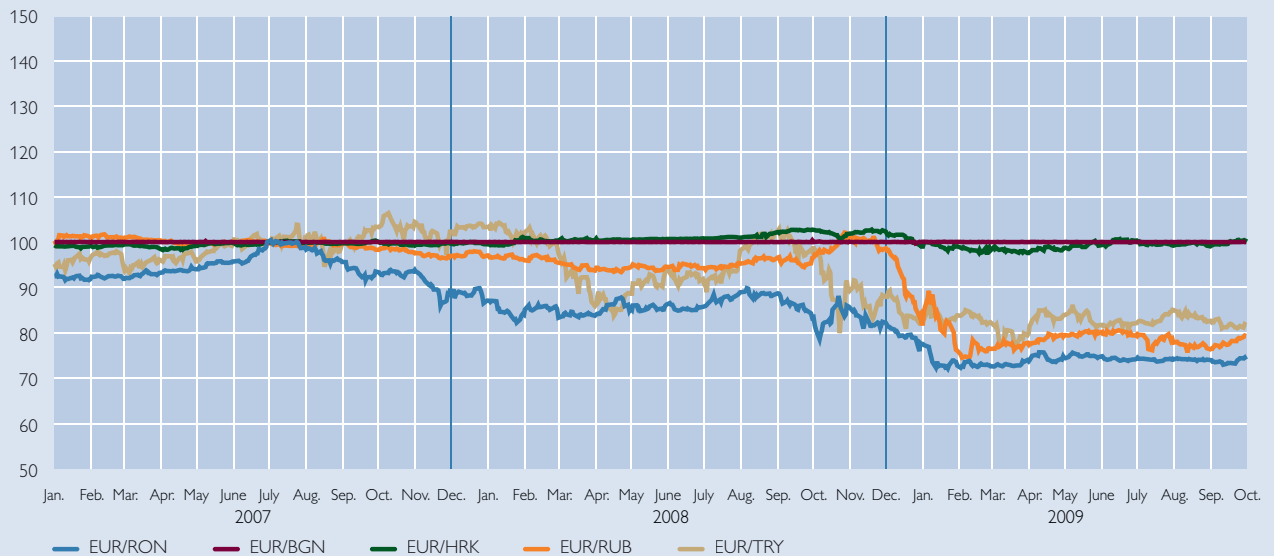
Note: An increase in value means a nominal appreciation.

Chart 6b

### Exchange Rate Developments

June 29, 2007 = 100

Cutoff date: Sep. 30, 2009



Source: Eurostat, OeNB.

Note: An increase in value means a nominal appreciation.

### OeNB-BOFIT Outlook for CESEE Countries: The Region Is Reaching the Trough, a Gradual Recovery, Mainly Driven by External Demand, to Be Seen from 2010 Onwards<sup>1</sup>

In 2009, GDP in the CEE-8<sup>2</sup> will contract by almost 4%, although Poland, the largest country in this group, will post positive growth. In 2010, growth in the CEE-8 will turn slightly positive (+0.5%) before recovering further by a moderate +2.6% in 2011. Croatia's growth profile will be broadly similar to that of the CEE-8. Following a deep contraction by 8% in 2009, the Russian economy will grow by 3% in both 2010 and 2011.

As already explained in the March OeNB-BOFIT projections,<sup>3</sup> the CESEE region was hit hard by the global financial crisis. Measured in average annual terms, the extent of the decline in growth will be very similar in the CEE-8 and in the euro area in 2009. Thus, the positive growth differential of the past years will not be visible this year. However, most countries' performance will actually be far below the average, and the projected growth rate of -3.8% is significantly influenced by the strong performance of Poland, the largest economy in the region. On the back of strong domestic demand, Poland's economy is expected to grow by +1%. Hence, the country is leading in terms of performance, not only within the region, but also within the EU as a whole. For 2010, a slight recovery is projected for the CEE-8 aggregate (+0.5%). In 2011, all countries will experience positive, albeit still relatively low growth rates and the economy of the CEE-8 region as a whole will expand by 2.6%.

In 2009, apart from Poland, all CEE-5<sup>4</sup> countries are set to experience negative growth, ranging from -5.2% in the Czech Republic and Bulgaria to -7.7% in Romania. In 2010, modest growth will be observed in the Czech Republic and Romania. Poland will continue to perform significantly better, reaching almost 2% of GDP growth, and Hungary will be at the other end of the range (-1.1%). 2011 will see positive growth rates at around 3% (Bulgaria: 1.6%).

Table 1

#### CEE-8 GDP Outcomes 2008 and Projections for 2009 to 2011

	Eurostat	OeNB		
	2008	2009f	2010f	2011f
	Year-on-year growth in %			
CEE-8	3.7	-3.8	0.5	2.6
Bulgaria	6.0	-5.2	-0.1	1.6
Czech Republic	3.2	-5.2	0.6	2.6
Hungary	0.6	-6.7	-1.1	3.3
Poland	4.8	1.0	1.9	3.1
Romania	7.1	-7.7	0.3	3.1

Source: OeNB September 2009 forecast, Eurostat.

<sup>1</sup> The OeNB and the Bank of Finland Institute for Economies in Transition (BOFIT) compile semiannual forecasts of economic developments in selected CESEE countries (Bulgaria, the Czech Republic, Hungary, Poland, Romania, Russia and Croatia), with the OeNB being in charge of the projections for the EU Member States as well as Croatia and BOFIT for the forecast regarding Russia. The cutoff date for all projections contained in this box is September 28, 2009. The forecasts are based on a broad range of available information, including newly developed country-specific time series models for Bulgaria, the Czech Republic, Hungary, Poland and Croatia. A description of the forecast model can be found in the study by Crespo Cuaresma et al. in this issue. The forecast for Romania draws on information from various sources and expert judgment. The projections for Russia were prepared by BOFIT and are based on a structural vector autoregressive (SVAR) model. The projections rest on preliminary global growth projections and technical assumptions about euro area import growth, oil prices and USD/EUR exchange rates, which are prepared by the ECB for the Eurosystem in the context of broad macroeconomic projection exercises. Imports of the euro area are expected to shrink substantially in 2009 and to recover moderately thereafter. The oil price will recover steadily up until 2011, but will stay well below its pre-crisis level. The EUR/USD exchange rate is assumed to rise moderately in 2009 and to remain unchanged over the remaining projection horizon.

<sup>2</sup> In this box, CEE-8 comprises the CESEE EU Member States that have not yet introduced the euro: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Romania. While we also cover the Baltic states in our CEE-8 aggregate (based on forecasts from the IMF and Consensus Economics), we do not go into detail as regards developments in these countries.

<sup>3</sup> See box 2 of "Developments in Selected Central, Eastern and Southeastern Countries" in Focus on European Economic Integration Q2/09.

<sup>4</sup> In this box, CEE-5 comprises Bulgaria, the Czech Republic, Hungary, Poland and Romania.

## 1 Outlook for CEE-5: Poland Outperforms the Region as a Whole in 2009, Gradual Recovery in 2010 and 2011

The economic crisis has hit the region later but more severely than Western Europe; in most countries, the crisis interrupted rapid catching-up. However, the fundamentals continue to indicate that this process will continue in the medium to longer term. The first half of 2009 saw a major decline in economic activity in all CEE-5 but Poland. In the second quarter of 2009, this trend continued in the CEE-5 in year-on-year terms, again apart from Poland. However, in some countries, the trough (in quarter-on-quarter terms) was reached in the first quarter (Czech Republic, Poland).<sup>5</sup>

The significant downturn in the **first half of 2009** was mainly driven by a slump in exports triggered by the lack of external demand (again, the decline was less pronounced in Poland, possibly helped by the comparatively strong currency depreciation that took place in late 2008 and early 2009), a strong decrease in gross fixed capital formation and substantial destocking related to faltering export demand and worsening economic sentiment. Private consumption delivered a substantial negative contribution to growth in all countries as labor market conditions started to deteriorate, wage growth decelerated in real terms and credit growth declined substantially. Imports contracted more sharply than exports in almost all countries. Thus, net exports developed into the most important GDP-sustaining component in all countries apart from the Czech Republic.

Just as the crisis has hit the region with a time lag, recovery will take place with some delay too. In the **second half of 2009**, domestic demand will not pick up compared to the first half, and the positive contribution of net exports will continue to rely on the slump in imports (which, however, will lose momentum in all countries).<sup>6</sup> Exports are going to remain weak for the rest of 2009 due to lackluster import growth in the euro area, partly due to the end of Western European car scrappage schemes. These schemes were particularly important for the Czech Republic and Hungary in the first half of 2009. The inventory cycle will help support GDP dynamics during the second half of 2009, as destocking had come to an end by mid-2009. The positive contribution of net exports in most countries (ranging between 19 percentage points in Romania and 2½ percentage points in Poland for the whole year of 2009) will partly be temporary and is particularly strong in the countries with the largest declines in domestic demand. Export-oriented Czech Republic is the only country showing a negative contribution of net exports in 2009 because of the country's high dependence on the car industry, one of the industries worldwide hit hardest by the crisis.

The moderate growth projected for the region for **2010** is expected to stem from external demand. We expect mostly positive though very small contributions from net exports to GDP, ranging between 0.1 percentage points in the Czech Republic to 1.7 percentage points in Hungary. Again, Poland is the only exception, with a projected small negative contribution (−0.5 percentage points) in 2010.

Current account imbalances have been reduced significantly in most countries during the crisis, while the turmoil in the financial markets seen in late 2008 and early 2009 has abated. Hence, we expect investment activity to stabilize in 2010 and exports to rise as a consequence of an improved environment worldwide (imports will also pick up somewhat from their depressed 2009 levels). For the region as a whole, the external growth impetus will however be too weak to bring the CEE countries back on a robust growth track as early as in 2010, since

<sup>5</sup> In all other countries, the decline lessened notably, apart from Hungary, where it stayed roughly constant. No seasonally adjusted data are available for Bulgaria. The decline in nonseasonally adjusted GDP deepened from −3.5% year on year in the first quarter of 2009 to −4.9% in the second quarter. Various factors indicate that the recession is bottoming out: The third quarter is usually the strongest performing quarter of the year, inventories have been drawn down, some investment and restocking must occur in the near future and base effects from a weak performance in 2008 will not be seen before the fourth quarter.

<sup>6</sup> The unprecedented collapse of international trade in late 2008 and early 2009 is reflected in major downward revisions in projections of import growth compared to our last forecast. However, with exports falling substantially as well, the net effect on our revisions of GDP growth is rather moderate.

demand continues to be weak. As the crisis' effects on the real economy materialize only with a certain time lag (through rising unemployment, precautionary savings and weak confidence), private consumption will remain subdued. All countries will continue to have little room for anticyclical fiscal measures. In a few countries, there might even be a (moderately) negative impact on GDP dynamics coming from (continued) fiscal tightening.

Improving external demand conditions and the continued process of restocking will lead to a positive growth performance in all countries in **2011**. The strong growth of both exports and imports is partly due to base effects arising from previously low levels. Compared to pre-crisis levels, growth will stay subdued and the contribution of domestic demand will remain weaker due to lagged real economy effects. Hungary, whose domestic demand has already been sluggish for a couple of years, will be an exception and show some recovery in investments.

The forecasts for 2010 and 2011 are still subject to considerable uncertainty, mainly related to developments in Western Europe. External demand and external financing conditions for the CEE-8 may be negatively affected if the gradual recovery of the world economy and the euro area that we assume in our baseline scenario does not materialize (risk of a double dip). Another risk factor would be a renewed increase in risk aversion vis-à-vis emerging economies. Moreover, domestic demand may also be weaker than expected, in particular if the real economy impact of the financial crisis in the CEE-8 countries turns out to be stronger than anticipated.

## **2 BOFIT-OeNB Forecast for Russia: Deep Contraction in 2009, Global Crisis Probably Prelude to Lower Trend Growth**

The world economic crisis hit Russia hard through the sharp decline in oil prices and the drying up of international financial markets, which triggered a credit crunch. In the first half of 2009, Russia's total output fell by 10.4% year on year, although the second quarter performance showed signs of stabilization. The drop in GDP was primarily due to a fall in fixed investment (estimated at 19% in the first eight months over the same period in 2008) and a substantial reduction of inventories. A drop in economic activity and the strong devaluation of the ruble in early 2009 also caused a sharp contraction of imports. Month-on-month and quarter-on-quarter data point to a bottoming out of GDP growth in the summer of 2009. Real monthly estimates of GDP reached their lowest point in early 2009 and have been rising again since May. Unemployment rates (International Labour Organization methodology) leveled off over spring and summer.

In the **second half of 2009**, private consumption is likely to be boosted by trickle-down effects of recovering oil and staple revenues, by the stabilization of the job market and by wage recovery. Moreover, growth in government consumption should kick in, since the revised federal budget for 2009 provides for a sizable fiscal stimulus as it foresees higher expenditure (+7% of GDP) despite falling revenues. A budget deficit of over 8% of GDP is expected (2008: surplus of 4.1%). The turnaround in the second half of 2009 will be supported by modest growth in export demand. Import growth will probably remain subdued, given its sharp decrease in the first half of the year and the continuing impact of the ruble devaluation of early 2009. However, persisting elevated (double digit) inflation has been eroding competitiveness gains sparked by devaluation, and recovering consumer demand may contribute to a gradual pick-up of imports toward the end of the year. Net exports will probably deliver a positive contribution to GDP growth for the first time in years. Given the weak economic performance in the earlier part of the year, total output in 2009 will register a substantial contraction, which we project at 8.0%.

Owing to considerable lingering uncertainty and limited credit availability, investment – hit by a severe credit crunch – is not expected to pick up until **2010**. At that point, investment will join private and government consumption, buoyed by the stabilization of the global recovery, as the driving forces of Russian economic expansion. The continuing, though smaller fiscal stimulus in 2010 will include an expansion of social policy measures. Budget shortfalls in both

2009 and 2010 are to be covered mostly by money from reserve and welfare funds. While exports will continue to grow modestly, the recovery of domestic demand and the likely almost return of the ruble's real effective exchange rate to the level posted in the previous year will revive imports – to the point that net exports' contribution to growth will revert to negative territory. GDP growth will be relatively moderate in 2010 and 2011 (+3% in both years).

The risks to these projections are mainly on the downside. As in the past, Russia's economic performance continues to largely depend on the oil price, and therefore on the strength of the world economy's recovery, which is expected to remain quite fragile for some time. Another risk factor relates to nonperforming loans, which have already reached a high level and whose further expansion would perpetuate the credit squeeze and act as a major drag on the economy's recovery. Inflation is also a cause of concern: If it does not subside in the remaining months of 2009, the Russian currency could get under renewed downward pressure, which might even again destabilize the financial system. Finally, the world economic crisis may dampen Russian investment growth and hence the economy's medium- to long-term growth trajectory if the banking sector (or capital market) fails to at least partly make up for the breakdown of foreign investment finance.

Table 2

### Russia GDP Outcome 2008 and Projections for 2009–2011

	Rosstat	BOFIT-OeNB		
	2008	2009f	2010f	2011f
Year-on-year growth in %				
Russia	5.6	-8.0	3.0	3.0

Source: Rosstat 2008, BOFIT forecast 2009–2011.

Table 3

### Croatia: GDP Outcome 2008 and Projections for 2009–2011

	Eurostat	OeNB		
	2008	2009f	2010f	2011f
Year-on-year growth in %				
GDP	2.4	-5.4	1.4	2.8

Source: OeNB September 2009 forecast, Eurostat.

### 3 Croatia: Outlook Resembles That of the CEE-8 as a Whole

Croatia's GDP contracted by 6.5% in the first half of 2009 and is expected to recover gradually in the second half; it will decline by 5.4% in 2009 as a whole. In 2010, private consumption and imports will start to pick up, leading to another negative contribution of net exports. The moderately positive growth rate of 1.4% will be driven by investment growth and private consumption. For 2011 we expect a steady continuation of this trend, domestic demand will further strengthen while net exports will continue to contribute negatively to the growth rate of 2.8%.

## 2 Slovakia: Caught in the Crosswinds of the Global Economy

Crisis is increasingly taking its toll on the real economy

International developments provide both positive and negative impact on GDP

As a side effect of the crisis, external accounts have improved

... as has inflation

... while public finances are set to deteriorate in 2009 and 2010

While the introduction of the euro in 2009 has provided some shelter for Slovakia's financial markets against global headwinds, the country's real economy has been severely affected by the crisis. This is due to Slovakia's high degree of openness and its strong dependence on a few export-oriented sectors.

Growth slowed markedly, entering negative territory in the first and second quarter of 2009. The downturn was mainly driven by stock changes and investments, both posting substantially negative growth contributions. This development was related to fading global demand, which led to decreasing industrial output and lower capacity utilization, weak industrial sentiment and pronounced uncertainties concerning future demand conditions in international markets. The decline in credit to corporations (−2.0% year on year in July) can be seen as a symptom of sluggish investment demand, but possibly to some extent also as its cause (e.g. in the SME sector). While net exports contributed negatively to growth in the first quarter, a tentative recovery of exports turned its growth contribution into positive territory in the second quarter. This development is related to economic trends in important trading partner countries (especially Germany) and the Slovak car industry benefiting from scrapping bonuses for used cars in other countries. Private consumption growth held up relatively well, despite a drop in retail sales (−11.6% year on year in July) and rising unemployment (up 2.6 percentage points from its low at end-2008). Especially the Slovak car scrapping scheme seems to have supported consumption, as the number of car registrations soared. In tandem, growth of credit to households – though decelerating – remained on a fairly high level of 15.4% year on year in July. Looking at the quarterly growth profile, GDP grew again (by 2.2%) in the second quarter after a fall by 11.0% in the first quarter.

The growth slowdown led to a reduction in the combined current and capital account deficit to 1.8% of GDP in the first half of 2009 (5% of GDP in the first half of 2008). This development was almost entirely driven by the income balance, as outflows of investment income declined strongly in line with shrinking profits. Looking at the quarterly profile of the balance of payments, a marked improvement in the goods balance was observable in the second quarter, mirroring the development of net exports in the national accounts. After posting positive values in the first quarter, the second quarter saw FDI outflows, given substantial reductions in intercompany loans.

HICP inflation decelerated from 1.4% in April to 0.5% in August 2009, mainly on the back of declining prices of industrial goods and unprocessed food, the latter being supported by base effects. The decrease in core inflation was equally strong, indicating the price-dampening effect of the economic downturn.

The deficit originally budgeted for 2009 was 1.7% of GDP (based on what turned out to be a largely unrealistic growth assumption of 6.5%). Against the background of actual GDP developments, a substantial overshoot is likely. In fact, the present forecast for 2009 is a 6.3% shortfall. In September, the Slovak government presented a draft budget for the coming year, which sets a deficit ceiling of 5.5% of GDP. This would imply a somewhat lower deficit than currently expected for this year. The draft budget assumes GDP growth to reach 1.9% in 2010. Initially the deficit target for 2010 had been 2.9% of GDP (according to the stability program published in April 2009).

Table 4

**Main Economic Indicators: Slovakia**

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	8.5	10.4	6.4	9.3	7.9	6.6	2.5	-5.6	-5.3
Private consumption	5.8	7.0	6.1	8.3	5.6	6.0	4.6	-1.2	0.7
Public consumption	10.2	-1.3	4.3	0.7	9.6	5.3	2.3	1.2	5.9
Gross fixed capital formation	9.3	8.7	6.8	7.5	11.8	7.3	1.4	-4.1	-17.6
Exports of goods and services	21.0	13.8	3.2	11.2	8.1	2.7	-7.8	-25.3	-20.5
Imports of goods and services	17.7	8.9	3.3	10.6	7.7	3.6	-6.7	-23.2	-21.9
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	6.7	6.6	6.3	9.2	6.8	6.9	2.9	-4.4	-6.2
Net exports of goods and services	2.2	4.6	-0.0	1.0	0.7	-0.7	-1.0	-3.3	0.4
Exports of goods and services	18.0	13.2	3.1	11.7	8.1	2.5	-7.7	-26.8	-20.4
Imports of goods and services	15.8	8.6	3.2	10.6	7.3	3.2	-6.7	-23.5	-20.8
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	11.3	9.9	0.4	4.1	4.4	0.9	-7.2	-8.9	-1.2
Gross average wage of industry (nominal)	6.7	6.4	6.8	8.4	8.7	7.8	2.8	2.7	1.7
Unit labor costs in industry (nominal)	-4.1	-3.1	7.0	4.0	4.2	7.2	12.3	13.5	3.0
Producer price index (PPI) of industry	8.4	2.1	6.1	4.9	6.2	6.6	6.7	-5.1	-7.4
Consumer price index (here: HICP)	4.3	1.9	3.9	3.4	4.0	4.5	3.9	2.3	1.1
EUR per 1 SKK, + = SKK appreciation	3.7	10.2	8.0	4.0	7.5	10.8	10.1	..	..
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15-64 years)	13.4	11.2	9.6	10.5	10.1	8.9	8.7	10.4	11.3
Employment rate (15-64 years)	59.4	60.7	62.3	61.3	61.7	63.1	62.9	61.0	60.4
Key interest rate per annum (%)	4.0	4.4	4.0	4.3	4.3	4.3	3.4	..	..
SKK per 1 EUR	37.2	33.8	31.3	33.0	31.4	30.3	30.3	..	..
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	15.3	13.0	4.8	10.6	6.6	6.4	4.8	9.8	6.4
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	-0.7	0.7	-8.0	-0.8	-10.1	-8.5	-8.0	-11.9	-5.5
Domestic credit of the banking system	13.3	13.6	12.5	14.0	15.3	15.1	12.5	27.8	28.0
<i>of which: claims on the private sector</i>	14.3	15.1	11.2	16.6	15.2	14.9	11.2	11.8	9.6
<i>claims on households</i>	6.9	6.9	7.0	7.1	7.4	7.7	7.0	6.4	5.3
<i>claims on enterprises</i>	7.5	8.1	4.2	9.5	7.8	7.2	4.2	5.4	4.3
<i>claims on the public sector (net)</i>	-1.1	-1.5	1.3	-2.6	0.1	0.2	1.3	16.0	18.4
Other assets (net) of the banking system	2.7	-1.3	0.3	-2.6	1.5	-0.2	0.3	-6.1	-16.1
<i>% of GDP, ESA 95</i>									
General government revenues	33.5	32.5	32.5	..	..	..	..	..	..
General government expenditures	36.9	34.4	34.8	..	..	..	..	..	..
General government balance	-3.5	-1.9	-2.3	..	..	..	..	..	..
Primary balance	-2.0	-0.5	-1.1	..	..	..	..	..	..
Gross public debt	30.4	29.3	27.7	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	29.1	27.0	13.4	18.2	21.2	19.1	-2.2	-21.2	-25.3
Merchandise imports	27.5	21.5	13.4	17.0	21.5	20.1	-1.9	-19.6	-29.1
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-4.5	-1.2	-1.1	1.3	-2.0	-0.6	-2.8	-0.3	1.6
Services balance	1.4	0.7	-0.7	-0.6	-0.6	-0.7	-1.0	-2.7	-1.6
Income balance (factor services balance)	-3.7	-4.3	-3.5	-0.8	-7.4	-3.2	-2.3	-0.5	-1.3
Current transfers	-0.1	-0.6	-1.3	-1.4	-1.3	-1.1	-1.5	-0.4	-1.0
Current account balance	-7.0	-5.4	-6.6	-1.4	-11.3	-5.6	-7.5	-3.9	-2.4
Capital account balance	-0.1	0.6	1.2	0.9	2.4	0.5	1.1	1.7	0.9
Foreign direct investment (net)	6.8	3.9	3.4	-1.2	3.4	3.8	7.0	1.2	-5.6
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	54.8	54.8	58.0	54.8	59.7	59.1	58.0	61.1	69.0
Gross official reserves (excluding gold) <sup>1</sup>	21.5	22.3	19.5	21.1	20.2	19.4	19.5	0.3	0.1
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold) <sup>1</sup>	3.0	3.1	2.8	2.9	2.8	2.7	2.8	0.0	0.0
<i>EUR million, period total</i>									
GDP at current prices	44,629	54,900	65,026	14,213	16,042	17,550	17,221	14,648	15,640

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiw, OeNB.

<sup>1</sup> Given Slovakia's adoption of the euro, the concept of the calculation of international reserves changed as of the beginning of 2009. In particular, reserves no longer include foreign assets in euro and claims on euro area residents.

### 3 Slovenia: Economic Crisis Still Impacts Several Areas

Mixed signals about growth dynamics

Slovenia's GDP contracted by 8.8% during the first half of 2009; this slowdown was primarily driven by investments triggered by worsening financing opportunities, weak demand and a sharp drop in capacity utilization since the beginning of 2009. Private consumption contracted by 1.4%, reflecting a decline in employment and slowing growth of the real net wage sum, deteriorated access to credit and weak consumer sentiment. By contrast, public consumption growth accelerated to 4.0%, mirroring increased expenditure on wages and transfers to households. Net real exports contributed 2.3 percentage points to annual GDP growth, as the decline in imports was bigger than that in exports. Destocking shaved 4 percentage points off GDP growth. In contrast to the gloomy picture painted by the year-on-year comparison, working day and seasonally adjusted data showed GDP expanding by 0.7% compared to the first quarter.

Inflation has dropped to low levels

Inflation has decreased gradually and turned into modest deflation of 0.6% year on year in July, before edging up to +0.1% in August. Disinflation was driven by energy and unprocessed food prices. Core inflation has moderated as well, mainly due to an easing of price pressure for nonenergy industrial goods, but also on account of services. Less positively, ULC growth at the whole-economy level remained high in the first half (at around 13% year on year), as the slump in productivity by far outweighed the effect of decelerating wage growth.

Weak domestic demand leads to improvement in the current account

Slovenia registered a small surplus in its combined current and capital account during the first half of 2009. The sharp turnaround (from a deficit of 5% in the first half of 2008) stemmed almost completely from the goods and services balance, partly as a result of weak domestic demand and partly due to an improvement in the terms of trade. Slovenia registered a strong portfolio capital inflow (due to two eurobond issues by the government) and the repatriation of portfolio assets by Slovene banks. At the same time, banks – as a consequence of more difficult access to funding abroad – repaid liabilities to nonresidents, which they partly compensated with government deposits and borrowing from the central bank.

Domestic lending still suffers from crisis

Domestic credit growth to households and nonbank corporations has been losing steam since the beginning of 2009. Within this aggregate, the dynamics of lending to corporations has deteriorated more than that of lending to households. In the meantime, the state-run export and development bank has begun to extend loan guarantees for corporate loans to banks, while two major banks have issued bonds backed by a state guarantee. Also, a new law has enabled the Slovene government to undertake guarantees for bank loans to natural persons in order to cover possible defaults of vulnerable groups of the population.

After big budget deficits in 2009 and 2010, gradual decrease envisaged for 2011

In mid-July the Slovene parliament approved a second supplementary budget for 2009, in which it raised the general government's deficit target from 3.7% to 5.5% of GDP. The revision had become necessary as the deeper than expected recession cut into budget revenues and envisaged savings could not be fully realized. Alongside spending cuts, the supplementary budget included some measures aimed at mitigating the effects of the crisis. The draft budget for 2010 and 2011 foresees an unchanged deficit in 2010 and a reduction to 5% in 2011. These new targets are substantially higher than the ones included in the April 2009 stability program update and represent a more back-loaded consolidation path.

Table 5

**Main Economic Indicators: Slovenia**

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	5.9	6.8	3.5	5.7	5.5	3.9	-0.8	-8.3	-9.3
Private consumption	2.9	5.0	2.2	3.7	3.5	0.7	1.0	0.1	-2.7
Public consumption	4.1	2.5	3.7	2.0	3.3	4.6	5.0	3.8	4.3
Gross fixed capital formation	10.4	11.9	6.2	16.9	10.3	4.5	-5.3	-22.5	-27.3
Exports of goods and services	12.5	13.8	3.3	7.6	8.0	4.2	-6.2	-20.8	-21.3
Imports of goods and services	12.2	15.7	3.5	9.7	9.2	3.0	-6.6	-22.1	-24.8
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	5.8	8.2	3.8	7.4	6.5	3.2	-1.5	-10.0	-12.7
Net exports of goods and services	0.1	-1.5	-0.2	-1.6	-1.0	0.9	0.7	1.4	3.2
Exports of goods and services	8.2	9.6	2.5	5.7	5.9	3.1	-4.6	-16.0	-16.1
Imports of goods and services	8.1	11.1	2.7	7.3	6.9	2.3	-5.2	-17.4	-19.3
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	7.8	5.3	-1.0	1.3	3.5	-0.4	-8.1	-8.3	-10.5
Gross average wage of industry (nominal)	5.5	6.7	7.8	8.3	9.7	9.4	4.2	-0.7	-1.0
Unit labor costs in industry (nominal)	-2.2	1.3	9.6	6.7	6.0	10.6	14.5	8.5	10.8
Producer price index (PPI) of industry	2.3	5.4	5.7	5.9	6.3	6.5	3.8	1.4	-0.4
Consumer price index (here: HICP)	2.5	3.8	5.5	6.5	6.4	6.2	3.1	1.7	0.6
EUR per 1 SIT, + = SIT appreciation	-0.0	..	..	..	..	..	..	..	..
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15-64 years)	6.1	5.0	4.5	5.1	4.2	4.2	4.3	5.4	5.7
Employment rate (%, 15-64 years)	66.6	67.8	68.6	67.1	68.3	70.1	68.8	66.7	67.6
Key interest rate per annum (%)	3.5	..	..	..	..	..	..	..	..
SIT per 1 EUR	239.6	..	..	..	..	..	..	..	..
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	8.3	26.0	6.9	10.7	9.9	8.4	6.9	8.0	5.7
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	-17.1	-23.1	-11.9	-18.7	-15.2	-14.0	-11.9	-10.7	-1.0
Domestic credit of the banking system	26.3	35.1	20.8	30.6	27.3	23.5	20.8	21.5	10.7
<i>of which: claims on the private sector</i>	28.7	42.6	22.7	36.7	34.4	29.2	22.7	18.0	10.1
<i>claims on households</i>	7.5	9.0	5.0	8.2	7.4	6.3	5.0	3.6	2.6
<i>claims on enterprises</i>	21.3	33.6	17.7	28.5	27.0	22.8	17.7	14.3	7.5
<i>claims on the public sector (net)</i>	-2.4	-7.5	-1.8	-6.1	-7.0	-5.6	-1.8	3.6	0.7
Other assets (net) of the banking system	-1.0	14.0	-2.0	-1.2	-2.2	-1.1	-2.0	-2.9	-4.1
<i>% of GDP, ESA 95</i>									
General government revenues	43.3	42.4	42.4	..	..	..	..	..	..
General government expenditures	44.6	42.4	44.2	..	..	..	..	..	..
General government balance	-1.3	0.0	-1.8	..	..	..	..	..	..
Primary balance	0.1	1.3	-0.7	..	..	..	..	..	..
Gross public debt	26.7	23.3	22.5	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	16.6	16.3	1.3	6.3	6.4	2.3	-9.6	-22.4	-24.1
Merchandise imports	16.3	18.1	5.7	10.9	11.7	8.7	-7.1	-26.9	-33.3
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-3.7	-4.8	-7.1	-5.6	-6.9	-7.8	-8.1	-1.5	0.5
Services balance	3.2	3.0	4.3	3.8	4.9	5.0	3.4	3.2	4.0
Income balance (factor services balance)	-1.4	-2.3	-2.8	-1.7	-2.7	-4.1	-2.6	-2.6	-2.0
Current transfers	-0.6	-0.7	-0.6	-1.4	-0.3	0.2	-0.8	-1.6	0.3
Current account balance	-2.5	-4.8	-6.2	-4.9	-5.0	-6.7	-8.0	-2.4	2.9
Capital account balance	-0.4	-0.2	-0.1	-0.1	0.0	-0.1	-0.3	-0.1	0.4
Foreign direct investment (net)	-0.6	-0.6	1.0	1.3	-1.5	1.3	3.1	-1.4	-3.0
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	77.6	100.8	105.3	105.5	108.8	108.7	105.7	102.3	104.5
Gross official reserves (excluding gold) <sup>1</sup>	17.2	1.9	1.7	2.0	1.7	1.7	1.7	1.4	1.3
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold) <sup>1</sup>	3.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
<i>EUR million, period total</i>									
GDP at current prices	31,013	34,471	37,126	8,726	9,636	9,647	9,117	8,270	8,996

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiw, OeNB.

<sup>1</sup> Given Slovenia's adoption of the euro, the concept of the calculation of international reserves changed as of the beginning of 2007. In particular, reserves no longer include foreign assets in euro and claims on euro area residents.

#### 4 Bulgaria: First Recession Since 1997, Triggered by Plummeting Domestic Demand

Output contracts by 4.2% in the first half of 2009, growth pattern changes substantially

For the first time since 1997, Bulgaria has suffered a recession, attributable to a sharp decline in private consumption, capital formation and exports. At the same time, imports slumped even more strongly. Accordingly, the growth pattern in Bulgaria has shifted remarkably: Domestic demand – the growth engine of the last years – now provides a substantial negative, net exports a clearly positive contribution to growth. The recession was clearly visible also on the production side, with industrial output shrinking by nearly 12% and new orders in the manufacturing sector declining by 32% year on year in the first half of 2009.

Several factors were responsible for the breakdown of domestic demand. Economic sentiment deteriorated dramatically in the first half of 2009. At the same time, both households and corporations faced a mix of increased liquidity pressures that emerged from reduced foreign capital inflows and sharply decelerating credit growth. Wage growth also moderated, especially in the industrial sector. Households also saved more, presumably for precautionary reasons (household deposits had gone up by about 9% year on year as at end-June 2009).

Recession leads to a welcome correction of macroeconomic imbalances

Some long-standing imbalances started to unwind as the global crisis hit the country. The current account deficit diminished to 14% of GDP in the first half of 2009 (i.e. compared to the first half of 2008 it halved; however, it is still one of the largest in the CESEE region). At the same time, the inflow of net FDI moderated further, though less severely than in the second half of 2008 (net FDI now account for more than 80% of the combined current and capital account deficit). The Bulgarian central bank's foreign exchange reserves remained roughly stable during the first nine months of 2009.

The sharp disinflation process continued in 2009. In August, HICP inflation was only 1.3% year on year (August 2008: 12%). Initially, this had been helped by slower increases in food, services and energy prices; more recently, the strongly growing negative output gap contributed to slowing price growth.

Against this background, in July 2009 Bulgaria's finance minister announced that the country intended to join ERM II in the near future (while retaining its currency board, which has been in place since 1997).

Anti-crisis management through fiscal impulses

As monetary policy is constrained by the currency board, fiscal policy took a proactive role in anti-crisis management in the first half of 2009, when general government expenditures were nearly 25% higher year on year due to significant capital expenditure supporting infrastructure and social projects and further fiscal injections in the run-up to the parliamentary elections in July 2009. Part of this additional spending (about 1% of GDP) was financed from the Fiscal Reserve Account, which however still stood at a sizeable level of about 11.5% of GDP in August 2009.

... followed by consolidation after parliamentary elections

As a consequence of unexpectedly high spending increases and revenue shortfalls in the first half of 2009, the newly elected government revised the original budget surplus target (1.5% of GDP) downwards and now pursues a balanced budget target for both 2009 and 2010. In order to achieve this goal, the government took several consolidation steps on the expenditure side, including a freeze of public sector wages and pensions until next summer, and stepped up efforts to curb tax evasion, thus raising revenues. A fully-fledged budget proposal for 2010 is currently under preparation.

Table 6

**Main Economic Indicators: Bulgaria**

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	6.3	6.2	6.0	7.0	7.1	6.8	3.5	-3.5	-4.9
Private consumption	9.5	5.3	4.8	6.5	5.4	6.4	1.5	-6.3	-5.6
Public consumption	-1.3	3.1	0.1	-4.4	2.0	0.4	1.2	-0.4	4.1
Gross fixed capital formation	14.7	21.7	20.3	15.5	28.6	22.3	15.8	-14.1	-16.3
Exports of goods and services	8.7	5.2	2.9	9.2	5.1	3.8	-6.0	-17.4	-15.8
Imports of goods and services	14.0	9.9	4.9	5.8	13.7	4.2	-3.2	-21.1	-24.3
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	12.3	11.2	7.2	6.0	15.4	4.0	4.3	-13.5	-16.7
Net exports of goods and services	-6.4	-5.6	-2.8	0.1	-9.8	-1.1	-0.5	9.9	14.3
Exports of goods and services	5.6	3.4	1.9	6.1	3.5	2.6	-3.5	-11.8	-10.7
Imports of goods and services	12.0	9.1	4.6	6.0	13.3	3.7	-3.0	-21.8	-25.0
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	10.4	8.7	0.3	7.1	4.4	0.0	-9.1	-14.9	-14.1
Gross average wage of industry (nominal)	10.8	20.1	22.2	25.0	24.0	22.5	17.8	12.2	11.3
Unit labor costs in industry (nominal)	0.2	10.4	21.9	16.3	18.7	22.8	29.8	32.1	29.7
Producer price index (PPI) of industry	6.9	8.4	10.8	14.4	13.0	12.1	3.6	0.6	-3.5
Consumer price index (here: HICP)	7.4	7.6	12.0	12.4	14.0	12.5	9.0	5.1	3.1
EUR per 1 BGN, + = BGN appreciation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15-64 years)	9.0	7.0	5.7	6.6	5.9	5.2	5.1	6.4	6.4
Employment rate (% , 15-64 years)	58.7	61.7	64.0	62.6	63.9	65.0	64.3	62.6	63.3
Key interest rate per annum (%) <sup>1</sup>	..	..	..	..	..	..	..	..	..
BGN per 1 EUR	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	26.9	31.2	8.8	29.0	24.4	19.5	8.8	6.3	3.6
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	21.4	1.5	-12.3	2.2	-3.1	-4.3	-12.3	-10.5	-7.1
Domestic credit of the banking system	11.1	38.7	26.3	35.7	35.2	31.1	26.3	23.1	16.1
of which: claims on the private sector	18.2	45.3	28.4	44.0	43.9	40.4	28.4	23.0	11.6
claims on households	8.4	14.8	10.3	14.8	15.1	14.0	10.3	8.6	4.8
claims on enterprises	9.8	30.5	18.1	29.2	28.7	26.4	18.1	14.4	6.8
claims on the public sector (net)	-7.1	-6.7	-2.1	-8.3	-8.7	-9.3	-2.1	0.1	4.5
Other assets (net) of the banking system	-5.6	-9.0	-5.1	-8.9	-7.7	-7.4	-5.1	-6.3	-5.4
<i>% of GDP, ESA 95</i>									
General government revenues	39.5	41.5	39.1	..	..	..	..	..	..
General government expenditures	36.5	41.5	37.3	..	..	..	..	..	..
General government balance	3.0	0.1	1.8	..	..	..	..	..	..
Primary balance	4.4	1.1	2.7	..	..	..	..	..	..
Gross public debt	22.7	18.2	14.1	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	26.7	12.6	13.0	25.8	22.3	17.7	-10.0	-26.8	-33.3
Merchandise imports	26.6	18.2	15.7	21.8	32.9	18.2	-5.1	-29.8	-39.7
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-22.1	-25.1	-25.7	-25.8	-30.5	-22.3	-24.8	-16.0	-14.9
Services balance	3.7	2.6	2.4	-3.5	2.7	10.1	-1.1	-0.8	3.4
Income balance (factor services balance)	-2.7	-3.9	-3.5	-1.3	-7.0	-2.8	-2.9	-2.8	-1.3
Current transfers	2.7	1.2	1.5	2.0	4.3	0.6	-0.4	1.7	2.5
Current account balance	-18.5	-25.2	-25.3	-28.7	-30.5	-14.5	-29.2	-17.8	-10.3
Capital account balance	0.7	-2.1	0.8	2.7	0.2	0.4	0.4	2.6	1.5
Foreign direct investment (net)	23.9	28.7	16.7	11.5	24.7	18.4	11.8	10.3	9.5
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	81.9	100.2	107.7	100.8	106.8	110.1	107.7	106.0	106.9
Gross official reserves (excluding gold)	32.9	38.8	35.0	37.8	39.7	42.4	35.0	31.8	31.9
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	4.8	5.4	5.0	5.3	5.4	5.8	5.0	4.9	5.6
<i>EUR million, period total</i>									
GDP at current prices	25,238	28,899	34,118	6,894	8,152	9,515	9,557	7,138	8,345

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiw, OeNB.

<sup>1</sup> Not available in a currency board regime

## 5 Czech Republic: Deep Recession despite Some Dampening Effects from Car Purchase Subsidies in Several EU Countries

Has the trough been reached?

The global economic crisis showed its full impact in the first half of 2009, with real GDP contracting by 4.4% in the first quarter and by 5.8% (both figures year on year) in the second quarter. However, in the second quarter real output remained stable quarter on quarter, which may suggest that the trough has been reached or is within reach. Gross fixed capital formation and particularly the reduction of stocks put a major damper on growth in the first half of 2009. Private and public consumption counteracted, delivering a very similar contribution to GDP dynamics. This was due to waning private consumption growth, alongside with stepped up public consumption in the wake of the EU Presidency and some fiscal stimulus measures (see below). Subsidies for car purchases that were in place in some big EU economies were key for Czech net exports to recover somewhat during the first half of 2009 and thus to noticeably reduce their negative contribution to growth.

All monetary and fiscal hands on deck to mitigate recession

Inflation has fallen abruptly, mainly thanks to the unwinding of the effects of past changes to indirect taxes, the slower growth of regulated prices and the anti-inflationary development of fuel and food prices. Low capacity utilization has presumably also helped. Headline inflation and the inflation rate relevant for monetary policy decisions<sup>12</sup> have converged and are currently fluctuating below the lower boundary of the tolerance band of the Česká národní banka's (CNB) inflation target ( $3\% \pm 1$  percentage point). Against this backdrop, the CNB further cut the key interest rate in the first half of 2009 in two steps to 1.25%. On the fiscal side – in addition to the first stimulus package approved earlier in the year<sup>13</sup> – the parliament recently endorsed a new anti-crisis act, which includes further measures such as reduced social insurance contributions, an extended eligibility period for unemployment benefits or subsidies on car purchases. The latter measure, however, would have to be initiated by the government in order to become effective. In fact, the cabinet recently pushed a fiscal consolidation package through parliament, which will reduce the budget deficit envisaged for 2010 from 7.4% to approximately 5.2% of GDP.

Crisis: labor market feels full blow, foreign exchange market continues recovery

In the first half of 2009 the slump in economic activity increasingly fed through to the labor market in form of a rapid decline in the number of vacancies as well as a sharp rise in unemployment. The latter, however, still remains comparatively low by EU standards. Also, wage growth responded to the fall in demand and slowed down considerably. In the second quarter of 2009, unit labor costs in Czech koruna (CZK) grew only moderately in year-on-year terms (and fell slightly if measured in euro).

Despite some setbacks brought about not least by political turbulences, the appreciation trend of the CZK versus the euro (which resumed in March 2009) continued in the review period, and the Czech currency is currently fluctuating almost at levels recorded prior to the collapse of Lehman Brothers. The temporary weakness of the koruna in late 2008 and early 2009 along with sluggish domestic demand has presumably helped improve the combined current and capital account balance, which displayed a slight surplus in the first half of 2009. Net FDI inflows dropped markedly in the wake of the crisis but still remained in the positive.

<sup>12</sup> Defined as headline inflation adjusted for first-round effects of changes to indirect taxes.

<sup>13</sup> See Focus on European Economic Integration Q2/09 for details.

Table 7

**Main Economic Indicators: Czech Republic**

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	6.8	6.1	2.7	2.7	4.2	3.9	0.0	-4.4	-5.8
Private consumption	5.2	5.0	3.4	3.7	3.3	3.3	3.4	1.8	1.5
Public consumption	1.2	0.7	1.6	-0.3	2.9	3.7	0.4	4.4	2.6
Gross fixed capital formation	6.0	10.8	-1.1	1.3	-1.2	-0.5	-3.5	-7.5	-7.2
Exports of goods and services	15.8	15.0	6.6	14.3	14.9	8.3	-9.2	-19.3	-17.6
Imports of goods and services	14.3	14.3	5.0	12.8	11.0	4.6	-6.7	-18.4	-17.8
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	5.6	5.4	1.1	0.6	0.5	0.7	2.4	-3.1	-5.6
Net exports of goods and services	1.2	0.7	1.6	1.8	3.9	3.6	-2.7	-1.7	-0.6
Exports of goods and services	13.6	14.1	6.7	14.5	14.7	8.2	-9.9	-21.8	-19.2
Imports of goods and services	12.5	13.3	5.0	12.7	10.8	4.6	-7.2	-20.1	-18.6
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	9.3	6.5	0.5	3.3	4.7	4.9	-10.1	-5.8	-0.1
Gross average wage of industry (nominal)	6.1	8.6	8.3	11.6	8.7	7.5	5.9	2.7	2.9
Unit labor costs in industry (nominal)	-2.9	1.9	8.3	7.9	3.8	3.0	18.3	9.7	3.4
Producer price index (PPI) of industry	1.6	4.0	4.5	5.6	5.1	5.5	1.6	-1.1	-3.6
Consumer price index (here: HICP)	2.1	3.0	6.3	7.6	6.7	6.5	4.4	1.5	1.0
EUR per 1 CZK, + = CZK appreciation	5.1	2.1	11.2	9.8	13.8	15.9	5.7	-7.5	-7.0
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	7.2	5.4	4.4	4.7	4.3	4.3	4.4	5.8	6.4
Employment rate (%, 15–64 years)	65.3	66.1	66.6	66.1	66.6	66.7	66.8	65.6	65.4
Key interest rate per annum (%)	2.2	2.9	3.5	3.7	3.8	3.6	3.0	2.0	1.6
CZK per 1 EUR	28.3	27.8	25.0	25.5	24.8	24.1	25.4	27.6	26.7
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	13.0	16.1	13.6	14.3	11.3	13.2	13.6	12.3	9.1
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	-5.7	-0.1	0.2	-4.2	-5.6	0.1	0.2	4.1	2.6
Domestic credit of the banking system	14.7	15.3	11.0	15.6	9.8	9.7	11.0	8.9	9.3
<i>of which: claims on the private sector</i>	12.1	18.2	10.6	17.1	16.0	14.7	10.6	9.0	5.2
<i>claims on households</i>	6.8	9.1	6.5	8.8	8.3	8.0	6.5	6.2	5.4
<i>claims on enterprises</i>	5.3	9.2	4.1	8.3	7.7	6.6	4.1	2.7	-0.3
<i>claims on the public sector (net)</i>	2.6	-2.9	0.4	-1.4	-6.1	-5.0	0.4	-0.1	4.1
Other assets (net) of the banking system	4.0	0.9	2.4	2.9	7.1	3.4	2.4	-0.7	-2.7
<i>% of GDP, ESA 95</i>									
General government revenues	41.1	41.9	40.9	..	..	..	..	..	..
General government expenditures	43.8	42.6	43.0	..	..	..	..	..	..
General government balance	-2.6	-0.7	-2.1	..	..	..	..	..	..
Primary balance	-1.5	0.5	-1.0	..	..	..	..	..	..
Gross public debt	29.4	29.0	30.0	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	20.6	18.2	10.5	17.5	20.7	15.2	-8.8	-24.8	-24.8
Merchandise imports	20.8	16.0	11.3	18.7	18.7	13.9	-3.8	-25.8	-27.6
<i>% of GDP (based on EUR), period total</i>									
Trade balance	2.0	3.4	2.8	4.9	4.2	2.9	-0.7	4.7	5.5
Services balance	1.4	1.6	2.2	2.5	2.4	2.1	1.9	2.0	1.4
Income balance (factor services balance)	-5.6	-7.7	-7.8	-4.1	-12.7	-7.4	-6.7	-4.5	-9.8
Current transfers	-0.4	-0.5	-0.3	0.1	0.2	-0.8	-0.7	0.4	-0.3
Current account balance	-2.6	-3.2	-3.1	3.5	-5.9	-3.2	-6.2	2.7	-3.2
Capital account balance	0.3	0.6	0.8	0.8	1.4	0.2	1.0	1.8	0.5
Foreign direct investment (net)	2.8	5.1	4.1	2.5	5.7	4.4	3.7	1.5	-0.2
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	38.2	40.5	39.0	41.1	44.9	43.2	39.0	37.8	39.9
Gross official reserves (excluding gold)	20.8	18.4	17.8	18.0	17.3	17.3	17.8	18.8	19.0
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	3.4	2.9	3.0	2.9	2.8	2.8	3.0	3.3	3.4
<i>EUR million, period total</i>									
GDP at current prices	113.739	127.427	148.129	34.261	37.848	38.959	37.061	31.543	34.362

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiv, OeNB.

## 6 Hungary: Financial Strains Ease, but Real Economy Remains Very Weak

Recession continues to deepen amid destocking

Hungarian GDP contracted by 7.2% year on year in the first half of 2009. Driven by household consumption, final consumption went down by 4.6%. A sharp decline in employment, decreasing real wages, reduced public transfers, limited access to borrowing and increased savings contributed to weak consumption by households. Investment fell by 4.8%, with the decline in investment in machinery and equipment being particularly pronounced. Net exports contributed 7.1 percentage points to GDP growth, as imports fell much more than exports. The favorable development of net real exports translated into a substantial improvement in the combined current and capital account, which had registered a minor surplus during the first half of 2009. It is noteworthy that economic activity continued contracting in the second quarter, albeit at a slower pace than in the first quarter (–2% quarter on quarter).

Temporary hike in inflation

Inflation rose to 3.7% in June, mainly due to unprocessed food and fuel prices, but also reflecting the sharp weakening of the forint in the fourth quarter of 2008 and in the first quarter of 2009. It edged up further in July and August in reaction to the increase in the main VAT rate and some consumption taxes coming into force on July 1. In its latest inflation report Magyar Nemzeti Bank (MNB) expected inflation to peak at 6% to 6.5% in the first quarter of 2010, to rapidly fall thereafter to 2.5% by the third quarter of 2010 and to stabilize at around 2% throughout 2011, given the negative output gap and weak domestic demand.

Financial market tensions subside

Tensions in the Hungarian financial markets have eased substantially in recent months. Foreign-owned banks are benefitting from sustained support by their parent banks, while three major banks without foreign parent banks have received foreign currency loans directly from the government, and one of them additionally a capital injection. The regular government bond auctions have been characterized by strong demand and declining yields, and the government's eurobond issue in mid-July was substantially oversubscribed. The disinflationary environment, along with decreasing financial stability risks, enabled MNB to cut interest rates gradually between end-July and end-September by a total of 200 basis points to 7.5%.

Despite these positive developments, Hungary's risk premiums are still relatively high, reflecting the economy's comparably high vulnerability. Lending by domestic banks to the private sector has been decreasing continuously since early 2009, as banks have been tightening their lending standards and credit demand decreased in tandem. However, according to the latest bank lending survey, banks intend to modestly ease their credit conditions and increase lending volumes during the second half of 2009. Banks' credit risks have been mitigated by the appreciation of the forint in the review period.

Fiscal consolidation and performance under the IMF/EU loan program on track

So far, Hungary has complied with the conditions of the IMF and EU loan agreements, and the agreements have been extended by six months until October 2010 in order to also cover the time after the general elections scheduled for spring 2010. The government has progressed with structural reforms and moved on with its tax reform. The unexpectedly deep recession threatened to lead to a widening of the budget deficit to around 4.6% of GDP, compared to the original 2.9% target. In response, the government has taken additional consolidation measures and, in agreement with the IMF and the EU, set the deficit target for 2009 at 3.9%; the targets agreed upon for 2010 and 2011 are 3.8% and 3%, respectively.

Table 8

**Main Economic Indicators: Hungary**

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	4.0	1.2	0.6	1.8	2.1	1.3	-2.5	-6.7	-7.5
Private consumption	1.7	0.6	-0.5	0.6	1.4	0.1	-4.0	-7.2	-6.4
Public consumption	3.8	-7.5	0.7	1.5	1.0	2.7	-2.0	-0.2	1.8
Gross fixed capital formation	-3.7	1.8	-2.6	-5.1	-1.9	-1.5	-2.7	-6.9	-3.3
Exports of goods and services	18.6	16.4	4.8	15.3	10.3	3.6	-8.2	-18.6	-14.0
Imports of goods and services	14.8	13.4	4.7	13.0	12.5	3.5	-8.7	-22.0	-22.6
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	1.7	-1.0	0.4	-0.3	3.8	1.3	-2.8	-9.7	-15.1
Net exports of goods and services	3.0	3.1	0.3	3.0	-2.0	0.3	0.3	3.6	10.3
Exports of goods and services	16.6	16.7	5.6	18.2	12.0	4.2	-9.6	-25.1	-17.5
Imports of goods and services	13.6	13.6	5.3	15.2	14.0	4.0	-9.9	-28.6	-27.8
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	11.4	9.2	-1.4	6.0	3.3	-2.5	-10.8	-13.4	-7.9
Gross average wage of industry (nominal)	8.6	8.4	6.6	7.7	7.1	6.9	4.9	3.6	3.3
Unit labor costs in industry (nominal)	-2.5	-0.7	8.5	1.6	3.6	9.9	19.0	20.3	12.3
Producer price index (PPI) of industry	6.5	0.2	5.3	5.0	5.3	3.9	6.9	7.7	6.7
Consumer price index (here: HICP)	4.0	7.9	6.0	6.9	6.8	6.3	4.2	2.7	3.6
EUR per 1 HUF, + = HUF appreciation	-6.1	5.1	-0.2	-2.7	0.1	6.6	-4.0	-11.8	-13.3
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15-64 years)	7.5	7.4	7.9	8.0	7.7	7.8	8.0	9.7	9.6
Employment rate (%, 15-64 years)	57.3	57.3	56.7	56.1	56.5	57.3	56.7	55.1	55.6
Key interest rate per annum (%)	6.7	7.8	8.7	7.5	8.3	8.5	10.5	9.6	9.5
HUF per 1 EUR	264.1	251.3	251.7	259.4	248.0	236.1	263.5	294.1	285.9
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	13.6	11.0	8.7	15.2	9.1	8.5	8.7	8.6	11.9
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	-4.1	-6.8	-3.8	-9.2	-7.7	-4.7	-3.8	4.9	7.7
Domestic credit of the banking system	21.9	21.3	18.2	28.9	17.9	18.1	18.2	14.0	13.8
<i>of which: claims on the private sector</i>	16.7	19.3	20.4	26.9	16.8	17.7	20.4	24.0	15.2
<i>claims on households</i>	8.6	9.1	12.7	12.1	9.2	9.8	12.7	14.1	10.1
<i>claims on enterprises</i>	8.1	10.2	7.6	14.7	7.6	7.9	7.6	10.0	5.1
<i>claims on the public sector (net)</i>	5.2	1.9	-2.2	2.0	1.1	0.4	-2.2	-10.0	-1.4
Other assets (net) of the banking system	-4.2	-3.4	-5.6	-4.5	-1.1	-4.9	-5.6	-10.2	-9.6
<i>% of GDP, ESA 95</i>									
General government revenues	42.6	44.8	45.5	..	..	..	..	..	..
General government expenditures	51.9	49.8	49.3	..	..	..	..	..	..
General government balance	-9.3	-5.0	-3.8	..	..	..	..	..	..
Primary balance	-5.4	-0.9	0.4	..	..	..	..	..	..
Gross public debt	65.6	65.9	72.9	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	17.5	16.8	6.7	15.7	14.4	6.8	-8.6	-26.5	-25.2
Merchandise imports	16.5	12.5	7.1	13.2	14.2	9.5	-7.3	-29.0	-32.2
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-2.3	0.2	-0.1	1.5	0.4	-1.5	-0.3	3.7	6.2
Services balance	1.4	1.0	0.8	0.2	1.1	1.8	-0.0	0.6	1.9
Income balance (factor services balance)	-6.2	-7.5	-7.3	-7.0	-7.0	-7.8	-7.2	-6.4	-6.6
Current transfers	-0.3	-0.5	-0.6	-1.2	-0.2	-0.3	-0.9	-0.8	0.6
Current account balance	-7.5	-6.8	-7.2	-6.5	-5.7	-7.9	-8.5	-2.9	2.1
Capital account balance	0.7	0.7	1.0	0.2	0.4	0.5	2.8	1.5	1.9
Foreign direct investment (net)	3.1	1.6	2.4	1.4	3.3	-0.2	4.9	0.2	-3.9
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	90.5	96.9	114.0	103.3	108.5	110.7	114.9	123.6	131.3
Gross official reserves (excluding gold)	18.2	16.1	22.6	16.4	16.6	16.2	22.6	27.3	27.7
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	2.8	2.5	3.4	2.5	2.4	2.4	3.4	4.2	4.4
<i>EUR million, period total</i>									
GDP at current prices	89,929	101,377	105,983	23,536	27,265	28,508	26,675	19,592	22,385

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiw, OeNB.

## 7 Poland: Economic Growth amid Global Recession

Net exports offset contraction in domestic demand

Poland posted annual GDP growth of 1.1% in the first half of 2009 (with accelerating quarter-on-quarter growth) as the positive growth contribution of net exports more than offset a comparatively moderate domestic demand contraction. Net exports improved sharply as imports fell more than exports. The sizeable depreciation of the Polish zloty between July 2008 and February 2009 probably had a dampening effect on imports rather than a stimulating one on exports, given the slump in external demand and companies' problems with foreign exchange call options.<sup>14</sup> While the weaker zloty hurt households indebted in foreign currency, the concentration of such debt on upper middle-income households helped moderate the curbing impact on demand. At the same time, the larger domestic market (and thus a smaller share of exports in total final demand than in other countries of the region) dampened the knock-on effect of the foreign demand slump on Polish domestic demand. Infrastructure investment offset the contraction of other investment. Private consumption benefited from both annual employment and real wage growth remaining positive.

Although banks' lending conditions generally tightened, outstanding credit declined in exchange rate-adjusted terms only to the corporate sector (and not until April), while it continued expanding fairly strongly to households. Recent monthly indicators imply further GDP growth. In particular, sentiment indicators have improved, even if the majority of them is still pessimistic.

Excessive deficit in 2008 requires fiscal correction by 2012

Poland's ESA-95 budget deficit for 2008 amounted to 3.9% of GDP. The October 2009 fiscal notification showed an expected deficit for 2009 of 6.3% of GDP, while in November the European Commission forecast the deficit to reach 6.4% of GDP in 2009 and 7.5% in 2010. In its EDP recommendation of July 2009, the Ecofin took the current exceptional economic situation into account and required a correction "as rapidly as possible by 2012." Specifically, the authorities should implement the fiscal stimulus measures in 2009 as planned, while ensuring an average annual fiscal correction of at least 1.25 percentage points of GDP from 2010 onwards. In July, parliament passed a supplementary budget for 2009, and in its 2010 draft budget, the Polish government estimated the general government deficit to amount to 6% of GDP in 2009 and to 7% of GDP in the following year.

Monetary Policy Council sees inflation rather below than above target in the medium term

Annual inflation stood at 4.3% (HICP) and at 3.7% (national CPI) in August 2009, after its low of 3.2% (HICP) in January. This development was the result of the earlier sizeable currency depreciation (although some re-appreciation took place since March) and increases in food and regulated (mainly energy) prices. Taking into account low demand pressure and slower labor cost growth, the Polish Monetary Policy Council (MPC) reconfirmed its assessment that "the probability of inflation running below the inflation target (i.e. 2.5% of national CPI) in the medium term is higher than the probability of its running above the target." At end-June, the MPC lowered the key policy rate from 3.75% to 3.5% and cut the required reserve rates from 3.5% to 3%.

While the government has dropped its earlier target date to adopt the euro (2012) as a result of the economic crisis, the MPC maintained its view that Poland should join ERM II and the euro area at the earliest date possible after the necessary political support for the legal changes required for euro adoption has been secured.

<sup>14</sup> See *Focus on European Economic Integration Q2/09*.

Table 9

## Main Economic Indicators: Poland

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	6.2	6.8	4.9	6.3	5.8	5.5	2.4	1.1	1.1
Private consumption	5.0	4.9	5.4	5.7	5.3	4.6	6.0	3.9	2.2
Public consumption	6.1	3.7	7.6	6.0	4.2	7.4	12.7	6.0	-1.3
Gross fixed capital formation	14.9	17.2	8.2	14.8	14.7	4.5	4.2	-0.0	-1.3
Exports of goods and services	14.6	9.1	7.2	10.3	11.1	8.3	-0.2	0.5	-14.0
Imports of goods and services	17.4	13.5	8.3	12.9	11.7	7.6	2.0	-7.1	-19.2
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	7.6	9.2	5.6	7.9	6.6	5.5	3.0	-1.3	-2.0
Net exports of goods and services	-1.3	-2.1	-0.8	-1.5	-0.8	-0.1	-0.9	3.5	3.2
Exports of goods and services	5.2	3.5	2.8	4.1	4.4	3.3	-0.1	0.2	-5.8
Imports of goods and services	6.5	5.5	3.6	5.6	5.2	3.4	0.8	-3.3	-9.0
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	9.5	5.9	1.5	4.8	5.0	1.3	-4.7	-3.9	0.4
Gross average wage of industry (nominal)	5.2	8.7	9.7	10.4	11.2	10.1	7.4	5.1	3.3
Unit labor costs in industry (nominal)	-3.8	2.5	8.3	5.2	6.0	9.0	12.8	10.0	2.9
Producer price index (PPI) of industry	2.3	2.3	2.6	3.0	2.5	2.1	2.5	4.9	4.2
Consumer price index (here: HICP)	1.3	2.6	4.2	4.5	4.3	4.4	3.6	3.6	4.3
EUR per 1 PLN, + = PLN appreciation	3.3	3.0	7.6	8.7	11.6	14.5	-3.1	-20.6	-23.5
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15-64 years)	14.1	9.7	7.2	8.2	7.2	6.7	6.8	8.4	8.0
Employment rate (%, 15-64 years)	54.5	57.0	59.2	58.0	58.9	60.0	60.0	58.9	59.3
Key interest rate per annum (%)	4.1	4.4	5.7	5.3	5.8	6.0	5.8	4.4	3.7
PLN per 1 EUR	3.9	3.8	3.5	3.6	3.4	3.3	3.8	4.5	4.5
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	16.0	13.4	18.6	13.6	16.3	17.3	18.6	17.5	14.4
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	-1.8	-9.0	-13.6	-12.1	-9.7	-10.6	-13.6	-9.3	-6.3
Domestic credit of the banking system	18.2	20.0	39.2	23.0	25.0	28.9	39.2	38.7	30.9
of which: claims on the private sector	16.0	22.5	30.1	23.3	22.8	23.6	30.1	29.7	23.1
claims on households	11.1	14.6	20.8	15.0	14.9	15.4	20.8	21.1	17.7
claims on enterprises	4.9	7.9	9.3	8.2	8.0	8.2	9.3	8.6	5.4
claims on the public sector (net)	2.2	-2.5	9.1	-0.3	2.1	5.3	9.1	9.0	7.8
Other assets (net) of the banking system	-0.5	2.4	-6.9	2.7	1.1	-0.9	-6.9	-11.9	-10.2
<i>% of GDP, ESA 95</i>									
General government revenues	40.2	40.3	39.6	..	..	..	..	..	..
General government expenditures	43.9	42.2	43.3	..	..	..	..	..	..
General government balance	-3.6	-1.9	-3.6	..	..	..	..	..	..
Primary balance	-1.0	0.4	-1.4	..	..	..	..	..	..
Gross public debt	47.7	45.0	47.2	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	20.3	13.4	14.2	21.7	23.1	20.5	-6.2	-22.2	-24.8
Merchandise imports	23.9	19.5	17.2	24.1	26.2	23.9	-2.4	-28.2	-33.4
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-2.0	-4.0	-4.9	-4.3	-5.1	-4.7	-5.4	-1.1	-0.5
Services balance	0.2	1.1	1.0	0.7	1.0	0.7	1.5	1.2	1.3
Income balance (factor services balance)	-2.8	-3.8	-2.6	-2.8	-3.3	-2.3	-2.2	-2.3	-4.2
Current transfers	1.9	2.0	1.5	1.2	2.0	2.1	0.9	2.2	2.3
Current account balance	-2.7	-4.7	-5.1	-5.3	-5.6	-4.3	-5.2	-0.0	-1.2
Capital account balance	0.6	1.1	1.1	1.6	1.9	0.4	0.5	2.7	0.9
Foreign direct investment (net)	3.2	4.2	2.2	3.8	2.2	0.9	2.1	1.9	2.1
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	47.3	50.8	47.4	52.2	53.2	51.4	47.7	48.7	53.4
Gross official reserves (excluding gold)	12.9	13.7	11.6	14.4	14.7	13.8	11.6	12.6	13.7
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	3.7	3.8	3.2	3.9	4.0	3.7	3.2	3.5	4.0
<i>EUR million, period total</i>									
GDP at current prices	272,199	311,669	362,137	83,341	91,139	94,984	92,673	69,911	73,364

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiw, OeNB.

## 8 Romania: Deep Recession, Reduced External Imbalances, Painful Adjustment

Deep recession and increasing unemployment

After growth had stopped abruptly in the fourth quarter of 2008, real GDP contracted by 7.6% in the first half of 2009. However, the speed of the downturn decelerated in the second quarter, as GDP fell by 1.1% in quarter-on-quarter terms compared to 4.6% in the previous quarter. The recession has been associated with a substantial shift in the composition of growth, as domestic demand collapsed and the contribution of net exports turned positive, with imports declining more strongly than exports. The impact of the crisis on the real economy is also beginning to be reflected in rising unemployment. The unemployment rate increased to 6.6% in the second quarter 2009 from 5.9% in the second quarter 2008.

The output gap – which has turned strongly negative – has helped reduce inflation to 4.9% in August 2009 from 8.1% a year earlier. Against this background, and in view of the stabilization of the Romanian leu in recent months, Banca Națională a României has cut its key policy rate five times since February 2009 and by a total of 225 basis points to now 8%. According to its latest inflation report, the central bank expects inflation to decline to 4.3% by end-2009 and to decrease further to 2.6% by end-2010 (and thus to the lower end of its target range of 3.5% +/-1 percentage point).

External imbalances are shrinking

Against the backdrop of collapsing domestic demand, external imbalances declined markedly in the first half of 2009. However, the depreciation of the leu (which had lost almost 35% against the euro since mid-2007, but remained roughly stable during the review period) may as well have helped to improve external accounts. Supported by both exchange rate and productivity developments, unit labor costs in industry (measured in euro) have also developed favorably in recent quarters (-7.5% year on year in the second quarter of 2009, compared to +14.5% year on year in the euro area). Mainly due to a shrinking trade deficit, the current account deficit contracted by almost three quarters from January to July 2009 period-on-period. It is also noteworthy that net FDI inflows fully covered the current account gap in this period (while only having covered half of the deficit in 2008). International reserves stood at EUR 28.3 billion by end-September 2009, up 14% from end-April. Disbursements made under the IMF/EU financial support package and easing pressures on the exchange rate explain this development.

IMF/EU program so far on track, but increasing implementation risks

At the end of September 2009 the IMF completed the first review under Romania's stand-by arrangement (which is part of a multilateral financial support package totaling EUR 20 billion, including funds from the IMF, the EU, the World Bank and the EBRD). So far, implementation has been appropriate, which enabled the disbursement of the second tranche of the IMF loan (EUR 1.85 billion). Half of it went into foreign exchange reserves, the other half into financing the budget deficit. During the review period, the budget deficit target for 2009 was revised to 7.3% of GDP (from 4.6%) and the one for 2010 to 5.9% of GDP (from 3.6%), since the economic contraction turned out to be sharper than expected. As regards the further implementation of the IMF/EU support package, fiscal policy is the main concern, i.e. the achievement of the revised budget deficit target for 2009 and a budget plan for 2010 that is in line with the program. Further efforts in this area might be hampered by political developments (collapse of the ruling coalition, upcoming presidential elections). A particular bone of contention is the harmonization of wage schemes in the public sector.

Table 10

**Main Economic Indicators: Romania**

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	7.9	6.2	7.1	8.2	9.3	9.2	2.9	-6.2	-8.7
Private consumption	12.8	11.6	9.1	15.5	13.4	16.0	-4.5	-12.2	-14.9
Public consumption	-3.8	1.2	3.1	5.4	-0.8	4.2	3.9	3.0	1.0
Gross fixed capital formation	19.9	28.9	19.3	33.2	30.0	24.3	2.8	-0.3	-25.6
Exports of goods and services	9.8	7.8	18.9	25.8	30.7	21.1	-0.2	-20.8	-12.0
Imports of goods and services	22.7	27.8	17.1	35.1	28.8	19.5	-10.4	-33.3	-27.9
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	15.3	17.8	12.0	21.6	21.9	14.0	-2.6	-14.1	-24.1
Net exports of goods and services	-10.2	-16.6	-6.3	-19.6	-13.4	-7.7	7.7	27.0	25.1
Exports of goods and services	4.3	3.5	8.5	15.4	14.7	8.8	-0.1	-14.4	-6.8
Imports of goods and services	14.4	20.1	14.9	35.0	28.0	16.4	-7.8	-41.4	-31.9
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	11.3	9.4	4.9	8.8	10.3	6.7	-5.4	-4.2	2.8
Gross average wage of industry (nominal)	15.7	21.6	21.3	18.5	24.5	23.3	18.8	15.7	8.9
Unit labor costs in industry (nominal)	4.1	11.2	16.4	9.1	12.5	15.6	27.4	21.5	6.2
Producer price index (PPI) of industry	11.6	8.1	15.9	14.4	17.2	19.7	12.1	5.7	1.4
Consumer price index (here: HICP)	6.6	4.9	7.9	8.0	8.6	8.2	6.9	6.8	6.1
EUR per 1 RON, + = RON appreciation	2.8	5.6	-9.4	-8.4	-10.2	-9.5	-9.5	-13.6	-13.0
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15-64 years)	7.6	6.7	6.1	6.6	5.9	5.7	6.1	7.2	6.6
Employment rate (%, 15-64 years)	58.8	58.8	59.1	57.7	59.7	60.5	58.3	57.4	59.2
Key interest rate per annum (%)	8.5	7.5	9.7	8.6	9.7	10.2	10.3	10.1	9.7
RON per 1 EUR	3.5	3.3	3.7	3.7	3.7	3.6	3.8	4.3	4.2
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	28.1	33.7	17.5	34.8	38.9	31.1	17.5	15.4	11.7
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	-3.2	-8.7	-10.8	-9.8	-12.7	-12.9	-10.8	-7.4	-4.6
Domestic credit of the banking system	30.4	55.9	41.5	59.7	65.6	58.9	41.5	38.7	29.5
of which: claims on the private sector	37.7	51.2	33.7	58.6	59.8	51.5	33.7	25.0	12.2
claims on households	20.7	29.1	18.7	32.3	32.6	28.1	18.7	14.2	7.8
claims on enterprises	17.0	22.1	15.0	26.3	27.2	23.4	15.0	10.8	4.4
claims on the public sector (net)	-7.3	4.7	7.8	1.1	5.8	7.4	7.8	13.7	17.3
Other assets (net) of the banking system	0.9	-13.6	-13.3	-15.1	-14.0	-14.8	-13.3	-15.9	-13.2
<i>% of GDP, ESA 95</i>									
General government revenues	33.1	33.5	32.8	..	..	..	..	..	..
General government expenditures	35.3	36.0	38.4	..	..	..	..	..	..
General government balance	-2.2	-2.5	-5.5	..	..	..	..	..	..
Primary balance	-1.3	-1.8	-4.8	..	..	..	..	..	..
Gross public debt	12.4	12.6	13.6	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	15.3	14.8	13.9	16.0	23.7	19.6	-2.3	-19.2	-21.6
Merchandise imports	24.3	26.5	9.8	16.0	19.7	18.1	-10.8	-34.6	-38.3
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-12.0	-14.4	-13.4	-16.5	-15.6	-13.0	-10.3	-6.2	-5.9
Services balance	0.0	0.4	0.6	0.7	0.7	0.0	1.1	-0.4	0.2
Income balance (factor services balance)	-3.3	-3.4	-3.9	-5.0	-4.7	-3.6	-2.8	-2.9	-3.2
Current transfers	5.0	3.9	4.5	5.7	4.3	5.5	3.1	5.4	3.5
Current account balance	-10.3	-13.5	-12.1	-15.1	-15.4	-11.1	-8.9	-4.2	-5.5
Capital account balance	-0.0	0.7	0.4	0.6	0.5	0.1	0.6	0.0	0.1
Foreign direct investment (net)	8.9	5.7	6.7	7.7	10.1	5.6	4.5	8.6	3.6
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	42.1	47.3	53.7	48.2	51.2	52.6	53.7	53.2	58.4
Gross official reserves (excluding gold)	21.8	20.4	19.2	19.9	19.1	19.4	19.2	18.7	20.5
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	5.9	5.6	5.3	5.4	5.1	5.1	5.3	5.4	6.3
<i>EUR million, period total</i>									
GDP at current prices	97,931	123,660	136,661	24,705	31,509	38,673	41,774	22,614	26,197

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiw, OeNB.

## 9 Croatia: Financial Crisis Leads to Financing Strains in Early 2009

Economic downturn  
in full swing

After a gradual slowdown in growth over the course of 2008, the spillovers of the global crisis fully hit Croatia in the first half of 2009. Mostly due to a slump in domestic demand, GDP contracted by 6.5% year on year during this period. Private consumption fell by some 10% on the back of waning consumer confidence, tightening credit conditions, fiscal adjustments and deteriorating labor market conditions. Similarly, investment activity plummeted by 12.5% due to a downturn in construction activity, a slowdown in FDI inflows and corporations' more limited access to (foreign) funding. The reduction in inventories was also pronounced, so that overall domestic demand accounted for a strong negative contribution of 13 percentage points to GDP in the first half of 2009. In light of subdued external demand and lower (but better-than-expected) tourism revenues, exports in goods and services declined by 17% year on year in the first half of 2009, while imports plunged by a marked 23%. Thus, the contribution of net exports to GDP growth was strongly positive in the first six months of 2009.

Rapidly narrowing  
external imbalances,  
temporary financing  
strains  
in the first quarter  
of 2009

Against this backdrop, Croatia's external imbalances narrowed considerably in the first half of 2009, with the current account deficit reaching 6% of GDP on a rolling four-quarter basis (first half of 2008: 9.3%). At the same time, net FDI inflows to Croatia slowed markedly too, covering only a third of the deficit. Financing needs were especially high in the first quarter of 2009, when the limited access to foreign funds, portfolio investment outflows and more moderate FDI inflows were reflected in decreasing foreign exchange reserves. Against the background of gradually softening global liquidity conditions, financing pressures eased in the second quarter of 2009, and Croatia's foreign debt increased by EUR 1.5 billion, reaching EUR 40.8 billion or 87.6% of rolling four-quarter GDP (first half of 2008: 78% of GDP). At the same time, reserve accumulation resumed and by June 2009 foreign exchange reserves again reached their end-2008 levels.

HNB safeguards  
financial stability

In view of declining inflation, Hrvatska narodna banka's (HNB) main focus remained on safeguarding the exchange rate and ensuring financial stability. After downward pressures in the first quarter of 2009, the kuna strengthened in the second and third quarter of 2009 on the back of improving global investor sentiment and seasonal factors (tourism). More recently, the HNB even intervened on foreign exchange markets against the kuna to prevent a more marked appreciation.

Despite being highly capitalized, the banking sector has lost its strong momentum of previous years. In fact, credit growth decelerated sharply over the first half of 2009. In contrast to other countries, the slowdown was particularly pronounced in the retail and less so in the corporate segment. At the same time, lending to government picked up considerably (+74% year on year in June 2009).

Coping with fiscal  
challenges

The government adopted a set of anti-recession measures, including the revision of the 2009 budget. On the back of plummeting revenues, the budget was adjusted already three times this year, including expenditure cuts and revenue boosting measures, such as the introduction of a temporary "crisis tax" and the increase of the main VAT rate from 22% to 23%. Given the severity of the economic downturn, Croatia's deficit is nevertheless expected to reach 2.8% of GDP in 2009 (original target: 0.9%). In early 2009, the government took out a EUR 1 billion loan from domestic banks, and in May it issued a eurobond of EUR 750 million in order to finance its deficit and refinance maturing public debt. Another bond issue in the final quarter of 2009 is currently being considered.

Table 11

**Main Economic Indicators: Croatia**

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	4.7	5.5	2.4	4.3	3.4	1.6	0.2	-6.7	-6.3
Private consumption	3.5	6.2	0.8	4.2	2.3	0.4	-3.2	-9.9	-9.4
Public consumption	2.2	3.4	1.9	0.5	3.2	1.3	2.7	3.9	1.2
Gross fixed capital formation	10.9	6.5	8.2	9.8	12.6	6.6	3.5	-12.4	-12.7
Exports of goods and services	6.5	4.3	1.7	3.6	4.4	1.6	-2.5	-14.2	-19.8
Imports of goods and services	7.4	6.5	3.6	7.1	8.3	6.5	-7.1	-20.9	-24.7
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	5.8	7.1	3.5	6.9	6.2	3.9	-2.7	-13.1	-12.4
Net exports of goods and services	-1.2	-1.7	-1.3	-2.7	-3.1	-2.5	3.3	7.1	7.0
Exports of goods and services	2.9	2.0	0.8	1.3	1.9	1.0	-1.0	-4.9	-8.4
Imports of goods and services	4.1	3.7	2.1	4.0	4.9	3.5	-4.3	-12.0	-15.4
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	2.5	2.4	1.1	3.3	3.2	-0.2	-1.6	0.9	4.5
Gross average wage of industry (nominal)	7.5	5.5	7.2	7.6	7.2	7.1	6.9	0.4	0.4
Unit labor costs in industry (nominal)	4.6	3.1	6.0	4.1	3.8	7.5	8.8	0.0	-3.8
Producer price index (PPI) of industry	2.9	3.4	8.5	7.5	8.7	11.1	6.7	1.2	-0.6
Consumer price index (here: CPI)	3.2	2.9	6.1	5.9	6.6	7.4	4.5	3.8	2.9
EUR per 1 HRK, + = HRK appreciation	1.1	-0.2	1.6	1.1	1.3	1.8	2.1	-1.7	-1.4
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15-64 years)	11.5	9.8	8.6	10.2	8.1	7.1	9.0	9.7	9.1
Employment rate (%, 15-64 years)	55.7	57.2	57.8	56.0	57.6	59.7	57.8	56.5	56.5
Key interest rate per annum (%)	4.5	4.5	9.0	8.9	9.0	9.0	9.0	9.0	9.0
HRK per 1 EUR	7.3	7.3	7.2	7.3	7.3	7.2	7.2	7.4	7.4
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	18.0	18.3	4.3	14.4	11.1	14.7	4.3	3.3	1.1
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	2.8	12.0	-3.6	7.8	6.9	5.0	-3.6	-8.0	-7.1
Domestic credit of the banking system	20.6	14.1	13.2	11.8	9.7	9.0	13.2	15.7	11.2
of which: claims on the private sector	22.0	14.9	10.3	12.6	10.6	11.3	10.3	9.4	5.0
claims on households	11.1	9.4	6.3	8.9	8.0	6.1	6.3	4.6	1.7
claims on enterprises	11.0	5.5	4.0	3.7	2.7	5.2	4.0	4.8	3.3
claims on the public sector (net)	-1.4	-0.8	2.9	-0.8	-0.9	-2.3	2.9	6.3	6.2
Other assets (net) of the banking system	-5.4	-7.8	-5.4	-5.2	-5.5	0.8	-5.4	-4.4	-3.0
<i>% of GDP, ESA 95</i>									
General government revenues	24.4	25.3	24.5	..	..	..	..	..	..
General government expenditures	27.3	27.8	25.8	..	..	..	..	..	..
General government balance	-3.0	-2.5	1.4	..	..	..	..	..	..
Primary balance	-1.0	-0.7	0.1	..	..	..	..	..	..
Gross public debt	35.7	33.1	33.5	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	17.2	8.6	6.0	8.8	8.0	13.4	-5.2	-13.7	-23.9
Merchandise imports	14.0	10.8	10.7	14.0	15.9	15.9	-2.0	-23.9	-30.6
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-21.3	-22.0	-22.9	-23.7	-26.0	-21.0	-21.4	-16.5	-17.3
Services balance	14.6	14.6	14.7	1.0	15.0	35.3	4.1	1.2	11.8
Income balance (factor services balance)	-3.0	-2.6	-3.4	-2.8	-6.7	-2.0	-2.0	-4.0	-4.9
Current transfers	2.8	2.4	2.2	2.0	2.3	2.1	2.3	1.9	2.6
Current account balance	-6.9	-7.6	-9.4	-23.4	-15.4	14.3	-16.8	-17.3	-7.8
Capital account balance	-0.3	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1
Foreign direct investment (net)	6.5	8.1	6.8	10.1	7.2	2.3	8.3	3.9	3.8
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	74.9	75.7	82.6	79.5	78.3	77.9	82.6	83.4	87.6
Gross official reserves (excluding gold)	22.3	21.7	19.3	22.4	22.0	21.1	19.3	18.9	19.5
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	5.3	5.2	4.6	5.3	5.2	4.9	4.6	4.7	5.3
<i>EUR million, period total</i>									
GDP at current prices	39,098	42,831	47,372	10,853	11,974	13,012	11,533	10,506	11,510

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiiv, OeNB.

## 10 Turkey: Sizeable Output Contraction Dampened by Stimulus Measures

Private demand responds strongly to temporary tax cuts

In the first two quarters of 2009, GDP continued to decline considerably in annual terms. The trough was reached in the first quarter, however; seasonally and working-day adjusted GDP rose sharply in the second quarter of 2009 (+7.1% quarter on quarter). Consumer spending responded strongly to a stimulus package in the order of 2.9% of GDP (including measures taken until April 2009), which included temporary tax cuts (to expire in October and totaling 0.7% of GDP). Investment activity remained weak. Private sector machinery and equipment investment decreased further quarter on quarter due to continued low capacity utilization rates and uncertainties over prospective aggregate demand developments. Still, capacity utilization recovered from its record low in January (63.8%) up to 72.3% in July, but is expected to remain below potential for some time to come. Public consumption made a noticeably positive contribution to GDP dynamics in the first quarter, however, this was not sustained in the second quarter. With imports collapsing more than exports in the first quarter, net exports showed a strong positive contribution in this period and continued to support GDP dynamics, although their contribution was substantially lower in the second quarter.

Historically low inflation allowed continued monetary easing

Two-thirds of the stimulus measures (1.8 percentage points) directly affect the budget. Turkey's support package is relatively large compared to the CESEE region, but small within the OECD. The Turkish banking sector, which is characterized by a diversified asset structure and a comparatively small share of loans to the private sector, required only limited support during the financial crisis. Its profitability rose strongly in 2009 on the back of increased holdings of government treasuries, the flip side of which is manifested in soaring public sector net credit, which has predominantly been financed by issuing new treasury bonds directly to the domestic banking sector. This development has further compounded the downward trend in loan growth to the private sector, reaching a low of +4% year on year in June, compared to 30% year on year during 2008. The government expects Turkey's budget deficit to peak at 6.6% of GDP in 2009 and to decline thereafter, following the implementation of a more rule-based fiscal policy which aims at stabilizing the public debt-to-GDP ratio in 2010 and 2011.

On the basis of the expectation of a weak economy and therefore low inflation rates, the Turkish central bank continued its monetary easing cycle by further reducing the lending rate down to 7.25% or by 275 basis points in five consecutive steps between March and September 2009. The central bank has announced to maintain its accommodating policy stance composed of rate cuts and the provision of liquidity to the markets, which it would change in case of an unexpectedly strong recovery. The year-end inflation target of 7.5% is well within reach for 2009, inflation stood at 5.3% year on year in August.

IMF stand-by agreement still under negotiation

Talks on a new stand-by agreement are ongoing with the IMF, but a swift completion seems unlikely at the moment. The uncertainty concerning the IMF negotiations and global financial conditions have caused rather high volatility of the exchange rate around the level of TRY/EUR 2.1 during the review period. Between January and July 2009, the current account deficit narrowed by almost 80% period on period, owing mainly to an improvement in the trade balance, as imports fell more strongly than exports. Also, FDI inflows (net) declined substantially, partly due to reduced purchases of real estate by foreigners.

Table 12

**Main Economic Indicators: Turkey**

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	6.9	4.7	0.9	7.2	2.8	1.0	-6.5	-14.3	-7.0
Private consumption	4.6	4.6	0.8	6.6	1.9	-0.5	-4.5	-10.2	-1.2
Public consumption	8.4	6.5	1.9	5.5	-3.4	2.6	3.4	5.2	0.5
Gross fixed capital formation	13.3	5.4	-7.1	6.1	-2.9	-9.7	-19.4	-27.5	-24.6
Exports of goods and services	6.6	7.3	2.3	13.0	3.6	3.0	-8.5	-11.2	-10.1
Imports of goods and services	6.9	10.7	-3.8	13.9	1.6	-3.5	-23.7	-31.3	-20.5
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	7.1	5.9	-0.7	8.1	2.3	-0.7	-11.1	-20.3	-9.9
Net exports of goods and services	-0.4	-1.4	1.7	-1.1	0.4	1.7	5.4	7.0	3.8
Exports of goods and services	1.5	1.7	0.5	3.0	0.8	0.7	-2.1	-2.7	-2.4
Imports of goods and services	1.9	3.0	-1.1	4.1	0.5	-1.0	-7.4	-9.7	-6.2
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	6.2	2.7	-0.5	4.6	2.1	-0.5	-8.0	-14.6	-5.0
Gross average wage of industry (nominal)	11.5	9.6	..	11.1	10.1	11.1	..	..	..
Unit labor costs in industry (nominal)	5.1	6.6	..	6.2	7.8	11.6	..	..	..
Producer price index (PPI) of industry	9.7	6.0	13.0	6.7	15.6	16.2	13.3	7.8	-1.8
Consumer price index (here: HICP)	9.3	8.8	10.4	8.8	10.3	11.7	10.9	8.4	5.7
EUR per 1 TRY, + = TRY appreciation	-7.2	1.1	-6.3	2.2	-8.4	-2.9	-14.9	-16.3	-7.9
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15-64 years)	8.6	8.7	9.6	10.5	8.0	8.9	11.1	14.5	12.5
Employment rate (%, 15-64 years)	45.9	45.8	45.9	43.3	47.4	47.7	45.2	41.4	44.7
Key interest rate per annum (%)	15.6	17.2	16.0	15.4	15.6	16.7	16.4	12.6	9.6
TRY per 1 EUR	1.8	1.8	1.9	1.8	2.0	1.8	2.0	2.2	2.1
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	22.2	15.3	24.7	21.8	16.8	20.5	24.7	19.0	18.2
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	10.3	3.0	6.4	1.4	-0.6	-0.2	6.4	7.1	5.8
Domestic credit of the banking system	17.0	20.5	19.7	25.2	22.8	23.7	19.7	15.5	17.4
of which: claims on the private sector	20.0	18.2	15.3	21.8	23.6	23.0	15.3	8.1	5.1
claims on households	8.5	6.7	6.2	9.0	9.1	9.1	6.2	3.6	2.6
claims on enterprises	11.4	11.5	9.1	12.8	14.5	13.8	9.1	4.6	2.5
claims on the public sector (net)	-3.0	2.3	4.3	3.3	-0.8	0.7	4.3	7.3	12.3
Other assets (net) of the banking system	-5.1	-8.3	-1.4	-4.8	-5.4	-2.9	-1.4	-3.6	-5.0
<i>% of GDP, ESA 95</i>									
General government revenues	22.5	19.6	19.3	..	..	..	..	..	..
General government expenditures	21.4	20.6	21.5	..	..	..	..	..	..
General government balance	1.2	-1.0	-2.2	..	..	..	..	..	..
Primary balance	7.2	4.4	2.7	..	..	..	..	..	..
Gross public debt	46.1	39.4	39.5	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	17.8	12.9	13.8	23.3	13.3	24.6	-3.6	-14.5	-23.0
Merchandise imports	19.1	10.3	11.1	22.2	17.0	19.7	-11.6	-33.3	-32.6
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-7.8	-7.2	-7.1	-6.8	-8.8	-7.4	-5.2	-1.0	-4.6
Services balance	2.6	2.1	2.4	0.7	1.8	4.3	2.3	0.9	2.2
Income balance (factor services balance)	-1.3	-1.1	-1.1	-1.1	-1.3	-0.8	-1.2	-1.6	-1.5
Current transfers	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.3
Current account balance	-6.1	-5.8	-5.5	-6.9	-8.2	-3.6	-3.7	-1.4	-3.5
Capital account balance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign direct investment (net)	3.6	3.1	2.1	2.1	2.5	1.6	2.5	1.6	1.0
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	39.9	38.0	39.8	34.2	36.4	39.7	39.8	41.8	41.1
Gross official reserves (excluding gold)	11.1	10.5	10.2	9.9	9.6	10.6	10.2	10.6	10.1
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	4.8	4.6	4.3	4.3	4.1	4.4	4.3	4.6	4.6
<i>EUR million, period total</i>									
GDP at current prices	418,088	472,996	499,703	119,518	121,436	143,890	114,859	96,803	106,874

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiw, OeNB.

## 11 Russia: Deep Contraction, Turning Point Reached?

While GDP dropped sharply in the first half of 2009, there are some signs of an incipient turnaround

Russia will experience a major economic contraction in 2009. GDP dropped by 10.4% year on year in the first half of 2009, pushed by shrinking domestic demand – particularly by plummeting gross fixed capital formation (–18.9% between January and August) – and by an even stronger drawdown of inventories. However, measured on a quarter on quarter basis, GDP may have bottomed out in the spring and summer of 2009. After economic activity had fallen by around 9% in the first quarter of 2009 (quarter on quarter), it stabilized in the second quarter. Monthly estimated GDP has been on the rise since May. While enterprise profitability took a dive in late 2008 and early 2009, profits recovered in the spring of 2009. After spiking in February (9.5%), unemployment rates have fallen again (July: 8.3%). In contrast, credit to the private sector remains subdued and the share of nonperforming loans continues to expand (end-June: 7.6%).

... supported by a partial recovery of the oil price, a weakening of capital outflows and major fiscal stimulus

Economic stabilization has been supported by the partial recovery of the oil price and by the weakening of capital outflows from the private sector in recent months. The second quarter even saw modest net capital inflows. Cyclical support has also come from fiscal policy: While the original federal budget plan (passed in October 2008, oil price assumption USD 95 per barrel) had aimed at a surplus of 3.5% of GDP, the amended budget (April 2009, oil price: USD 41) provides for a deficit of 7.4% of GDP: Revenues are expected to shrink by 5.7% of GDP, expenditures to increase by 5.8% of GDP, compared to the budget execution in 2008. Between January and August 2009, the actual federal budget shortfall came to 4.7% of pro-rata GDP. The deficit has largely been financed by the Reserve Fund, which decreased from EUR 97.2 billion at end-2008 to EUR 59.8 billion eight months later. At end-August 2009, the National Wealth Fund still stood at a near-record level of EUR 63.2 billion.

Fragile financial stabilization

Owing to oil price developments and the global recession, Russia's combined current and capital account surplus declined to 3.2% of GDP in the first half of 2009 (first half of 2008: 8.1% of GDP). While Russia's gross external debt came to EUR 339.6 billion in mid-2009, and thus had hardly changed in absolute terms since end-2008, its ratio to total GDP rose by about 3 percentage points to 33.5%, given the country's deep slump and the depreciation of the ruble. The partial recovery of the oil price in recent months contributed to a fragile stabilization of the country's foreign exchange reserves, which came to EUR 281 billion at end-September 2009. The ruble's nominal effective exchange rate stabilized at its depreciated level in February (–18% against August 2008) and has in fact slightly appreciated since; however, its real effective exchange rate is strengthening and approaching its pre-crisis level.

Accommodative monetary policy

This is because of persisting, if slightly weakening, double-digit inflation (11.6% in August 2009 year on year), which has partly been the outcome of the ruble's slide itself, partly driven by accommodative fiscal and monetary policies. Given the petering out of devaluation effects, decelerating wage growth in industry, and the sizable output gap, the Russian central bank expects inflation to further level off. Therefore, and to support the economic recovery and overcome the credit crunch, the monetary authority has cut the refinancing rate in several steps by a total of 2.5 percentage points since April. As at early October, this key rate stood at 10.0%.

Table 13

**Main Economic Indicators: Russia**

	2006	2007	2008	Q1 08	Q2 08	Q3 08	Q4 08	Q1 09	Q2 09
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	7.7	8.1	5.7	8.7	7.5	6.0	1.2	-9.8	-10.9
Private consumption	11.2	13.6	11.2	12.0	13.3	12.1	7.9	-3.2	-7.0
Public consumption	2.4	3.4	2.4	2.6	2.3	2.5	2.4	1.3	2.0
Gross fixed capital formation	18.1	21.1	9.9	23.5	17.4	12.1	-2.0	-16.3	-21.7
Exports of goods and services	7.3	6.4	0.1	9.8	0.3	2.0	-8.7	-14.5	-8.9
Imports of goods and services	21.4	26.5	14.5	20.9	19.4	21.5	0.9	-34.3	-37.9
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	10.5	13.1	10.0	10.8	13.6	11.5	4.5	-13.5	-20.2
Net exports of goods and services	-5.1	-9.1	-7.8	-5.6	-10.1	-9.9	-5.4	11.9	18.2
Exports of goods and services	3.7	3.2	0.1	4.9	0.1	0.9	-4.8	-7.4	-4.1
Imports of goods and services	8.8	12.3	7.9	10.6	10.3	10.8	0.6	-19.3	-22.3
<i>Year-on-year change of the period average in %</i>									
Labor productivity of industry (real)	10.1	4.6	3.1	5.9	5.5	5.4	-3.7	-7.0	-6.7
Gross average wage of industry (nominal)	21.4	26.0	24.0	28.1	28.1	26.6	15.1	5.4	2.2
Unit labor costs in industry (nominal)	10.2	20.4	20.6	20.9	21.4	20.2	19.9	13.6	9.5
Producer price index (PPI) of industry	12.5	14.0	21.8	25.7	26.4	30.2	4.9	-8.3	-10.1
Consumer price index (here: CPI)	9.8	9.1	14.1	12.8	14.8	14.9	13.8	13.9	12.6
EUR per 1 RUB, + = RUB appreciation	3.4	-2.6	-3.9	-5.1	-5.6	-4.0	-0.9	-18.2	-15.7
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15-64 years)	7.2	6.2	6.4	6.8	5.6	5.9	7.1	9.1	8.6
Employment rate (%, 15-64 years)	..	..	..	..	..	..	..	..	..
Key interest rate per annum (%)	11.6	10.3	10.9	10.2	10.5	11.0	11.9	13.0	12.2
RUB per 1 EUR	34.1	35.0	36.4	36.3	36.9	36.5	36.0	44.4	43.8
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	40.6	44.2	14.6	36.9	32.4	26.5	14.6	9.3	7.1
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	27.9	30.0	15.7	24.0	21.3	25.5	15.7	15.7	11.1
Domestic credit of the banking system	18.5	24.9	15.8	24.2	20.2	14.5	15.8	12.5	14.5
of which: claims on the private sector	40.3	42.6	33.5	43.1	40.8	39.1	33.5	28.8	16.3
claims on households	12.2	11.6	7.6	11.5	11.3	11.5	7.6	4.7	0.5
claims on enterprises	28.0	31.0	26.0	31.7	29.5	27.6	26.0	24.1	15.8
claims on the public sector (net)	-21.7	-17.7	-17.7	-18.9	-20.6	-24.5	-17.7	-16.2	-1.8
Other assets (net) of the banking system	-5.9	-10.7	-16.9	-11.3	-9.1	-13.5	-16.9	-18.9	-18.6
<i>% of GDP, ESA 95</i>									
General government revenues	39.5	40.4	38.4	..	..	..	..	..	..
General government expenditures	31.1	34.4	33.6	..	..	..	..	..	..
General government balance	8.4	6.0	4.8	..	..	..	..	..	..
Primary balance	..	..	..	..	..	..	..	..	..
Gross public debt	8.6	7.2	5.7	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	22.6	6.7	24.2	34.4	30.5	39.5	-1.6	-40.1	-38.2
Merchandise imports	28.5	24.6	22.7	23.2	23.4	29.7	15.7	-26.8	-33.3
<i>% of GDP (based on EUR), period total</i>									
Trade balance	14.1	10.1	10.6	13.6	11.9	11.2	6.2	7.7	8.4
Services balance	-1.4	-1.5	-1.5	-1.3	-1.5	-1.8	-1.4	-1.6	-1.5
Income balance (factor services balance)	-3.0	-2.4	-2.9	-1.8	-4.3	-3.0	-2.4	-2.1	-4.2
Current transfers	-0.2	-0.3	-0.2	-0.2	-0.0	-0.2	-0.3	-0.2	-0.0
Current account balance	9.6	5.9	6.0	10.4	6.1	6.2	2.1	3.8	2.6
Capital account balance	0.0	-0.8	0.0	-0.0	0.1	0.0	0.0	0.1	0.1
Foreign direct investment (net)	0.7	0.7	1.2	1.4	1.5	1.1	0.8	-1.6	-0.5
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	30.2	33.9	30.2	30.9	32.5	34.5	30.2	30.8	32.8
Gross official reserves (excluding gold)	28.5	33.6	25.9	31.8	33.7	34.1	25.9	25.4	27.3
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	16.2	18.5	14.2	17.7	18.7	18.9	14.2	13.8	15.1
<i>EUR million, period total</i>									
GDP at current prices	788,447	944,159	1,143,675	244,751	276,185	319,041	303,698	191,007	212,969

Source: Bloomberg, European Commission, Eurostat, national statistical offices, national central banks, wiw, OeNB.

Studies

# The Shock-Absorbing Capacity of the Flexible Exchange Rate in Poland

Agnieszka  
Stążka-Gawrysiak<sup>1</sup>

*In recent years, numerous studies have analyzed the sources of exchange rate fluctuations in the context of the shock-absorbing capacity of flexible exchange rates. This paper analyzes, within a Structural Vector Autoregressive (SVAR) framework, the role of the flexible exchange rate in Poland over the past decade. Our contribution to the existing literature is twofold: First, we expand the prevailing SVAR models to include a financial market shock, defined as a stochastic change in a country's risk premium. This appears to be highly relevant in the face of the ongoing global financial crisis. Second, we analyze to what extent the crisis has affected the stabilizing capacity of the złoty/euro exchange rate. We find that the exchange rate has been a shock-absorbing rather than a shock-propagating instrument. We also demonstrate that – in line with our expectations – the contribution of financial market disturbances to exchange rate volatility has increased during the current global crisis.*

*JEL classification: F31, C32, F33*

*Keywords: flexible exchange rate, euro area enlargement, financial crisis, SVAR*

## 1 Introduction

Since the highly influential paper of Meese and Rogoff (1983), who pointed out that the behavior of nominal exchange rates (NERs) can be described by a simple random walk, a lot of ink has been spilled over the sources of NER fluctuations in the context of the exchange rate regime choice. The empirically observed large NER volatility under floating led many to perceive the flexible NER as a source of shocks (Buitier, 2000; Buitier and Grafe, 2002; Mundell, 2003). In contrast, analyses drawing on the theory of optimum currency areas, which was initiated by the works of Mundell (1961) and McKinnon (1963), are based on the notion that the (irrevocable) fixing of the NER represents a cost to the economy in terms of macroeconomic stability because, due to nominal rigidities, the real exchange rate (RER) reacts to asymmetric shocks more slowly than under floating.

The consensus view seems to be that the flexible NER can act as a shock-absorbing instrument in the case of some shock types and as a shock-propagating instrument in the case of other shock types. Specifically, the NER is thought of as a stabilizing instrument if its fluctuations are mainly driven by real, especially demand, shocks and as a destabilizing one if they are largely driven by nominal disturbances (see section 2). Using this implicit assumption, many authors have studied the sources of NER and RER fluctuations within the Structural Vector Autoregressive (SVAR) model with long-run identifying restrictions à la Blanchard and Quah (1989). The first such paper was by Lastrapes (1992); other authors, most notably Clarida and Galí (1994), have modified his model to include additional variables and shock types. The results of this strain of literature are briefly reviewed in section 2.

This paper contributes to the empirical literature analyzing the sources of NER and RER fluctuations. The focus is on Poland roughly over the recent decade. As a (relatively) new Member State of the European Union (EU), Poland is obliged

<sup>1</sup> Narodowy Bank Polski, Economic Institute, and Warsaw School of Economics, Chair of Economics II, [agnieszka.stazka@nbp.pl](mailto:agnieszka.stazka@nbp.pl). This paper draws heavily on my doctoral dissertation (Stążka, 2008a), which received the Olga Radzyner Award of the Oesterreichische Nationalbank in 2008. Any views expressed here are my own and do not necessarily reflect the official views of Narodowy Bank Polski.

to adopt the euro as soon as it has met the nominal convergence criteria stipulated in the Treaty of Maastricht. At the moment of writing, the exchange rate of the Polish zloty is freely floating, as has been the case since 2000, with no central bank intervention in the foreign exchange market. The question arises, then, to what extent one should expect increased macroeconomic instability in Poland after the future euro adoption. In other words, to what extent can the flexible NER currently be regarded as a stabilizing instrument whose loss should be booked on the cost side when analyzing the costs and benefits of the euro adoption? It is important to note that by “increased macroeconomic instability” we understand increased volatility of real output (or another measure of activity), and not of prices or other nominal variables.

In line with the above-mentioned view, we assume that the floating<sup>2</sup> NER can be regarded as stabilizing if its stochastic changes are largely driven by asymmetric real demand shocks, and as destabilizing if it fluctuates mainly in response to asymmetric nominal disturbances. Theoretical arguments supporting this view will be discussed in section 2 below. The goal of our empirical analysis is to determine, first, to what extent the zloty/euro NER has acted as a shock absorber over the past decade or so and, second, whether the ongoing global financial crisis has affected its stabilizing capacity. We seek to answer these questions based on SVAR analysis, using the long-run identifying scheme originally proposed by Blanchard and Quah (1989).

Our contribution to the existing literature is twofold: First, we expand the prevailing SVAR models to include a financial market shock, defined as a stochastic change in the risk premium of a country. This appears highly relevant in the face of the current global financial crisis, as one of its pronounced effects has been increased risk aversion and the associated rise in risk premiums in the international financial markets, which led to significant depreciation of many currencies. Second, we analyze to what extent the global crisis has affected the shock-absorbing or shock-propagating role of the floating exchange rate in Poland.

The remainder of this paper is organized as follows: The next section briefly reviews the relevant theoretical arguments and empirical studies, focusing on the shock-absorbing capacity of flexible exchange rates. Section 3 presents the empirical methodology, and section 4 describes the data that we use. Section 5 discusses the empirical results, and section 6 concludes.

## 2 The Shock-Absorbing Capacity of Flexible Exchange Rates: Literature Review

One of the key arguments of early proponents of flexible exchange rates – such as Friedman (1953) – was that under floating, economies can adjust to asymmetric shocks better than when the NER is pegged. As already mentioned, this argument rests on the assumption of nominal rigidities, most notably downward rigidity of prices and nominal wages. Given this assumption, when an adverse shock occurs such that a decline of an economy’s terms of trade becomes necessary to restore equilibrium, under a fixed exchange rate regime the adjustment process is more lengthy and costly in terms of welfare (because it is associated with persisting

<sup>2</sup> Throughout this paper, we will use the terms “flexible” and “floating” interchangeably, and the same applies to the terms “fixed” and “pegged.”

negative output gap and increased unemployment). When the NER is allowed to float, in contrast, the terms of trade may fall via NER depreciation without the need for nominal prices to fall. In other words, the NER flexibility can make up for the lack of downward flexibility of prices and wages (Meade, 1951). This was also the point of departure of the optimum currency area theory: Mundell (1961) argued that any two economies only need separate currencies with a flexible NER when they are prone to asymmetric shocks.

In his seminal paper on optimum currency areas, Mundell only regarded one shock type, namely “a shift of demand from the goods of entity B to the goods of entity A” (Mundell, 1961, p. 658). In fact, the shock-absorbing capacity of the NER crucially depends on the type of shock, an economy’s size (especially in the case of shocks emanating from the rest of the world), and possibly some other features of the economy that are included in the economic model at hand. With regard to shock types, obviously the flexible NER can help absorb country-specific shocks, i.e. disturbances affecting entire economies (rather than smaller units such as sectors) only in an asymmetric or idiosyncratic way relative to other economies (because a change in the bilateral NER affects a given pair of economies in an asymmetric way, so that it cannot be regarded as an adjustment tool in the case of symmetric shocks).

Country-specific shocks, in turn, can further be divided into several subtypes, such as temporary (transitory) versus permanent, nominal versus real, foreign (imported) versus domestic, purely exogenous versus policy-induced disturbances (Buti and Sapir, 1998). In our previous analyses (Stażka, 2008a, 2008b), we showed that for the question of the shock-absorbing capacity of floating exchange rates, the most relevant breakdown is that into nominal or monetary (LM; liquidity preference and money supply equilibrium) and real shocks, with the latter including real supply (AS; aggregate supply) and real demand (IS; investment and saving equilibrium) disturbances. The shock-absorbing capacity of flexible versus fixed exchange rates can be analyzed within basic models of exchange rate determination, such as the overshooting model of Dornbusch (1976). In the following discussion, we will focus on this model and the case of a small open economy, such as Poland. It is worth stressing that similar conclusions – with some caveats addressed below – can be reached based on several other models, including that of Clarida and Galí (1994), who originally proposed one of the SVAR models that we will employ in our empirical analysis.

A country-specific adverse real demand (IS) shock, by lowering the demand for goods in the given economy, in the short term also lowers the level of real output or income. This, in turn, leads to a decline in the demand for real money balances and, consequently, a decrease of the domestic interest rate. Under floating, the incipient capital outflow results in nominal and, in the short term (because of price stickiness), also real exchange rate depreciation. The weaker RER supports domestic demand and reverses – partially or fully – the initial drop in output. In contrast, in a credibly fixed exchange rate regime, such as a monetary union, the interest rate cannot deviate from the world level at any time, so the drop in demand for real money balances caused by the adverse IS shock leads to incipient liquidity outflows to the rest of the world. The failure of the NER to adjust, along with nominal price stickiness, means that equilibrium in the goods market can only be reached after a period of a negative output gap, as discussed

above. Thus, a flexible NER reduces output volatility when asymmetric real demand shocks occur, acting as a shock-absorbing instrument.

In turn, an idiosyncratic adverse monetary shock, by reducing the domestic real money balances, pushes up the domestic interest rate, which depresses domestic demand and thus output. The drop in output, via a decline in the demand for real money balances, leads to a certain decrease of the rate of interest, but this effect can hardly dominate the initial interest rate increase (Dornbusch, 1976; Stażka, 2008b). Under floating exchange rates, the increase in the interest rate attracts capital inflows, leading to NER and RER appreciation; the latter effect again depresses domestic demand, driving the system further away from equilibrium. Under pegged NER, in contrast, the initial drop in the domestic real money balances cannot affect the level of the domestic interest rate. Instead, the incipient inflow of liquidity from the rest of the world ensures that the shock is immediately absorbed. In the case of asymmetric LM shocks, a flexible NER thus acts as a shock-propagating mechanism and a pegged NER insulates small open economies from such shocks.

In the case of asymmetric supply shocks, the conclusions are not clear cut – they depend on whether or not agents are characterized by exchange rate illusion<sup>3</sup> (see the discussion in Stażka, 2008a). Finally, our empirical analysis in section 5 will also include a fourth shock type whose identification seems important from the viewpoint of our research question, especially in the face of the current global financial crisis, namely a financial market shock. We define it as a shock that originates in the financial markets and affects the NER by changing the country risk premium. Obviously, when a given bilateral NER is credibly fixed, this type of disturbances cannot affect it; indeed, in a simple model of exchange rate determination, it has no impact on the economy as a whole. Under floating, the incidence of such shocks makes the NER a source of unnecessary volatility.

As already mentioned, there are certain caveats to think about. As stressed by some authors, especially in the strand of new open economy macroeconomics, in several instances the NER can fail to affect the terms of trade and have the expenditure-switching effects attributed to it by most models. This could result from weak passthrough of the NER into import prices, caused by factors originating at the micro- or macroeconomic level, such as monopolistic competition and pricing-to-market or local currency pricing strategies of firms (Bailliu and Bouakez, 2004), or increased credibility of domestic monetary policy (Gagnon and Ihrig, 2004). Further potential reasons for weak responsiveness of the RER to NER fluctuations include (1) significant real wage rigidity (Sachs, 1980), (2) the lack of exchange rate illusion (see the discussion in Mundell, 1961; or McKinnon, 1963), and (3) the flexibility of nominal wages and prices, as assumed by the monetary approach to the exchange rate determination.

<sup>3</sup> *An adverse AS shock results in an increased price level, leading to a decline of real money balances. Under floating, the domestic interest rate rises, attracting capital inflows and resulting in appreciation of both the NER and the RER. The absorption of the shock thus involves a combination of rising prices and NER appreciation. In a monetary union, the NER cannot change, so the RER appreciation necessary to bring about long-term equilibrium has to be reached via a rise in the price level. With no exchange rate illusion, agents should perceive the adjustment process as equally costly under both exchange rate arrangements. However, if in their view changes of the RER which are due to price movements have a stronger impact on welfare than the same changes to NER movements, then agents should view the flexible NER as an instrument which facilitates the absorption of asymmetric AS shocks.*

Because the (de)stabilizing role of the flexible NER largely depends on the type of shocks which hit an economy, whether or not a given NER is a shock-absorbing or shock-propagating instrument thus boils down to an empirical question. As mentioned in section 1, the first empirical analysis of the sources of NER and RER fluctuations using a SVAR analysis is due to Lastrapes (1992). His model used two variables, the NER and the RER, and two shock types, nominal and real, the former being defined as the one which has no long-run impact on the RER. The analysis, which covered six industrial countries, showed that the fluctuations of both variables are mainly driven by real shocks. This led the author to conclude that the NER and the RER react to changes in fundamentals, so the NER is helpful with regard to shock absorption.

Many authors have followed in the footsteps of Lastrapes. Enders and Lee (1997) confirmed his results for the same set of countries and a longer sample period. Several others also found that real shocks are the main driving force of NER and RER fluctuations e.g. in Greece (Apergis and Karfakis, 1996), Japan, Taiwan and South Korea (Chen and Wu, 1997), or a group of emerging economies from Latin America and East Asia (Chowdhury, 2004). Clarida and Galí (1994) expanded the model of Lastrapes to include two real shock types instead of one. Moreover, they used the price level instead of the NER and added real output as the third variable. They found that stochastic RER volatility is mainly the result of LM shocks in Germany and in Japan and of demand (AD; aggregate demand) shocks in Canada and the United Kingdom. The results for Japan were later confirmed by Chadha and Prasad (1997) and those for the U.K. by Astley and Garratt (2000).

With regard to the EU Member States that joined from 2004, the results of SVAR models with long-run identifying restrictions have not been clear cut. The earliest such study by Dibooglu and Kutan (2001), covering the time period from 1990 to 1999, used a bivariate model with the RER and the price level and showed that the main source of RER fluctuations in Hungary were real shocks and in Poland nominal shocks. Borghijs and Kuijs (2004) employed a three-dimensional model with real output, the RER and the NER, and samples starting between 1993 and 1998 and ending in 2003. They demonstrated that the RER movements in the Czech Republic and Hungary were mainly due to (nominal) LM shocks, in Slovakia mainly due to (real) IS shocks, and in Slovenia the contribution of both shock types was similar. Interestingly, in the case of Poland the analysis pointed to the dominant role of LM shocks for the full sample (1995 to 2003), but when the first three years were excluded from the sample, the contribution of real (IS and AS) disturbances rose significantly. Further, based on Lastrapes' bivariate specification, Kontolemis and Ross (2005) found that in most of these EU Member States, the RER against the euro was driven by real shocks and the NER by nominal shocks. When using the same three-dimensional specification as Borghijs and Kuijs (2004) but samples starting slightly earlier, they showed that in all countries except Estonia, the RER was mainly driven by IS shocks. Rodríguez and Torres (2007) confirmed the important role of real disturbances for the RER movements in the Czech Republic and Hungary (IS shocks) and Poland (AS shocks) between 1993 and 2004.

At first glance, it appears that earlier studies pointed to a dominant role of nominal shocks in stochastic exchange rate fluctuations, whereas more recent

studies seem to suggest that RER movements in the Member States that joined from 2004 are to a large extent driven by real shocks. However, it is worth stressing that results of SVAR analyses are rather specification sensitive – the above-discussed differential results obtained for the Czech Republic and for Hungary by Borghijs and Kuijs (2004) and by Kontolemis and Ross (2005)<sup>4</sup> are just one example. In any case, the high specification sensitivity is a reason for cautious interpretation of any results derived with the help of SVAR models, especially when formulating policy recommendations.

### 3 A Structural VAR Approach to Study the Sources of Exchange Rate Fluctuations

In the following, we will present the approach which we are using to study the sources of exchange rate fluctuations in Poland. The empirical analysis whose results will be discussed in the next section is based on four differently specified structural VAR models employing the long-run identification scheme originally proposed by Blanchard and Quah (1989).

Let the vector of endogenous variables be specified as

$$X_t = [\Delta y_t, \Delta q_t, \Delta p_t]',$$

where  $y_t$  is the real output or income,  $p_t$  the price level,  $q_t \equiv s_t + p^* - p_t$  the RER ( $s_t$  is the NER in price notation and  $p^*$  the price level abroad);  $\Delta$  denotes the difference operator. All lowercase variables are in logs and are assumed to be integrated of order 1, I(1). Presume that the endogenous variables' vector  $X_t$  is driven by the following vector moving average (VMA) process:

$$X_t = \sum_{i=0}^{\infty} A_i L^i \varepsilon_t = A(L) \varepsilon_t, \quad (1)$$

where  $A_i$  are parameter matrices,  $L$  is the lag operator,  $A(L)$  a lag polynomial, and  $\varepsilon_t = [\varepsilon_{1,t}, \varepsilon_{2,t}, \varepsilon_{3,t}]'$  is a vector of identically normally distributed, mutually orthogonal and serially uncorrelated white noise disturbances (*structural or primitive shocks*)<sup>5</sup>:

$$E(\varepsilon_t) = 0, \quad E(\varepsilon_t \varepsilon_t') = \Sigma_\varepsilon = I, \quad E(\varepsilon_s \varepsilon_t') = [0] \quad \forall s \neq t. \quad (2)$$

It is thus assumed that the endogenous variables are driven by past and present realizations of the structural shocks. To recover these shocks from the data, one has to estimate and invert the following VAR representation of the process:

$$X_t = \sum_{i=1}^p B_i L^i X_t + e_t = B(L) X_t + e_t, \quad (3)$$

<sup>4</sup> The differential results of Borghijs and Kuijs (2004) and Kontolemis and Ross (2005) may be due to the choice of time series. In both studies, the price and output variables are specified in relative terms against the euro area as a reference economy. The key difference (apart from slightly different time periods covered) is that the former study uses aggregated data for the euro area whereas the latter uses trade-weighted averages of data for the individual Member States.

<sup>5</sup> The assumption that each of the disturbances has a unit variance is a convenient normalization. Equation 1 can also include exogenous components, such as a constant, a deterministic time trend, seasonal or other dummies as well as other strictly exogenous variables, but they are suppressed here for brevity.

$$X_t = (I - B(L))^{-1} e_t = (I + B(L) + B(L)^2 + \dots) e_t = \sum_{i=0}^{\infty} C_i L^i e_t = C(L) e_t, \quad (4)$$

where  $B_i$ ,  $C_k$  are parameter matrices,  $B(L)$ ,  $C(L)$  are invertible lag polynomials, and  $e_t = [e_{1t} \ e_{2t} \ e_{3t}]'$  is a vector of normally distributed, serially uncorrelated disturbances that can be correlated with each other:

$$E(e_t) = 0, \quad E(e_t e_s') = \Sigma_e, \quad E(e_s e_t') = [0] \quad \forall s \neq t. \quad (5)$$

Comparing equations 1 and 4 above reveals that

$$e_t = A_0 \varepsilon_t, \quad (6)$$

and therefore

$$\Sigma_e = A_0 \Sigma_{\varepsilon} A_0^{-1} = A_0 A_0^{-1}. \quad (7)$$

In order to recover the past structural shocks,  $\varepsilon_t$ , based on VAR residuals,  $\hat{e}_t$ , one needs to impose three identifying restrictions on the estimated VAR system. We presume that the three structural shock types are real aggregate supply (AS), real aggregate demand (IS) and nominal or monetary (LM) disturbances, denoted respectively  $\varepsilon_t^{AS} \equiv \varepsilon_{1t}$ ,  $\varepsilon_t^{IS} \equiv \varepsilon_{2t}$ , and  $\varepsilon_t^{LM} \equiv \varepsilon_{3t}$ . We further assume that the shocks can be identified through their long-term impact on the system variables: IS shocks do not affect the real income level in the long run, whereas LM shocks have no long-run impact on either the real income or the RER, i.e.

$$\sum_{i=0}^{\infty} \frac{\partial(\Delta y_t)}{\partial(L^i \varepsilon_t^{IS})} = 0 \quad \text{and} \quad \sum_{i=0}^{\infty} \frac{\partial(\Delta y_t)}{\partial(L^i \varepsilon_t^{LM})} = 0 \quad \text{and} \quad \sum_{i=0}^{\infty} \frac{\partial(\Delta q_t)}{\partial(L^i \varepsilon_t^{LM})} = 0. \quad (8)$$

These restrictions are general enough to incorporate a number of economic models of exchange rate determination, including the model of Dornbusch (1976) (see the analysis in Stażka, 2008a, 2008 b).

The above-described SVAR specification is the one proposed by Clarida and Galí (1994). Apart from that, in the empirical analysis we will also estimate three other specifications. A first modification of the baseline model involves replacing one endogenous variable, the price level, with another one, the NER. This has the obvious advantage of making possible the analysis of the stochastic behavior of the NER, in particular of the sources of its variability. A second modification consists in expanding the three-dimensional models to include a financial market shock (see section 2) and, consequently, an additional endogenous variable – one which is affected by financial market (FM) shocks (as well as the other shock types) in the long run, e.g. a financial market index. With four endogenous variables, one needs a set of six identifying restrictions, three of which are the same as in the three-variable case. The remaining three are given by our assumption that FM shocks have no permanent impact on any of the variables  $y_t$ ,  $q_t$ ,  $p_t$  or  $s_t$ :

$$\sum_{i=0}^{\infty} \frac{\partial(\Delta y_t)}{\partial(L^i \varepsilon_t^{FM})} = 0 \quad \text{and} \quad \sum_{i=0}^{\infty} \frac{\partial(\Delta q_t)}{\partial(L^i \varepsilon_t^{FM})} = 0 \quad \text{and} \quad \left( \sum_{i=0}^{\infty} \frac{\partial(\Delta p_t)}{\partial(L^i \varepsilon_t^{FM})} = 0 \quad \text{or} \quad \sum_{i=0}^{\infty} \frac{\partial(\Delta s_t)}{\partial(L^i \varepsilon_t^{FM})} = 0 \right) \quad (9)$$

where the two restrictions in brackets are used depending on which variable, the price level or the NER, is used in a given SVAR model. All in all, we will use the following vectors of variables and shocks ( $f_t$  is a financial market index):

1. specification A, with  $X_t = [\Delta y_t \ \Delta q_t \ \Delta p_t]'$  and  $\varepsilon_t = [\varepsilon_t^{AS} \ \varepsilon_t^{IS} \ \varepsilon_t^{LM}]'$ ,
2. specification B, with  $X_t = [\Delta y_t \ \Delta q_t \ \Delta s_t]'$  and  $\varepsilon_t = [\varepsilon_t^{AS} \ \varepsilon_t^{IS} \ \varepsilon_t^{LM}]'$ ,
3. specification C, with  $X_t = [\Delta y_t \ \Delta q_t \ \Delta p_t \ \Delta f_t]'$  and  $\varepsilon_t = [\varepsilon_t^{AS} \ \varepsilon_t^{IS} \ \varepsilon_t^{LM} \ \varepsilon_t^{FM}]'$ ,
4. specification D, with  $X_t = [\Delta y_t \ \Delta q_t \ \Delta s_t \ \Delta f_t]'$  and  $\varepsilon_t = [\varepsilon_t^{AS} \ \varepsilon_t^{IS} \ \varepsilon_t^{LM} \ \varepsilon_t^{FM}]'$ .

In the empirical part of the paper, we will estimate the four differently specified VAR models for both Poland and the euro area, identify the structural shock series, determine which types of shocks were the main driving force behind the stochastic fluctuations of the NER and the RER in Poland vis-à-vis the euro area, and analyze the demand shock correlation between the two economies.

#### 4 Data Description

Ideally, the time series to be used as proxies for the variables  $y_t$ ,  $p_t$  and  $q_t$  should capture the entire output of the given economy as well as the nominal and real (relative to the rest of the world) price level of that output, i.e. the gross domestic product, the GDP deflator and the RER based on GDP deflators at home and abroad. When deciding upon the specific time series to be used in the empirical analysis, however, we are restricted by the availability of data, the assumption that all time series should be I(1) and – for the purpose of shock correlation analysis – the requirement of their comparability between Poland and the euro area.

The major difficulty with empirical analyses of former centrally planned economies, such as Poland, is the fact that usable time series are rather short, beginning around the mid-1990s at the earliest. GDP series for Poland are not long enough to be employed in a VAR model. Thus, we must resort to monthly data: industrial production and retail sales as possible output proxies, and the producer price index (PPI) as well as the Harmonised Index of Consumer Prices (HICP), and for Poland also the consumer price index (CPI) as candidates for the price variable.

Regarding the NER and the RER, as our focus is on asymmetric shocks in Poland relative to the euro area, the relevant exchange rate is that of the Polish zloty against the euro, not the effective exchange rate. A potential problem is the fact that the zloty NER has only been freely floating since April 2000 or de facto since July 1998, when Narodowy Bank Polski ceased to intervene in the foreign exchange market. On the other hand, however, prior to floating, the zloty was allowed to fluctuate within a relatively wide band and its central rate was set against a basket of currencies, so its exchange rate *against the euro* was determined to a large extent by market forces since roughly 1995.<sup>6</sup> The NER is calculated as monthly averages of the daily reference rates of the European Central Bank (ECB), and the RER is computed as the NER deflated with the relevant price indexes for Poland and the euro area. Finally, we choose WIG20 for Poland and DAX30 for the euro area as financial market indicators, again as monthly averages of the daily observations.

<sup>6</sup> Another problem would arise if our sample covered the time period prior to the launch of the euro in 1999. In that case we would have to construct proxies for the zloty/euro exchange rate.

With regard to the I (1) assumption, we ran augmented Dickey-Fuller and Phillips-Perron tests on all time series.<sup>7</sup> The results of both test types were qualitatively the same; they are not reported here to save space, but are available on request from the author, along with all other results. We could not decisively reject the hypothesis of the HICP for the euro area being integrated of order 2;<sup>8</sup> all other time series seemed to have the right order of integration. For comparability reasons, we could not use the HICP or the CPI for Poland, which left us with only one proxy for the price level, the PPI, and two proxies for output. Because the PPI and retail sales can hardly be regarded as corresponding measures of output and the price level, we finally decided to use the industrial production but not retail sales.<sup>9</sup>

Finally, the fact that the PPI series starts in January 2000 determined the beginning of our sample. The above-mentioned issues of computing the euro exchange rate prior to 1999 and of the exchange rate regime change in Poland in July 1998 thus became irrelevant, and the sample covers a period without very significant regime shifts (perhaps apart from Poland's accession to the EU in May 2004). The sample ends in May 2009, which leaves us with 113 observations. All time series were recalculated as indexes with a base in January 2000, and they enter the VAR models as first differences of logarithms of the respective indexes. The details of the time series employed are given in table A1 in the annex.

## 5 Empirical Results

### 5.1 VAR Model Selection and Identification of Shocks

In specifying the VAR models, in several cases different lag length criteria pointed to different maximum lags. We therefore determined the lag length so that the VAR residuals are normal (or at least not skewed, which is a crucial assumption; see Juselius, 2006), not serially correlated and homoskedastic.<sup>10</sup> Taking lags 1 and 2 turned out to be sufficient in most cases. In each VAR model we used a constant, a linear time trend (if it was significant in any equation), and dummy variables capturing regime shifts visible in the VAR residuals. All VAR models are stable, i.e. their roots lie within the unit circle. Thus, all the conditions necessary for the use of the Blanchard and Quah identification scheme are satisfied.

The eight VAR models – i.e. specifications A to D for Poland and for the euro area – were then estimated and the long-run identification applied to identify the structural shock series. Before proceeding, we checked whether the identified shock series are specification sensitive, i.e. whether the AS, IS, LM and FM shocks for a given economy identified with the help of specifications A, B, C and D are

<sup>7</sup> Specification of the test equations in terms of exogenous components (constant, trend, or neither) was in each case dependent upon whether or not the differenced time series (e.g. ) had a zero or nonzero mean, or followed a linear time trend. This was checked through eyeballing and through regression of each differenced series on a constant and trend.

<sup>8</sup> More specifically, the tests pointed to a unit root in levels or in first differences depending on the specification of the test equation; we believe that this finding is mainly due to the increase in the volatility of the series after the launch of the euro in 1999.

<sup>9</sup> In our previous analyses (see Stążka, 2008a and 2008b), we tried using different sets of time series, also specifications employing retail sales. According to most criteria, such as the stochastic properties of VAR residuals or the economic interpretability of impulse responses, the specification that we chose here turned out to be the best.

<sup>10</sup> The residuals were tested for normality with the help of the Jarque-Bera test, for serial correlation with the help of the Lagrange multiplier test and for heteroscedasticity with the help of the White test.

similar. Simple correlation analysis (whose results are not reported to save space) has shown that both AS, IS and FM shocks are highly comparable across the different specifications in both Poland and the euro area, with correlation coefficients ranging above 0.8 in the majority of all cases. LM shocks, in contrast, are only comparable across models with the same nominal variable (price level or NER), i.e. shocks identified based on specifications A and C are highly correlated, and the same holds for shocks from specifications B and D. We can interpret the LM shocks identified with the help of models A and C as “price level-specific” nominal shocks, and those identified with the help of models B and D as “exchange rate-specific” nominal shocks. We will take this result into consideration when analyzing the shock correlation between Poland and the euro area in the next subsection.

## 5.2 The Shock-Absorbing Capacity of the Flexible Exchange Rate

As underlined before, we assume that the NER can be regarded as a shock-absorbing (shock-propagating) instrument if its fluctuations are mainly driven by real demand (monetary) disturbances. Moreover, if the NER fluctuates mainly in response to financial market shocks, then its flexibility constitutes a source of instability.<sup>11</sup> Incidentally, under floating the NER and the RER are very closely aligned, with a correlation coefficient near unity (MacDonald, 1998), so we are interested in analyzing both NER and RER movements. The sources of stochastic changes of a variable can be scrutinized by means of forecast error variance decomposition (FEVD; Lütkepohl and Krätzig, 2004). Table 1 below shows the results for Poland – the percentage of the forecast error variance (FEV) of the NER and RER at different forecast horizons that is attributable to each of the four structural shock types. For each model, the dominant shock is in bold type.

As can easily be seen, both the NER and the RER fluctuated mainly in response to real demand (IS) shocks, which points to the conclusion that the NER has been a shock absorber over the sample period. A closer look at table 1 reveals some other interesting results. First, the contribution of financial market shocks to the fluctuations of both exchange rates is below 5% across all specifications and forecast horizons and so we conclude that NER flexibility has not been a source of shocks.<sup>12</sup> Second, in models that use the price level (A and C), the contribution of LM shocks to stochastic RER volatility is generally larger than in models using the NER (B and D). In other words, “price level-specific” monetary disturbances are of greater importance for RER fluctuations than “exchange rate-specific” disturbances. This is in sharp contrast to our previous analysis, covering a shorter sample; we will return to this result later on. Finally, AS shocks also play a nonnegligible role for exchange rate movements – in any case they are more significant than FM shocks.

Now, the question arises as to whether shock-absorbing instruments were necessary during the sample period. It might be the case that the NER and RER in

<sup>11</sup> *In turn, if supply disturbances are the main source of exchange rate variability, the conclusion is not clear cut (see the discussion in Stażka, 2008a). However, most empirical analyses show that this type of shock does not dominate RER movements; this result, confirmed by our analysis (see below), is “something of a stylised fact in the literature on the economics of real exchange rates” (MacDonald, 1998, p. 38).*

<sup>12</sup> *To a certain extent, and in any case for long forecast horizons, this result might be implied by the identification scheme – it is assumed that financial market shocks have no long-run effect on any variable except the financial market index.*

Table 1

### Sources of Real and Nominal Exchange Rate Fluctuations in Poland

a) FEVD of the NER (contribution of different shock types to FEV in %)

Horizon (in months)	Model B			Model D			
	AS	IS	LM	AS	IS	LM	FM
1	6.16	<b>57.69</b>	36.15	7.84	<b>57.89</b>	31.00	3.27
2	8.90	<b>58.54</b>	32.57	11.22	<b>57.55</b>	27.85	3.38
3	9.09	<b>58.41</b>	32.49	11.41	<b>57.21</b>	27.45	3.93
6	9.03	<b>57.49</b>	33.48	11.32	<b>56.60</b>	28.18	3.89
36	9.03	<b>57.45</b>	33.51	11.33	<b>56.55</b>	28.23	3.89

b) FEVD of the RER (contribution of different shock types to FEV in %)

Horizon (in months)	Model A			Model C			
	AS	IS	LM	AS	IS	LM	FM
1	8.76	<b>60.97</b>	30.27	7.28	<b>74.02</b>	15.80	2.90
2	8.24	<b>61.25</b>	30.52	7.56	<b>72.28</b>	16.52	3.64
3	8.54	<b>60.08</b>	31.38	7.43	<b>68.51</b>	19.81	4.25
6	8.44	<b>58.12</b>	33.44	7.74	<b>64.25</b>	23.98	4.03
36	8.33	<b>57.23</b>	34.44	7.75	<b>64.24</b>	23.98	4.03

	Model B			Model D			
	AS	IS	LM	AS	IS	LM	FM
1	7.74	<b>74.45</b>	17.81	9.44	<b>73.34</b>	13.78	3.43
2	9.84	<b>73.93</b>	16.23	11.97	<b>71.76</b>	12.67	3.60
3	9.73	<b>72.65</b>	17.63	11.82	<b>70.33</b>	13.46	4.39
6	9.63	<b>70.43</b>	19.94	11.63	<b>68.64</b>	15.45	4.28
36	9.64	<b>70.35</b>	20.02	11.63	<b>68.53</b>	15.56	4.27

Source: Author's calculations.

Note: FEVD: forecast error variance decomposition; NER: nominal exchange rate; FEV: forecast error variance; AS: aggregate supply; IS: investment and saving equilibrium; LM: liquidity preference and money supply equilibrium; FM: financial market, RER: real exchange rate.

Poland moved mainly in response to IS shocks, but these shocks were largely symmetric relative to the euro area. To see how synchronous real demand shocks in Poland were relative to the euro area, we again resort to simple correlation analysis. The relevant correlation coefficients are given in table 2.

The results suggest that Poland was hit by demand disturbances that were largely asymmetric relative to the euro area: all the relevant correlation coefficients are negative and high in absolute value. We considered the possibility that

Table 2

### Symmetry of Real Demand Shocks in Poland Relative to the Euro Area

Correlation of the IS shocks identified by different models between Poland and the euro area

Specification	A for the euro area	B for the euro area	C for the euro area	D for the euro area
A for Poland	-0.64	-0.68	-0.66	-0.67
B for Poland	-0.70	-0.90	-0.62	-0.86
C for Poland	-0.69	-0.75	-0.74	-0.76
D for Poland	-0.70	-0.88	-0.62	-0.85

Source: Author's calculations.

Note: IS: investment and saving equilibrium.

this pattern is largely due to the time series used: the models for the euro area use the euro/złoty NER and RER, even though one can hardly argue that this bilateral exchange rate is highly relevant for that area's economic activity and prices. As a sensitivity check, we estimated the models for the euro area using the euro/US dollar exchange rate, but the same pattern of high negative IS shock correlation emerged again (see Stażka, 2008a). We thus conclude that over the sample period, stabilizing instruments such as the floating NER were called for.

### 5.3 Effects of the Global Financial Crisis

The ongoing global financial crisis, especially its intensification in September 2008, has been associated with increased risk aversion, resulting in capital flight from emerging market economies. This led to strong depreciation of the currencies of many small open economies, including the Polish złoty and the currencies of several other EU Member States that joined from 2004. It was about then that policymakers in the affected countries spoke out about the disadvantages of being a small open economy staying out of the common currency area. The changing attitudes toward euro adoption in these countries seem to corroborate the opinion of those who view the NER as a source of shocks springing from the financial markets. Thus, checking how the results have changed during the most recent period of the global financial meltdown may provide insights.

In terms of our SVAR analysis, the recent developments constituted an exceptionally strong and persistent adverse financial market shock, followed by an adverse (foreign) demand shock. We would thus expect that the financial crisis has increased the contribution of FM and IS shocks to the stochastic volatility of both the NER and the RER. We tested these hypotheses, again using forecast error variance decomposition. Specifically, we compared the results described in subsection 5.2 above and those we obtained in our previous study (Stażka, 2008b), based on exactly the same time series and a sample ending in February 2008, i.e. not covering the last 15 observations in our present sample. Table 3 below presents the results – the change in the contribution of different shock types to the stochastic NER, and RER volatility resulting from expanding the sample.

As can be seen from the table, the results confirm the first of our hypotheses: The contribution of FM shocks to the stochastic volatility of both the NER and the RER has increased. On the one hand, this increase is rather insignificant in absolute terms (i.e. measured in percentage points). On the other hand, it is quite large in relative terms, given the very low contribution of financial market shock to exchange rate fluctuations – the increase e.g. from 2% to 3% can be regarded as rather large.<sup>13</sup> To a certain degree, the flexible NER has become slightly more of a source of shocks during the present global crisis, though it has, as demonstrated in section 5.2, mainly been driven by real demand disturbances.

Moreover, in those models which use the NER as the nominal variable (specifications B and D) an increase in the contribution of IS disturbances can also be observed, which would confirm the second of our hypotheses. In the face of the dominant role of real demand shocks as the driving force of NER and RER fluctuations, this increase is relatively small. At the same time, a rise in the contribution of LM shocks was also recorded. This could not, however, offset the

<sup>13</sup> See table 1 in subsection 5.2 and the top panel of table 5 in Stażka (2008b).

Table 3

### Impact of the Global Financial Crisis on NER and RER fluctuations

a) Change in the contribution of different shock types to FEV of the NER resulting from the sample expansion (percentage points)

Horizon (in months)	Model B			Model D			
	AS	IS	LM	AS	IS	LM	FM
1	-12.34	6.09	6.25	-18.06	14.19	2.40	1.47
2	-13.30	6.54	6.77	-18.48	13.45	3.15	1.88
3	-14.11	7.11	6.99	-18.29	13.91	3.45	0.83
6	-14.57	7.09	7.38	-18.48	14.00	3.68	0.79
36	-14.57	7.05	7.41	-18.47	13.95	3.73	0.79

b) Change in the contribution of different shock types to FEV of the RER resulting from the sample expansion (percentage points)

Horizon (in months)	Model A			Model C			
	AS	IS	LM	AS	IS	LM	FM
1	-10.74	-14.83	25.47	-6.22	-7.98	12.60	1.60
2	-14.76	-11.75	26.52	-9.34	-7.12	13.82	2.54
3	-15.96	-10.62	26.48	-10.57	-8.39	16.91	2.15
6	-16.36	-11.48	27.84	-10.56	-11.65	20.38	1.93
36	-16.47	-12.37	28.84	-10.55	-11.66	20.38	1.93

Horizon (in months)	Model B			Model D			
	AS	IS	LM	AS	IS	LM	FM
1	-7.66	5.75	1.91	-12.86	12.74	-1.52	1.73
2	-7.96	4.93	3.03	-12.83	10.76	-0.13	2.20
3	-10.17	6.05	4.13	-13.88	11.73	0.76	1.39
6	-10.97	6.83	4.14	-14.57	12.74	0.55	1.28
36	-10.96	6.75	4.22	-14.57	12.63	0.66	1.27

Source: Author's calculations.

Note: a) Increase (+) or decrease (-) resulting from expanding the sample by 15 observations (from a sample covering 2000:M1–2008:M2 to one covering 2000:M1–2009:M5).

FEV: forecast error variance; NER: nominal exchange rate; AS: aggregate supply; IS: investment and saving equilibrium; LM: liquidity preference and money supply equilibrium; FM: financial market, RER: real exchange rate.

increase in the contribution of IS shocks in both specifications and most forecast horizons, so based on this piece of evidence, we can conclude that the floating NER has become even more of a shock-absorbing instrument.

Importantly, though, in models which use the price level instead of the NER (specifications A and C), the contribution of IS shocks actually decreased at the cost of LM shocks. Recalling our interpretation of LM shocks in different models from subsections 5.1 and 5.2, we see that the contribution of “price level-specific” nominal shocks has risen notably in the longer sample, so that these shocks have become more important in driving RER fluctuations than “exchange rate-specific” shocks. This somehow counterintuitive result could perhaps be explained by specific factors driving the price level in Poland since the beginning of 2008, namely large increases of administered prices (especially the prices of energy products and of some services, mainly those related to home maintenance).

In any case, it is difficult to draw unambiguous conclusions regarding the stabilizing versus destabilizing role of the flexible NER during the recent turbulent times. While the importance of financial market shocks for NER and RER

fluctuations has risen, so has the importance of IS shocks in half of the specifications. Given that the Polish economy has been hit by the global crisis to a significantly lesser extent than most other EU countries in terms of economic activity<sup>14</sup> and that this was preceded by significant NER depreciation, we are more inclined to accept the view of the złoty/euro exchange rate as a stabilizing rather than a destabilizing force.

## 6 Summary and Conclusions

This paper examines the role of the flexible złoty/euro exchange rate in terms of output stabilization in the face of asymmetric (country-specific) shocks, which is an important question given the Polish authorities' plans to adopt the euro in the near future. We have contributed to the existing literature by expanding the SVAR models used by other authors to include a financial market shock, defined as a stochastic change in a country's risk premium. Relevant as the impact of financial shocks is in the face of the ongoing global financial crisis, our previous studies (Stażka, 2008a, 2008b) have been – to the best of our knowledge – the only ones so far to identify financial market shocks of this kind. The contribution of the present paper is also to scrutinize the effects of the financial crisis on the shock-absorbing capacity of the złoty/euro NER.

Our analysis, covering a sample period from January 2000 to May 2009, used four differently specified SVAR models with long-run identifying restrictions à la Blanchard and Quah (1989). We have demonstrated, first, that the flexible złoty/euro NER was mainly driven by real demand disturbances, thus acting as a shock-absorbing rather than shock-propagating instrument. Second, we have shown that real demand shocks in Poland and the euro area were largely asynchronous, so that stabilizing instruments were called for.

With regard to the effects of the global crisis on the role of the flexible NER in Poland, the comparison of our current results with those obtained based on a shorter sample points to a certain increase in the contribution of financial market shocks to stochastic NER and RER volatility. Nevertheless, this shock type played a minor role in driving exchange rate fluctuations over the entire sample period, with a contribution to the forecast error variance of the NER and the RER of below 5% in all model specifications. This means that the floating exchange rate can hardly be regarded as a source of shocks.

Importantly, there are some caveats to consider. First, we need to stress that this paper is based on just one model type, namely the structural VAR approach with long-run identifying restrictions. It might be that other models lead to different conclusions about the shock-absorbing capacity of the NER. Second, we have looked at stability costs exclusively in terms of real output; for economic agents, other variables – e.g. the rate of unemployment or the level of consumer prices – are of interest too, but we leave them out. Third, empirical results for any former centrally planned economy should be interpreted with caution because usable time series are relatively short. This can lead to results which are rather specification sensitive, as demonstrated in our previous study (Stażka, 2008b). Last but not

<sup>14</sup> Since mid 2008, Poland has been among the EU countries with the highest GDP growth rate. In the first two quarters of 2009 it was the fastest growing EU economy and in the second quarter of 2009 the only one which recorded positive GDP growth in annual terms (source: Eurostat).

least, the result that financial market shocks have played hardly any role in driving stochastic RER and NER fluctuations might be related – at least to some extent – to our identifying restrictions, which assume no long-run effect of FM shocks on either the NER or the RER. While admitting these limitations, we conclude that the floating exchange rate has generally served Poland well and its irrevocable fixing on the day of euro adoption will, at least in the short term, constitute a certain cost in terms of output stability.

## References

- Apergis, N. and C. Karfakis. 1996.** Sources of Fluctuations in Exchange Rates: A Structural VAR Analysis. In: *Applied Economics Letters* 3. 251–254.
- Astley, M. S. and A. Garratt. 2000.** Exchange Rates and Prices: Sources of Sterling Real Exchange Rate Fluctuations 1973–94. In: *Oxford Bulletin of Economics & Statistics* 62. 491–509.
- Bailliu, J. and H. Bouakez. 2004.** Exchange Rate Pass-Through in Industrialized Countries. In: *Bank of Canada Review*. Spring. 19–28.
- Blanchard, O. J. and D. Quah. 1989.** The Dynamic Effects of Aggregate Demand and Supply Disturbances. In: *American Economic Review* 79. 655–673.
- Borghijs, A. and L. Kuijs. 2004.** Exchange Rates in Central Europe: A Blessing or a Curse?. Working Paper 04/2. Washington, D. C.: International Monetary Fund.
- Buiter, W. H. 2000.** Monetary Misconceptions. Discussion Paper 469. London: Centre for Economic Performance.
- Buiter, W. H. and C. Grafe. 2002.** Anchor, Float or Abandon Ship: Exchange Rate Regimes for the Accession Countries. In: *European Investment Bank Papers* 7. 51–71.
- Buti, M. and A. Sapir (eds.). 1998.** Economic Policy in EMU: A Study by the European Commission Services. Oxford: Clarendon Press.
- Chadha, B. and E. Prasad. 1997.** Real Exchange Rate Fluctuations and the Business Cycle: Evidence from Japan. In: *IMF Staff Papers* 44. 328–355.
- Chen, S.-L. and J.-L. Wu. 1997.** Sources of Real Exchange-Rate Fluctuations: Empirical Evidence from Four Pacific Basin Countries. In: *Southern Economic Journal* 63. 776–787.
- Chowdhury, I. S. 2004.** Sources of Exchange Rate Fluctuations: Empirical Evidence from Six Emerging Market Countries. In: *Applied Financial Economics* 14. 697–705.
- Clarida, R. and J. Galí. 1994.** Sources of Real Exchange Rate Fluctuations: How Important Are Nominal Shocks? Working Paper 4658. Cambridge, Mass.: National Bureau of Economic Research.
- Dibooglu, S. and A. M. Kutan. 2001.** Sources of Real Exchange Rate Fluctuations in Transition Economies: The Case of Poland and Hungary. In: *Journal of Comparative Economics* 29. 257–275.
- Dornbusch, R. 1976.** Expectations and Exchange Rate Dynamics. In: *Journal of Political Economy* 84. 1161–1176.
- Enders, W. and B.-S. Lee. 1997.** Accounting for Real and Nominal Exchange Rate Movements in the post-Bretton Woods Period. In: *Journal of International Money and Finance* 16. 233–254.
- Friedman, M. 1953.** The Case for Flexible Exchange Rates. In: M. Friedman, *Essays in Positive Economics*. Chicago: The University of Chicago Press. 157–203.
- Gagnon, J. E. and J. Ihrig. 2004.** Monetary Policy and Exchange Rate Pass-Through. In: *International Journal of Finance & Economics* 9. 315–338.
- Juselius, K. 2006.** The Cointegrated VAR Model: Methodology and Applications. *Advanced Texts in Econometrics*. Oxford: Oxford University Press.
- Kontolemis, Z. G. and K. Ross. 2005.** Exchange Rate Fluctuations in the New Member States of the European Union. *Economics Working Paper Archive* 0504015.

- Lastrapes, W. D. 1992.** Sources of Fluctuations in Real and Nominal Exchange Rates. In: *Review of Economics and Statistics* 74. 530–539.
- Lütkepohl, H. and M. Krätzig (eds.). 2004.** *Applied Time Series Econometrics, Themes in Modern Econometrics*. Cambridge: Cambridge University Press.
- MacDonald, R. 1998.** What Do We Really Know About Real Exchange Rates? Working Paper 28. Vienna: Oesterreichische Nationalbank.
- McKinnon, R. I. 1963.** Optimum Currency Areas. In: *American Economic Review* 53. 717–725.
- Meade, J. E. 1951.** *The Theory of International Economic Policy*. Oxford: Oxford University Press.
- Meese, R. A. and K. Rogoff. 1983.** Empirical Exchange Rate Models of the Seventies: Do They Fit Out-of-sample? In: *Journal of International Economics* 14. 3–24.
- Mundell, R. A. 1961.** A Theory of Optimum Currency Areas. In: *American Economic Review* 51. 657–665.
- Mundell, R. A. 2003.** Without title. In: HM Treasury. *Submissions on EMU from Leading Academics. EMU Study*. London: HM Treasury. 197–202.
- Rodríguez López, J. and J. L. Torres Chacón. 2007.** Following the Yellow Brick Road to the Euro? The Czech Republic, Hungary and Poland. In: *Eastern European Economics* 45. 47–80.
- Sachs, J. D. 1980.** Wages, Flexible Exchange Rates, and Macroeconomic Policy. *Quarterly Journal of Economics* 94. 731–747.
- Stażka, A. 2008a.** Polen auf dem Weg zur Wirtschafts- und Währungsunion. Der flexible Wechselkurs als ein Instrument zur Absorption asymmetrischer Schocks. *Schriften zu Internationalen Wirtschaftsfragen* 34. Berlin: Duncker & Humblot.
- Stażka, A. 2008b.** The Flexible Exchange Rate as a Stabilising Instrument: The Case of Poland. Mimeo. Narodowy Bank Polski. Retrieved from <http://www.nbp.pl/bise/seminaria/StazkaO.pdf> on May 26, 2009.

## Annex

Table A1

### Data Description

Time series	Series name; code in Datastream	Start date	Unit	Adjustment	Source
Data for Poland					
Industrial production	Industrial production: mining, manufacturing & quarrying & energy; POESCDE1G	1995:M1	Index (2005=100)	Volume index, seasonally adjusted	Eurostat
PPI	PPI: industry (excluding construction), POESPPIIF	2000:M1	Index (2005=100)	Price index, not seasonally adjusted	Eurostat
Nominal exchange rate	Euro reference exchange rates	Jan. 1, 1999	EUR/PLN	Monthly averages	European Central Bank
WIG20	Warsaw General Index 20; POLWG20	April 18, 1994	Index	Monthly averages	Warsaw Stock Exchange
Data for the euro area (euro-15 countries – aggregate)					
Industrial production	Industrial production: mining, manufacturing & quarrying & energy; Z4ESIMQMG	1990:M1	Index (2005=100)	Volume index, seasonally adjusted	Eurostat
PPI	PPI: industry (excluding construction), Z4ESPPIIF	1980:M1	Index (2005=100)	Price index, not seasonally adjusted	Eurostat
Nominal exchange rate		Jan. 1, 1999	PLN/EUR	Monthly averages	European Central Bank
DAX30	DAX 30 Performance; DAXINDX	Dec. 31, 1964	Index	Monthly averages	Deutsche Börse

Source: Author's compilation.

Note: PPI: Producer Price Index.

# CESEE Households amid the Financial Crisis: Euro Survey Shows Darkened Economic Sentiment and Changes in Savings Behavior

Sandra Dvorsky,  
Thomas Scheiber,  
Helmut Stix<sup>1</sup>

*This paper utilizes information from the OeNB Euro Survey, which was launched in 2007 and is conducted twice a year in ten CESEE countries. The most recent survey wave of May to June 2009 focused on the impact of the financial crisis on CESEE households. Results show, first, that the financial crisis is in fact severely felt throughout the region: Respondents' assessment of the current economic situation has deteriorated, trust in the future stability of local currencies has diminished, and trust in banks has declined in almost all countries surveyed. Second, the analysis of aggregate monetary statistics reveals that households reacted by adjusting their portfolios immediately, but developments differ substantially across countries. Third, in countries with more persistent withdrawals, euro cash in circulation, surprisingly, has declined because households resorted to dissaving to compensate for decreasing income. The authors conclude that although a massive shock has hit the region, no dramatic changes in the overall degree of euroization have occurred. This subdued impact is likely to signal that past stabilization efforts have paid off and that the economic and monetary policy measures taken in the course of the crisis were successful.*

*JEL classification: D14, E41, E50, G11*

*Keywords: Euroization, global financial crisis, portfolio decision, trust, survey data, Central, Eastern and Southeastern Europe*

## 1 Introduction

The global financial crisis has represented a massive shock to Central, Eastern and Southeastern European (CESEE) countries. The impact of the crisis on the macro-economic development and on financial markets is well documented. Much less evidence, at least in a comparative perspective, has been available so far on how the crisis has affected households and how households assess current and expected economic developments. Similarly, relatively little is known about how households have adapted their economic decision making, if at all. In particular, adjustments of savings and portfolio decisions are issues of high policy relevance in the presence of considerable levels of de facto euroization in some countries.

Against this background, the goal of this paper is twofold. First, we provide evidence on how household sentiment has evolved in the course of the crisis. Regarding the portfolio choice of households, two factors can be deemed central to the choice of the currency denomination of asset holdings and the choice of cash versus deposits: confidence in the local currency, and trust in banks. Second, we study whether savings behavior has actually changed, and we present evidence on how foreign currency cash balances have evolved.

We utilize information from the OeNB Euro Survey. Since its launch in 2007, this survey has been conducted every half year in ten CESEE countries (spring wave and fall wave, respectively). The survey provides information on people's economic sentiments and on foreign currency cash holdings. Importantly, as the same wording for the sentiment questions is used in each country, we obtain infor-

<sup>1</sup> Oesterreichische Nationalbank (OeNB), European Affairs and International Financial Organizations Division, [sandra.dvorsky@oenb.at](mailto:sandra.dvorsky@oenb.at), Foreign Research Division, [thomas.scheiber@oenb.at](mailto:thomas.scheiber@oenb.at), and Economic Studies Division, [helmut.stix@oenb.at](mailto:helmut.stix@oenb.at). The authors gratefully acknowledge comments by Doris Ritzberger-Grünwald (OeNB) and would like to thank Mariya Hake for excellent research assistance.

mation that is comparable across countries and over time. Moreover, the recent survey wave, which was conducted from May to June 2009, contained a set of additional questions aimed at shedding some light on the impact of the financial crisis on households.

The paper is structured as follows. Section 2 presents survey results on economic sentiment in the months following the arrival of the financial crisis in the region. Section 3 discusses portfolio shifts in household savings deposits and cash holdings and offers some possible explanations. Section 4 summarizes and concludes.

## **2 Spring Wave 2009: Worsened Economic Sentiment Reflects Arrival of Financial Crisis**

As expected, the significant darkening of growth prospects for the CESEE region has left clear marks in people's perceptions and expectations. However, although all countries have been subject to the same shock, the implications and consequences for the various countries differ substantially, as do the survey results on economic sentiment.

Before discussing specific results in more detail, it is noteworthy that survey responses, measured as the share of respondents answering "don't know," increased for most sentiment indicators as compared to previous waves. This development was particularly pronounced for forward-looking variables, such as exchange rate expectations or expected currency stability. In our view, this reflects respondents' degree of uncertainty about the impact of the crisis and the future economic development.

### **2.1 Financial Situation of Households Severely Affected – Is There Some Light at the End of the Tunnel?**

During the spring wave 2009, interviewees were asked whether the global financial crisis posed a threat to them personally with regard to the financial situation of their household. Chart 1 shows that the percentage share of respondents who answered "yes" to this question was above 50% in all countries surveyed except Poland; in some countries, the percentage in fact rose to more than 70%.

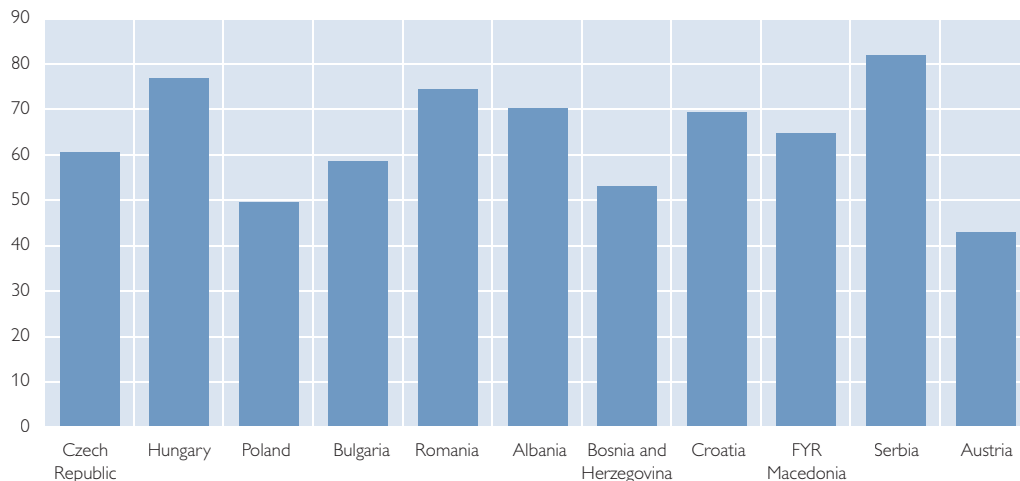
As the survey answers reflect cultural differences, sentiment questions are always problematic to compare unless reference points are provided. These can be either different observations over time or evidence from different countries. As one possible reference point, we can provide evidence from a survey in Austria showing that about 43% of Austrians also see the financial crisis as posing a threat to them personally. Although some caution is necessary, as the questions in the Austrian survey and in the OeNB Euro Survey are not fully comparable, this result suggests that the crisis has left considerably deeper trails in agents' sentiment in CESEE countries than in Austria – clearly reflecting the sharper contraction of economic activity in the former group of countries.

Notwithstanding the difficult economic environment and worsened economic sentiments, the survey results from the spring wave 2009 seem to report some first positive signs at the micro-level: In six of the ten countries, respondents assess the financial situation of their household less negatively than six months earlier. This development may be seen as a reaction to the numerous support packages adopted since fall 2008 at the national as well as at the international level. In particular, significant movement toward a positive response was found for

Chart 1

### Response to “Does the Global Financial Crisis Pose a Threat to You Personally with Regard to the Financial Situation of Your Household?”

Percentage share of respondents answering yes (adjusted for “don’t know” and “no answer”)

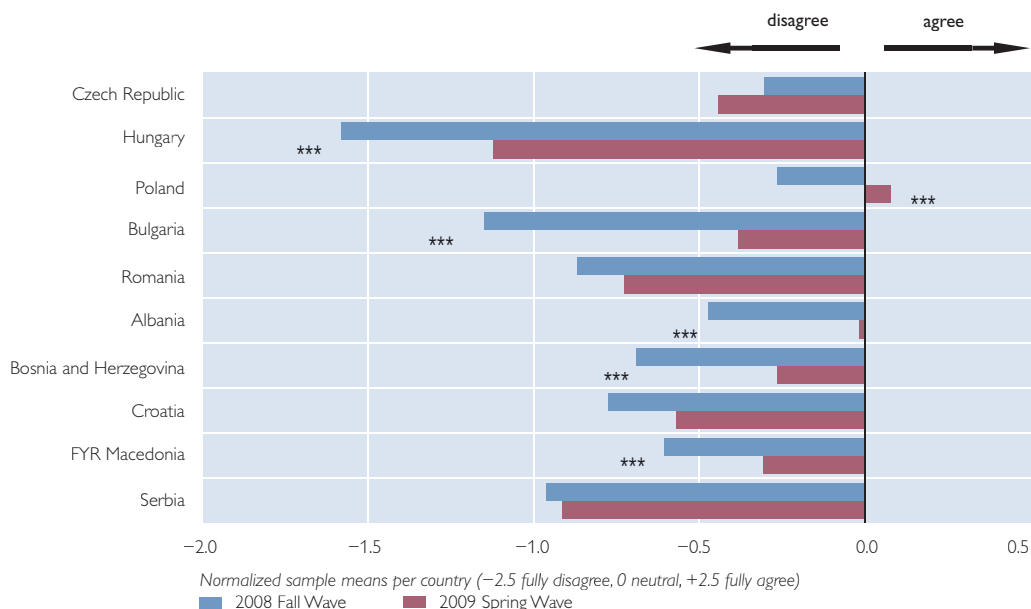


Source: OeNB Euro Survey 2009 Spring Wave, OeNB.

Note: Values for Austria refer to a question of whether the crisis poses a personal threat, without any specific reference to the financial situation (survey response from May/June 2009). Hence, values are of limited comparability.

Chart 2

### Consent to the Statement “Currently, the Financial Situation of My Household is Good”

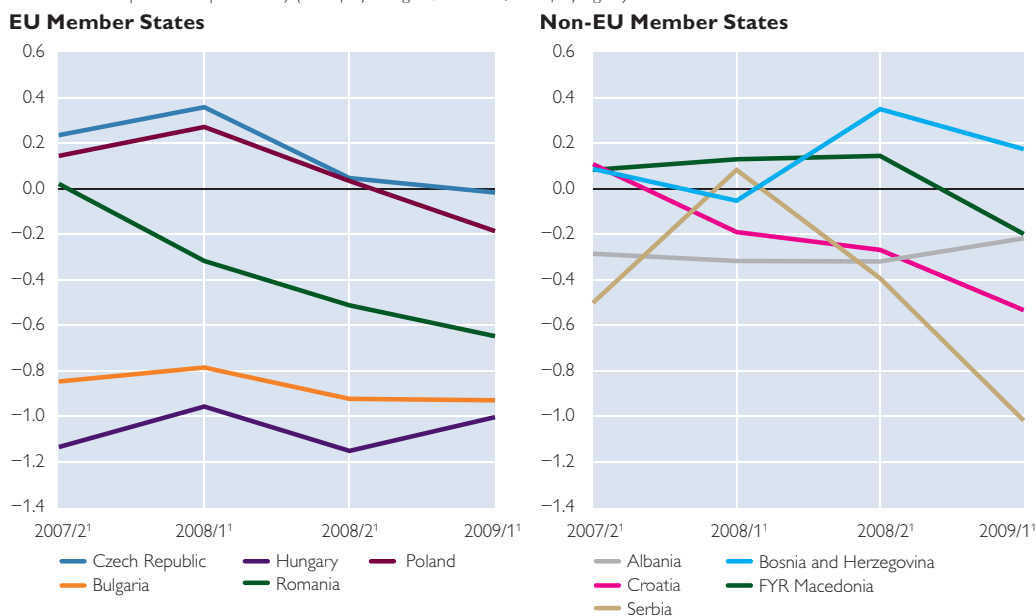


Source: OeNB Euro Survey.

Note: Respondents were asked whether they agreed or disagreed on a scale from 1 (fully agree) to 6 (fully disagree) to the statements above. \*\*\* indicates a significant change in normalized sample means (1% level).

### Response to “Over the Next Five Years, the Local Currency Will Be Very Stable and Trustworthy”

Normalized sample means per country (-2.5 fully disagree, 0 neutral, +2.5 fully agree)



Source: OeNB Euro Survey.

Note: Respondents were asked whether they agreed or disagreed on a scale from 1 (fully agree) to 6 (fully disagree) to the statement above.  
<sup>1</sup> 2007/2 refers to the 2007 Fall Wave, 2008/1 to the 2008 Spring Wave, etc.

Hungary, Poland, Bulgaria, Albania, Bosnia and Herzegovina, and FYR Macedonia<sup>2</sup>. Interviewees in the Czech Republic, Romania, Croatia and Serbia remained more skeptical, however (see chart 2).

## 2.2 Distrust in the Future Stability of Local Currencies Grows

In all countries surveyed except for Bosnia and Herzegovina, a majority of respondents disagreed with the statement that the local currency was very stable and trustworthy, both now and in the next five years. This widespread loss of trust in local currencies may be related to the economic downturn in the region and the repercussions of the global financial crisis (i.e. depreciation of the exchange rate or some countries’ need for balance of payments assistance). Within the last 12 months, the assessment turned from positive into negative territory for the Czech Republic, Poland, FYR Macedonia, and most markedly in Serbia (see chart 3).

This loss of trust, however, was not confined to the local currencies: Since the outbreak of the financial crisis, trust in the euro has also eroded significantly, albeit remaining in positive territory in all countries surveyed. This decline both for local currencies and for the euro might be interpreted as a reflection of a more general loss of confidence in the financial system.

<sup>2</sup> “FYR Macedonia” refers to the former Yugoslav Republic of Macedonia.

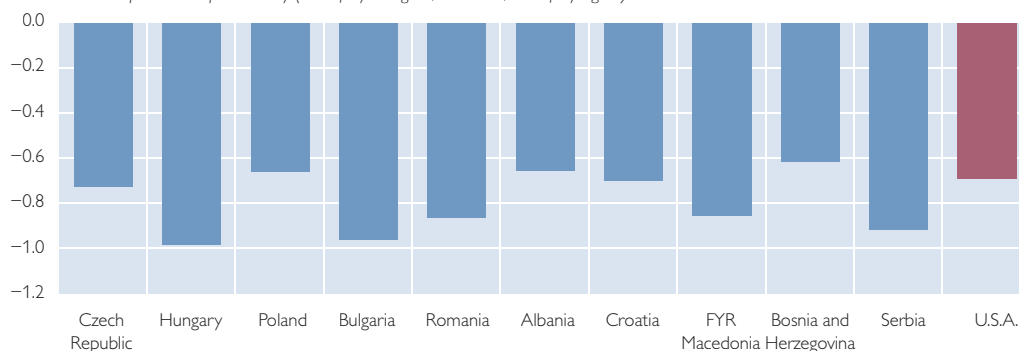
### 2.3 Trust in Banks Deteriorates, Perceived Safety of Deposits Gains Some Ground

For the first time, the spring wave of the OeNB Euro Survey also contained a question on trust in banks. A considerable literature has shown that trust in banks is very important for financial intermediation. Therefore, the question whether the crisis has lowered trust in banks and whether the loss is permanent has gained considerable attention, in particular in the U.S.A. (e.g. Sapienza and Zingales, 2009). For some of the countries under analysis in this paper, this question is of even greater relevance, as past banking crises and actual losses of deposited money are still vivid in people's memories.

Chart 4

#### Change in Trust in Banks over the Past Six Months

Normalized sample means per country (-2.5 fully disagree, 0 neutral, +2.5 fully agree)



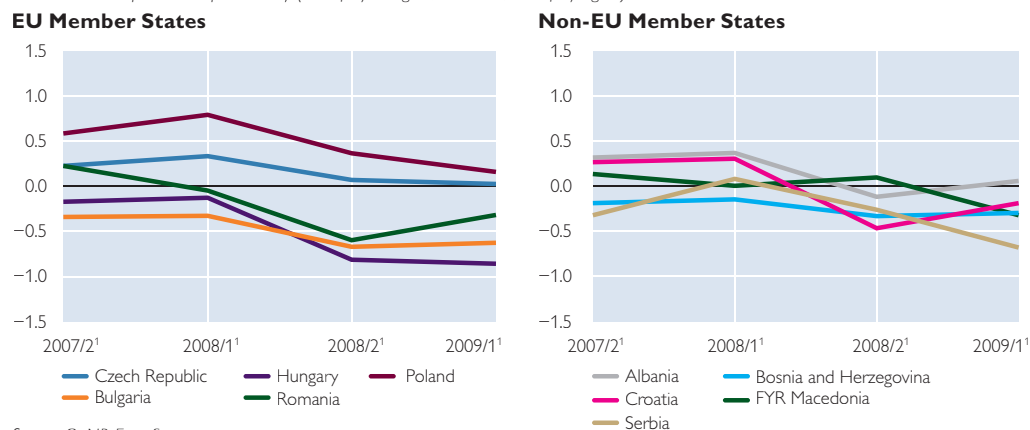
Source: OeNB Euro Survey 2009 Spring Wave, Financial Trust Index ([www.financialtrustindex.com](http://www.financialtrustindex.com)).

Note: "How has your trust in banks changed in the last six months?" Values for CESEE are based on changes considering both domestically owned and foreign owned banks. Values for the U.S.A. refer to changes in the last three months as from December 2008.

Chart 5

#### Response to "Currently, Depositing Money at Banks is Very Safe"

Normalized sample means per country (-2.5 fully disagree, 0 neutral, +2.5 fully agree)



Source: OeNB Euro Survey.

Note: Respondents were asked whether they agreed or disagreed on a scale from 1 (fully agree) to 6 (fully disagree) to the statement above.

<sup>1</sup> 2007/2 refers to the 2007 Fall Wave, 2008/1 to the 2008 Spring Wave, etc.

Indeed, chart 4 reveals that trust in banks diminished in all CESEE countries. In particular, Hungary, Bulgaria, Romania, Serbia and FYR Macedonia faced a noticeable drop. However, at the same time, the comparison with values for the U.S.A. reveals, rather surprisingly, that the loss in banking trust in five CESEE countries is of about the same magnitude as in the U.S.A. – and even in the countries with a stronger decrease, the difference is far from dramatic.

Additional evidence can be derived from survey responses about the perceived safety of savings deposits, which is obviously related to trust in banks. However, deposit insurance schemes might weaken this interdependency. Chart 5 shows the development of the perceived safety of savings deposits over time. This indicator recorded a decline at the time of the fall wave 2008 as compared to the preceding survey wave for almost all countries (with the exception of FYR Macedonia). The cross-country comparison of this variable for the 2008 fall wave is, however, somehow constrained by the fact that the field work periods differ across countries.<sup>3</sup> The May to June 2009 results of the OeNB Euro Survey suggest a slight recovery or at least a stabilization in most countries.<sup>4</sup> In this context, the extensions of deposit insurance schemes may have played a stabilizing and trust-building role. Supportive evidence for this hypothesis is provided in Prean and Stix (2009), who present evidence for Croatia that the extension of deposit insurance coverage had an immediate, positive and substantial impact on how Croatians assess the safety of savings deposits.

### 3 Changes in Households' Portfolios

The arrival of the financial crisis represented a massive shock for the region, which manifested itself, inter alia, in a deterioration of trust in the local currencies (see section 2.2) and in a loss of confidence in banks (see section 2.3). Research on dollarization/euroization (e.g. De Nicolo, Honohan and Ize, 2005; Scheiber and Stix, 2008) suggests that because of experience with past banking crises and depreciation, households are likely to react rather sensitively to expected depreciation and to the perceived safety of deposits. In particular, this affects two aspects of portfolio choice: (1) savings (deposits and cash holdings) in local currency versus foreign currency, and (2) deposit holdings versus cash. In this section, we analyze how deposits at banks have evolved, what can be inferred from the survey about foreign currency cash balances, and how the overall share of cash and deposits denominated in foreign currency has changed.

#### 3.1 Impact of the Crisis on Households' Savings Behavior: A Differentiated Picture across Countries

An analysis of monetary statistics on household savings deposits indeed confirms the conjecture that households in CESEE countries have reacted, on average, more sensitively to the financial crisis than have more advanced economies. In eight of

<sup>3</sup> In the fall wave 2008, the earliest field work started in the first week of October while the last country was surveyed in the second week of November. Hence, in some countries, respondents were asked before the (announced) extension of deposit insurance schemes, in other countries the survey took place afterwards.

<sup>4</sup> Compared with the 2008 fall wave, the perceived safety of deposits increased significantly in Albania, Croatia and Romania in May to June 2009. In the Czech Republic, Hungary, Bulgaria, and Bosnia and Herzegovina, no significant change could be found. The only three countries where a significant decline of perceived deposit safety was recorded in the spring wave 2009 were FYR Macedonia, Poland and Serbia.

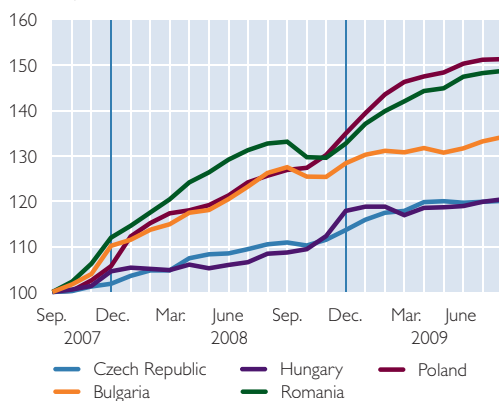
the ten analyzed CESEE countries, outflows of household savings deposits occurred in October 2008. Although the extent of withdrawals varied substantially across countries, this situation differed markedly from that in western countries, e.g. Austria, for which no comparable withdrawals were observed. However, for most EU Member States of the sample, the reaction was considerably weaker and of only short duration compared with non-EU Member States.

Chart 6

### Total Savings Deposits (Exchange Rate Adjusted) of Households at Banks in CESEE

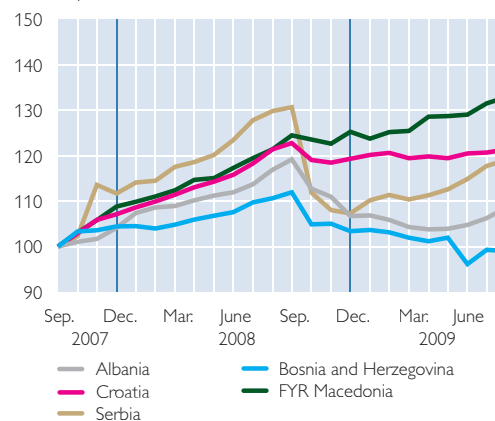
#### EU Member States

Index Sep. 2007 = 100



#### Non-EU Member States

Index Sep. 2007 = 100



Source: National central banks.

Note: The constructed index keeps the exchange rate fixed at the end-September 2007 level and therefore depicts the actual change of total savings deposits through net flows.

Table 1

### Change in Per Capita Cash Holdings

	Albania	Serbia	Bosnia and Herzegovina	Croatia
--	---------	--------	------------------------	---------

Change in per capita deposits of households, Aug. 2008 to May 2009 (exchange rate adjusted)<sup>1</sup>

1 Expressed in euro <sup>2</sup>	-167	-97	-131	-81
Percentage change	-11%	-13%	-8%	-2%
2 Change in euro cash holdings (survey) <sup>3</sup>	-94	-110	-29	-78
3 "Missing" cash per capita measure 1 – (sum of (1) and (2))	-261	-207	-160	-158
Expressed in percent of monthly gross wage income <sup>4</sup>	127%	37%	29%	15%

Change in per capita local currency in circulation, Aug. 2008 to May 2009

4 Expressed in euro <sup>2</sup>	135	21	-20	-31
5 "Missing" cash per capita measure 2 – (sum of (3) and (4))	-126	-186		
Expressed in percent of monthly gross wage income <sup>4</sup>	61%	33%		

Source: wiiv.

Note: The table shows some back-of-the envelope calculations based on a series of strong assumptions. Additionally, the results are influenced by applying a market exchange rate. Overall, caution is necessary when interpreting the findings.

<sup>1</sup> The change in deposits is hypothetical, assuming a fixed exchange rate from September 2007. Per capita refers to the population older than 14 years.

<sup>2</sup> All conversions into euro use the market exchange rate of May 2009.

<sup>3</sup> Change in projected cash holdings from average of waves 2008/1, 2008/2 and 2009/1.

<sup>4</sup> Monthly gross wage in 2008 in euro (market rate).

Chart 6 shows the development of total savings deposits of households since September 2007, both for the EU Member States and non-EU Member States. When analyzing the development over the months following October 2008, we see that the changes in savings deposits are blurred by exchange rate movements. As a sizeable share of deposits is denominated in foreign currency, the depreciation vis-à-vis the euro (observed in some countries) inflates the value of foreign currency deposits when expressed in local currency. Therefore, chart 6 presents the development of household savings deposits adjusted for exchange rate movements.<sup>5</sup>

While in October 2008, deposit withdrawals were recorded in all but two of the CESEE countries analyzed, developments in the EU Member States and non-EU Member States differed sharply in the following months. In the EU Member States, the great majority of households save in local currency. Because uncertainty was greater, the growth rate of savings deposits accelerated from precrisis levels. This may partly reflect a portfolio shift from riskier assets to savings deposits as well as an increase in buffer stock savings or precautionary savings, much like in Austria.<sup>6</sup> In the non-EU Member States, the initial drop in total savings coincided with the outbreak of the financial crisis. With trust in banks unsettled following the collapse of Lehman Brothers, households quickly effected (partly substantial) withdrawals of savings deposits. The developments in the following months, however, took a highly heterogeneous path across the non-EU Member States. A gradual normalization took hold in Romania, Bulgaria and FYR Macedonia – i.e. the withdrawals turned out to be temporary. Furthermore, in these countries private savings started to rise again, but compared to precrisis levels, the speed of capital accumulation has slowed. The decreased rate of accumulation of private savings is a consequence of the ongoing economic crisis, influenced mainly by higher unemployment, lower growth rates of disposable income, and decreased remittances.

In other countries, particularly in Albania, Serbia, Bosnia and Herzegovina and Croatia, we observe that the return of withdrawn money to the banking system was not complete and that the value of savings at banks seemed to have declined more persistently. In other words, people withdrew money and the question is where this money went.

The extent of withdrawals in these four countries is summarized in table 1 above. This table shows the change in per capita deposits of households (exchange rate adjusted) for the period from August 2008 to May 2009. Expressed in euro, withdrawals were in a range from EUR 81 in Croatia to EUR 167 in Albania. In percentage terms, withdrawals were sizeable in Serbia (–13%), Albania (–11%) and Bosnia and Herzegovina (–8%). In Croatia, the decline was only modest (–2%).

### 3.2 Level of Cash Holdings Decreases in Many Countries Surveyed

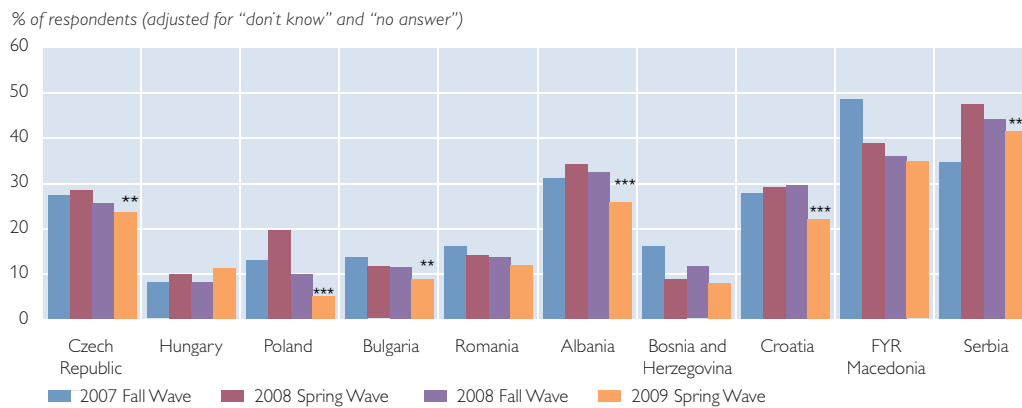
The development of savings deposits in these four countries and the fact that foreign currency cash is used in some countries as a store of value (for a detailed

<sup>5</sup> The constructed index keeps the exchange rate fixed at the end-September 2007 level. It should be noted that the time when the exchange rate is held fixed is of importance for some country results. Despite this qualification, the results allow for a comparative assessment of the development.

<sup>6</sup> In May 2009, the annualized growth rate of local currency deposits amounted to 11% in the Czech Republic, 15% in Hungary, and 28% in Poland (by comparison, the annualized growth rate of Austrian households' euro deposits declined from 8.6% in the second quarter of 2008 to 4.7% in the second quarter of 2009).

Chart 7

### Euro Cash Holdings as in Spring 2009



Source: OeNB Euro Survey.

Note: Null hypothesis: The percentage share of spring 2008 equals the percentage share of spring 2009. \*\* indicates a statistically significant change at the 5% level, and \*\*\* at the 1% level, respectively.

discussion of motives for cash holdings, see Dvorsky, Scheiber and Stix, 2008) give rise to the question of what happened to euro cash holdings after the arrival of the crisis. Inter alia, one could have expected an increase in euro cash holdings.

Results from the 2009 spring wave of the OeNB Euro Survey indicate that the contrary is true (see chart 7). Compared to the results of the 2008 spring wave, the share of respondents holding euro cash declined significantly in the Czech Republic, Poland, Bulgaria, as well as in Albania, Croatia, and Serbia.

Moreover, we observe a decline of per capita euro cash holdings in all CESEE countries except for Hungary. Since these results are based on projections<sup>7</sup> derived from survey answers, it is evident that considerable fluctuations can occur. Additionally, respondents are inclined to understate the true amount or refuse to answer. Even when we take the possibility of such random fluctuations or systematic biases into account, it is surprising that a decline is found in almost all countries, in particular in those countries which experienced prolonged deposit withdrawals.

### 3.3 Deposits Withdrawn, but Lower Cash Holdings: Where Did the Money Go?

In particular for Albania, Bosnia and Herzegovina, Croatia and Serbia, the findings of the 2009 spring wave of the OeNB Euro Survey are, in a certain sense, surprising – not only did deposits decline in these four countries, but so did euro cash holdings. This raises the question of the whereabouts of the withdrawn money.

Row 3 in table 1 summarizes the extent of the “missing” money question for these four countries by adding the change in the euro cash holdings to the aforementioned decline in deposits. The resulting per capita euro amount ranges between EUR 158 in Croatia and EUR 261 in Albania.

The first presumption about where the withdrawn money went is that people now hold higher amounts of local currency in circulation (CiC). Indeed, Albania

<sup>7</sup> These projections are based on answers on euro cash holdings. For details, see Scheiber and Stix (2008).

and Serbia saw a sizeable increase in local CiC. By contrast, local CiC decreased in per capita terms in Bosnia and Herzegovina and in Croatia, so that the above explanation does not apply in these countries (see table 1, row 4). Given the development in Albania and in Serbia, one could pose, under stringent assumptions, the hypothetical question of how much of the decline in deposits might eventually be explained by an increase in local CiC.<sup>8</sup> The results in row 5 of table 1 suggest that the increase in local CiC could potentially explain 50% of the missing cash in Albania, but only 10% in Serbia.

As this explanation cannot solve the puzzle in full, we consider at least three other explanations very plausible.

- First, the survey results might not reflect the true development. Although this can never be excluded, in particular in surveys about financial issues, closer scrutiny uncovers at least three aspects. First, answers on cash amounts fluctuate from wave to wave; hence, statistical confidence intervals might be sizeable. However, what is surprising is that a decline in projected cash holdings is found for all countries. This fact raises our confidence in the survey results. Second, the low dissemination of savings deposits poses a problem.<sup>9</sup> Third, and this is somewhat related to the second issue, the wealth distribution might be very unequal in some of the countries concerned. Therefore, one might not find any changes in a survey because of the well-known problems of underrepresentation of wealthier households in surveys.
- A second possible explanation is that the withdrawn deposits and the cash reserves in euro might have been used to replace lost or decreased income. Table 1 expresses the amount of “missing” cash in percent of the average monthly gross salary. The resulting values range from 15% in Croatia to 61% in Albania (including the contribution from CiC for Albania and Serbia). Considering that we focus on the change over a nine-month period, these values are rather modest, all the more so as the crisis has led to lower growth rates in disposable income and to higher unemployment. In particular, remittances are considered to have declined substantially.
- Finally, the withdrawn amounts and the cash reserves in euro might have been invested in alternative assets or abroad. While the survey does not provide evidence on this issue, we consider this rather unlikely, at least for typical savers. Overall, all of the stated explanations are plausible. Very wealthy individuals will most likely not reveal the truth in the survey and may also have funneled money into alternative investments or abroad. For average respondents, we do consider the “replacement-of-lost-income” hypothesis rather likely.

As a final point, we highlight that even though the survey responses do not cover the behavior of wealthy households, the OeNB Euro Survey provides very useful evidence about the portfolio behavior of the general public during the crisis.

<sup>8</sup> Some of the changes in CiC are due to inflation, which we did not account for. Also, such a simplified comparison relies on strong assumptions. Nevertheless, the results allow for a rough comparison.

<sup>9</sup> For example, in Bosnia and Herzegovina only 7% of respondents had a savings deposit. The observed decline in the value of deposited money by 8% would imply that about 1 in 13 savers with a saving deposit drew down the entire deposit. If this is true, then 1 in 182 respondents (0.5%) withdrew all of his or her deposits, which implies that on average, only 5 persons in a sample of 1,000 interviewees withdrew all of their savings deposits. While this example is certainly exaggerated, it exemplifies the problem of detecting such outflows when only a relatively small sample is drawn from the population.

### 3.4 Virtually Unchanged Degree of Euroization despite Portfolio Shifts

The global financial crisis led to a significant depreciation of floating exchange rates in some CESEE countries (and put some stress on fixed peg regime countries) and to changes of inflation as well as of interest rates. Furthermore, we observe growing concerns about the stability of local currencies in the future and still high shares of respondents expecting local currencies to depreciate further against the euro. All these factors drive households' decisions with respect to the currency composition of their portfolio.

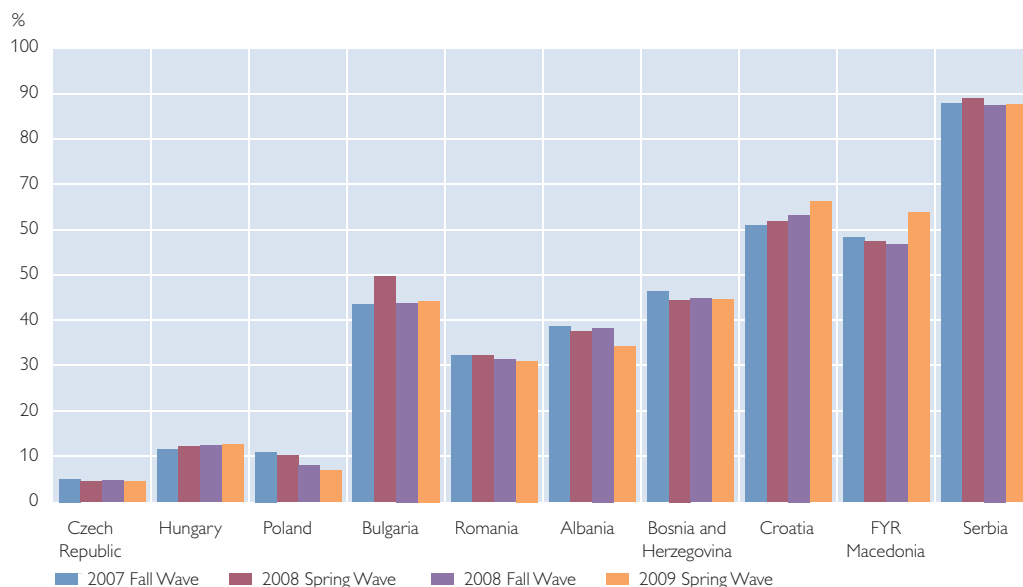
In order to draw a compound picture of the extent of euroization, we calculate an overall euroization index (see Scheiber and Stix, 2008). The euroization index expresses foreign currency assets (i.e. cash and savings deposits) in percent of total assets.<sup>10</sup>

Chart 8 shows that the overall degree of euroization remained surprisingly stable over time in the countries surveyed. A moderate increase of the euroization index can be found for Croatia (+3 percentage points) and FYR Macedonia (+7 percentage points), whereas the euroization index for Albania declined by 4 percentage points.

It is clear that a multitude of factors affects households' portfolio decisions and hence the degree of euroization. Although a full analysis of the impact of these

Chart 8

#### Euroization Index



Source: OeNB Euro Survey.

Note: Euroization index = (euro cash + euro deposits) / (total cash + total deposits).

<sup>10</sup> The euroization index (EI) is calculated as the sum of foreign currency cash (FCC) and foreign currency deposits (FCD) over the sum of total (foreign currency and local) cash and total (foreign currency and local) deposits.  $EI = (FCC + FCD) / (FCC + LCC + FCD + LCD)$ .

factors is clearly beyond the scope of this paper, a first glance at the available evidence suggests that these factors can in fact contribute to explaining country-specific differences (e.g. higher interest rate differentials have contributed to a higher share of local currency-denominated savings deposits in Romania).

Despite these partial effects, we consider one result astonishing from a more general perspective: Although a massive shock has hit the region, no dramatic or substantial changes have occurred with respect to overall euroization. This might be seen as a payoff of past stabilization efforts and of successful economic and monetary policy measures in the course of the crisis.

#### **4 Summary and Conclusions**

Results from the spring wave 2009 of the OeNB's Euro Survey clearly show that the darkening of growth prospects for the CESEE region has left deep marks in people's perceptions and expectations. The financial crisis is severely felt throughout the region: the assessment of the current economic situation has worsened, trust in the future stability of local currencies has deteriorated, and trust in banks has declined in almost all countries surveyed. Notwithstanding this very difficult economic environment, the survey results seem to report some first positive signs at the micro-level: In six of the ten countries surveyed, respondents assessed the financial situation of their household less negatively than six months ago.

The analysis of aggregate monetary statistics reveals that people's portfolio decisions in reaction to the crisis did not follow a clear pattern and that developments differ substantially across countries: After deposit withdrawals in October 2008 in all but two countries analyzed, the situation quickly normalized in the EU Member States surveyed – in some countries growth rates of deposits even accelerated. In the non-EU Member States, however, the development was more heterogeneous, with a more pronounced decline in Serbia, Albania, and Bosnia and Herzegovina. In Serbia and Albania, deposits have rebounded during recent months.

Furthermore, we find that euro cash in circulation has declined in countries in which deposit withdrawals were more persistent. In our view, the most plausible explanation for this somewhat surprising finding is that households have used the money to replace lost or decreased income.

Finally, although a massive shock has hit the region, we find that no dramatic changes in the overall degree of euroization have occurred. This subdued impact is likely to signal that past stabilization efforts have paid off and that the economic and monetary policy measures taken in the course of the crisis were successful.

## References

- De Nicolo, G., P. Honohan and A. Ize. 2005.** Dollarization of Bank Deposits: Causes and Consequences. In: *Journal of Banking and Finance*. Vol. 7/29. 1967–1727. July.
- Dvorsky, S., T. Scheiber and H. Stix. 2008.** Euroization in Central, Eastern and Southeastern Europe – First Results from the New OeNB Euro Survey. In: *Focus on European Economic Integration* 1/08. OeNB. 48–60.
- Dvorsky, S., T. Scheiber and H. Stix. 2009.** The 2008 Fall Wave of the OeNB Euro Survey – A First Glimpse of Households' Reactions to the Global Financial Crisis. In: *Focus on European Economic Integration* 2/09. OeNB. 67–77.
- ECB. 2009.** The International Role of the Euro. Frankfurt am Main. July.  
Retrieved from <http://www.financialtrustindex.com> on October 5, 2009.
- Prean, N. and H. Stix. 2009.** The Effect of Raising Deposit Insurance Coverage in Times of Financial Crisis – Evidence from Croatian Microdata. Mimeo.
- Sapienza, P. and L. Zingales. 2009.** A Trust Crisis. Retrieved from [www.financialtrustindex.com](http://www.financialtrustindex.com) on October 2, 2009.
- Scheiber, T. and H. Stix. 2008.** Euroization in Central, Eastern and Southeastern Europe – New Evidence on Its Extent and Some Evidence on Its Causes. OeNB Working Paper. Forthcoming.

# Simple but Effective: The OeNB's Forecasting Model for Selected CESEE Countries

Jesús Crespo  
Cuaresma, Martin  
Feldkircher,  
Tomáš Slačik,  
Julia Wörz<sup>1</sup>

*This paper describes the new forecasting tool used by the Oesterreichische Nationalbank (OeNB) to derive near-term forecasts for GDP and imports for five Central, Eastern and Southeastern European (CESEE) countries, namely Bulgaria, Croatia, the Czech Republic, Hungary and Poland. An error correction (EC) model is estimated separately for each country by means of seemingly unrelated regressions. Each country-specific macromodel consists of six structural cointegration relationships that model private consumption, investment, exports, imports, the nominal exchange rate and the nominal interest rate using an augmented Taylor rule. Using quarterly data as of the first quarter of 1995, we produce forecasts for GDP and imports with this model. Notwithstanding the dynamic nature of the transition process as well as the limited availability and, in some cases, quality of data, our structural model for the CESEE countries performs fairly well and we expect further gains in forecasting accuracy as more data become available and their quality improves.*

*JEL classification: C32, C53, E17*

*Keywords: Error correction model, model validation, Central, Eastern and Southeastern Europe, GDP forecasts*

## 1 The Need for Forecasts for CESEE Countries from the Austrian Perspective

Given the long-standing economic relationships between Austria and many Central, Eastern and Southeastern European (CESEE) countries in terms of trade and FDI flows, interest in high-quality forecasts for economic developments in this region is great, particularly on the part of the Oesterreichische Nationalbank (OeNB). Developments in this region feed into the OeNB's outlook for the Austrian economy as an important external assumption. Furthermore, Austrian investors in general, and especially Austrian commercial banks, are heavily involved in the CESEE countries and so macroeconomic projections for these countries also constitute an important input into the OeNB's regular stress-testing exercises. The OeNB has therefore started to produce its own outlook for selected Central, Eastern and Southeastern European countries in order to enlarge the set of available projections. Besides being used for internal purposes, this outlook is offered by the OeNB as additional input into the agreement on the external assumptions in the first round of the ECB's broad macroeconomic projection exercise (BMPE), which is published in the June and December issues of the ECB's Monthly Bulletin.

The OeNB has been providing forecasts for economic developments in three countries, namely the Czech Republic, Hungary and Poland, for a long time. These forecasts were based on informed expert judgments as well as on regression analyses and elasticity estimates (Reiniger, 2008). The existing set of tools for forecasting economic developments in the CESEE countries has now been complemented by a more formal approach. Since April 2009, the informed expert judgments

<sup>1</sup> University of Innsbruck, Department of Economics, [jesus.crespo-cuaresma@uibk.ac.at](mailto:jesus.crespo-cuaresma@uibk.ac.at), Oesterreichische Nationalbank (OeNB), Foreign Research Division, [martin.feldkircher@oenb.at](mailto:martin.feldkircher@oenb.at), [tomas.slacik@oenb.at](mailto:tomas.slacik@oenb.at), and [julia.woerz@oenb.at](mailto:julia.woerz@oenb.at) (corresponding author). We would like to thank Catherine Keppel and Anna Orthofer (both OeNB) for their valuable contributions to the model for Bulgaria and for their excellent research assistance. We would also like to thank Markus Eller, Gerhard Fenz, Christian Ragacs and Thomas Reininger (all OeNB) for their helpful comments.

have been supported by a simple macroeconomic model, which is estimated in a multivariate time series framework. More precisely, we now estimate an error correction (EC) model for each country by means of seemingly unrelated regressions. First and foremost, the model serves to check the consistency and plausibility of the expert judgments, which continue to play an important role in the OeNB's outlook. The OeNB's outlook for selected Central and Eastern European countries is published biannually in the second- and fourth-quarter issues of the Focus of European Economic Integration (FEEI), together with the outlook for Russia<sup>2</sup> compiled by Suomen Pankki – Finlands Bank. The small selection of countries reflects the OeNB's initial focus on the three largest (in terms of nominal GDP) Central European countries and Russia (given its strategic importance). However, this focus is gradually being expanded, with Bulgaria and Croatia being added in a first step. Romania will follow as soon as the necessary time series fulfill some basic requirements that essentially relate to length.<sup>3</sup> Owing to the comparably weaker economic ties between Austria and the Baltic countries, the OeNB decided against the development and maintenance of country-specific models for these three countries. However, Austria's tight economic linkages with Croatia and the heavy involvement of its banking sector in Croatia, as well as Croatia's advanced status in terms of EU accession, justified the development of a separate country model for Croatia.

In the next section, we describe the forecasting model. Section 3 discusses the dataset and the time series properties of the relevant variables that are necessary for our EC model, while section 4 deals with the evaluation of the out-of-sample model performance from a historical perspective. Section 5 concludes.

## 2 A Simple but Effective Macroeconomic Model for CESEE Countries

Our forecasting tool is a country-specific macromodel, the core part of which consists of six structural cointegration relationships. The structure of the model is based on a simple aggregate demand and aggregate supply model as used by Merlevede, Plasmans and Van Aarle (2003). Keeping our model as simple as possible, we focus on private consumption, investment, exports, imports, the nominal exchange rate and the nominal interest rate. These variables are modeled within the framework of a small, predominantly Keynesian macromodel, which includes some neoclassical features, such as the dependence of private consumption on interest rates. The interest rate itself is estimated using an augmented Taylor rule. The model's core structure is derived from the following structural equations:

$$c\_priv = \alpha_1 * gdp + \alpha_2 * (ir - cpi) \quad (1)$$

$$inv = \beta_1 * gdp + \beta_2 * (ir - ppi) \quad (2)$$

<sup>2</sup> See [http://www.boj.fi/bofit\\_en/seuranta/ennuste/index.htm?year=2009](http://www.boj.fi/bofit_en/seuranta/ennuste/index.htm?year=2009).

<sup>3</sup> For the time being, real data for Romania's quarterly GDP and its components are only available from the first quarter of 2000 and, as such, the time series are too short for OeNB analysis. Given the negative GDP growth rates during the period from 1997 to 2000, an imputation of these data using available yearly price indices does not seem to be advisable. Furthermore, extending the time series to include the current severe recession would probably not be helpful for the derivation of long-run structural parameters, which we need for out-of-sample estimates and which serve as the basis for our forecasts. The OeNB's forecast for Romania is therefore based on a broad range of available information from various sources and on expert judgments.

$$exp = \gamma_1 * (er * pc\_ea / pc) + \gamma_2 * gdp\_eu + \gamma_3 * exp\_eu + \gamma_4 * gdp \quad (3)$$

$$imp = \delta_1 * gdp + \delta_2 * (er * pc\_ea / pc) \quad (4)$$

$$er = \kappa_1 * (ir - ir\_ea) + \kappa_2 * (m3 - m3\_ea) + \kappa_3 * (gdp / er - gdp\_ea) \quad (5)$$

$$ir = \varphi_1 * cpi + \varphi_2 * gdp + \varphi_3 * er + \varphi_4 * ir\_ea \quad (6)$$

The basis for using the cointegration framework is that the variables of interest are linked by a long-run relationship as determined by each of the six equations listed above. Private consumption (*c\_priv*) is assumed to be in an equilibrium relationship with economic output (*gdp*) and nominal interest rates deflated by consumer prices (*ir - cpi*). In the same vein, the investment equation (*inv*) is modeled as a function of GDP (*gdp*) and interest rates, this time, deflated by producer prices (*ir - ppi*). Exports (*exp*) depend primarily on domestic GDP and the real exchange rate (*er\*pc\_ea/pc*).<sup>4</sup> While the latter captures a country's competitiveness on the world markets, the former is meant to approximate its export supply capacities. Additionally, we introduce GDP (*gdp\_eu*) and exports of the EU-27 (*exp\_eu*). The former is supposed to control for the foreign demand for a country's exports on the grounds that the lion's share of its exports goes to the EU.<sup>5</sup> By contrast, exports of the EU-27 are meant as a proxy for the global trade volume and thus capture world trade trends that are common to all countries. The import equation (*imp*) is modeled more parsimoniously, relating the respective country's imports to GDP approximating domestic demand and to the real exchange rate. In the spirit of Merlevede, Plasmans and Van Aarle (2003), we model the nominal exchange rate (*er*) as a function of interest rate differentials with regard to the euro area (*ir - ir\_ea*), money supply differentials (*m3 - m3\_ea*) and GDP differentials (*gdp/er - gdp\_ea*). We deviate slightly from Merlevede, Plasmans and Van Aarle (2003) in the case of the nominal interest equation (*ir*). Here we use an augmented Taylor rule incorporating inflation (*cpi*), the nominal exchange rate (*er*) and nominal interest rates in the euro area (*ir\_ea*). GDP is introduced as an additional term in order to capture the cyclical position of the economy, which is traditionally measured by the output gap. Furthermore, the lack of reliable data impedes the use of an unemployment gap in our model.

This core model is adapted for each country by dropping highly insignificant parameters in the system of six equations, in order to obtain the best fit to the data and to save degrees of freedom. Thus, we arrive at five models with small country-specific nuances. Owing to the currency board arrangement in Bulgaria, a more far-reaching deviation from the core model is used in this case: The exchange rate and interest rate are both assumed to be constant and to follow an autoregressive (AR) process.<sup>6</sup>

<sup>4</sup> Here, "pc" refers to the domestic consumer price index and "pc\_ea" to that of the euro area.

<sup>5</sup> As an alternative, we tried using imports rather than GDP of the EU-27 to proxy for foreign demand. However, the equation's explanatory power was greater when using GDP.

<sup>6</sup> In the future, we envisage modeling interest rates in Bulgaria according to the specification used by the Bulgarian National Bank. We would like to thank Emilia Penkova from the Bulgarian National Bank for drawing our attention to this possibility.

Table 1

**p-Values of the Augmented Dickey-Fuller Test for the Stationarity of DOLS Residuals**

	Bulgaria	Czech Republic	Croatia	Hungary	Poland
Consumption	0.000	0.001	0.000	0.020	0.000
Exchange rate	–	0.047	0.024	0.006	0.016
Exports	0.000	0.000	0.000	0.001	0.000
Imports	0.000	0.001	0.021	0.037	0.000
Investment	0.000	0.024	0.014	0.000	0.006
Interest rate	–	0.000	0.000	0.000	0.003

Source: Authors' calculations.

Note: p-values of the augmented Dickey-Fuller unit root tests (without constant or trend) on the residuals of the DOLS regression. A p-value < 0.05 indicates that the null of a unit root can be rejected at the 5% level of statistical significance.

To check whether the cointegration assumption is justified and whether the long-run relationships are well specified, we carry out a cointegration test. In this test, we take account of the possible endogeneity among the variables in the form of a simultaneity bias by using the dynamic ordinary least squares (DOLS) method developed by Stock and Watson (1993). This test essentially boils down to estimating the long-run equilibrium relationship extended by lags and leads of all included variables by ordinary least squares (OLS) and testing the deviations from the long-run relationship (i.e. the residuals) for stationarity. The results are presented in table 1,<sup>7</sup> which displays the p-values of a unit root test on the residuals obtained in the DOLS regression. All of the DOLS residuals are stationary at the 5% significance level, which suggests that both the cointegration assumption and the model specification are correct. In economic terms, each long-run relationship identifies the determinants of the long-run growth of the respective GDP component in our model. The presence of these cointegrating relationships implies the stability of the investment, consumption, export and import ratios in GDP, augmented by other variables. It also implies common stochastic trends in our variables.<sup>8</sup>

Once we have successfully completed the necessary tests for nonstationarity in all time series and for cointegration in the long-run equilibrium relationships, we then estimate the entire system of equations. Each of the six structural equations outlined in equations (1) to (6) is specified in the form of an EC model, with  $\gamma$  denoting the error correction parameter:

$$\Delta y_t = a\Delta y_{t-1} + b'\Delta X_{t-1} + \gamma(y_{t-1} - \alpha - \beta'X_{t-1}) + \varepsilon_t \quad (7)$$

This parameter reflects how quickly the cointegrated (i.e. cotrending) variable returns to its long-run relationship once it is out of equilibrium.

All other exogenous variables (i.e. those variables not appearing on the left-hand side of equations (1) to (6)) entering the model are assumed to follow a simple AR(1) process, which is the least costly modeling option in terms of lost observa-

<sup>7</sup> Owing to degree of freedom constraints, we used only one lag and one lead in the DOLS estimations.

<sup>8</sup> Given the short- to medium-term nature of our forecasts, we do not think that demographic change plays an important role in our forecasts.

Table 2

**Adjustment Parameters Associated with the Equilibrium Correction Terms**

	Bulgaria	Czech Republic	Croatia	Hungary	Poland
<b>Consumption</b>	<b>-0.539</b>	<b>-0.213</b>	<b>-1.195</b>	<b>-0.162</b>	<b>-0.343</b>
t-statistic	(-5.9523)	(-3.9939)	(-5.16507)	(-2.7675)	(-3.6699)
p-value	0.000	0.000	0.000	0.006	0.000
<b>Exchange rate</b>	-	<b>-0.124</b>	<b>-0.332</b>	-0.108	<b>-0.092</b>
t-statistic	-	(-3.3875)	(-5.0211)	(-1.5885)	(-2.2661)
p-value	-	0.001	0.000	0.113	0.024
<b>Exports</b>	<b>-0.773</b>	<b>-0.344</b>	<b>-1.345</b>	<b>-0.315</b>	<b>-0.641</b>
t-statistic	(-9.6034)	(-2.7979)	(-10.0714)	(-4.0128)	(-5.5351)
p-value	0.000	0.005	0.000	0.000	0.000
<b>Imports</b>	<b>-0.786</b>	<b>-0.118</b>	<b>-0.161</b>	-0.049	<b>-0.351</b>
t-statistic	(-5.8490)	(-1.6962)	(-1.9514)	(-1.4822)	(-3.8359)
p-value	0.000	0.090	0.051	0.139	0.000
<b>Investment</b>	<b>-0.649</b>	<b>-0.224</b>	-0.087	-0.148	<b>0.101</b>
t-statistic	(-4.2423)	(-2.9369)	(-1.0254)	(-1.5048)	(1.4551)
p-value	0.000	0.003	0.306	0.133	0.146
<b>Interest rate</b>	-	-0.161	<b>-0.392</b>	<b>-0.436</b>	<b>-0.128</b>
t-statistic	-	(-1.5577)	(-3.2282)	(-4.4106)	(-2.7646)
p-value	-	0.120	0.001	0.000	0.006

Source: Authors' calculations.

Note: Parameters significant at the 10% level are highlighted in bold.

tions and degrees of freedom. However, it should be noted that the results do not change significantly if the optimal lag length of the AR processes is chosen according to standard information criteria. This is probably due to the fact that the optimal lag length proved to be 1 in most cases anyway.<sup>9</sup>

This system of six structural equations and 11 AR processes<sup>10</sup> is then estimated by means of seemingly unrelated regressions in order to account for correlations between the model components through the unobserved correlation in the error terms. The joint estimation of these six equations is meaningful from both an economic point of view (to account for shocks common to all variables, such as business cycle fluctuations, etc.) and a statistical point of view (the joint estimation enhances statistical efficiency). More precisely, we estimate only eight of the ten AR(1) processes, while we update the time series for the EU-27 (GDP and exports) with the most recent ECB forecasts in order to qualitatively improve our baseline forecast. In most cases, the estimated parameters in the model behave well. In table 2, we report the most important coefficients of the equilibrium correction terms, all of which (except one) show up with the expected, in most cases significant, negative sign. Instances where this parameter has no significance sometimes occur in the investment equation, in the exchange rate equation for Hungary and the interest rate equation for the Czech Republic. In Croatia, there are two instances where the adjustment parameter is greater than 1 in absolute value terms,

<sup>9</sup> Owing to the limited sample size, the maximum number of possible lags was restricted to four.

<sup>10</sup> For the following exogenous variables: euro area inflation, inflation in the respective country, euro area money supply, money supply in the respective country, EU-27 GDP, EU-27 exports, euro area GDP, euro area interest rates, producer prices, stock changes and public consumption.

which does not pose a statistical problem, but implies some overshooting in the adjustment.<sup>11</sup>

The structural parameters obtained through the seemingly unrelated regression are then used to derive one- to eight-steps-ahead dynamic forecasts. Our GDP forecast is derived as the sum of the forecasts for the individual components.

### 3 Description of the Database

For each country, we use quarterly data on GDP and its components, as published by Eurostat. Our sample ranges from the first quarter of 1995, or in the case of Bulgaria from the first quarter of 1998, to the most recent quarter for which data have been published. In cases where the time series provided by Eurostat do not extend back to the beginning of 1995, we have completed our dataset with monthly data from the Vienna Institute for International Economic Studies (wiiw) and from national sources. Thus, we estimate the structural equations in the model, using a sample that is supposedly unbiased by the deep recession which followed the fall of communism. Apart from the most recent crisis, there are no obvious major structural breaks in the estimation sample, which should provide for rather stable coefficients for our variables of interest.<sup>12</sup> We use real data generated by the chain-link method used by Eurostat and take logs. All series are seasonally detrended according to the Census X12 method.<sup>13</sup>

Table 3 provides a list of all variables used in the model, along with a short description of their time series properties. At the heart of our empirical framework is the concept of cointegration. Hence, we aim to model long-term equilibrium relationships between the economic variables of interest. In particular, we estimate the long-run relationships between economic variables by means of an EC model. The prerequisite for cointegrated time series is that they are integrated of the same order, namely  $d > 0$ . In macroeconomics, this order of integration is typically one. In this case, the time series is said to have a unit root in levels. Thus, we initially test for this form of nonstationarity, using the augmented Dickey-Fuller test. The results of these tests are summarized in table 3 for all countries. All variables have a unit root, albeit with a few exceptions, namely producer price inflation in most countries and the real interest rate in Bulgaria and Hungary. Of course, for some of these time series, the test rejects the null of a unit root, but a visual inspection suggests that nonstationarity is a more plausible assumption. In particular, the inflation paths in the Czech Republic, Hungary and Poland show a rather strong disinflationary trend at the beginning of the sample. In fact, most of the applied econometrics literature does indeed treat these trend stationary series as unit root processes (see Enders and Granger, 1998; Engle and Granger, 1991). Other series, which are clearly stationary, such as the nominal exchange rate or interest rates in Bulgaria owing to its currency board arrangement, or stock changes in Poland, are less problematic in our context as they do not enter these

<sup>11</sup> In the most recent projection round, however, where the sample was extended to include data up to the second quarter of 2009, all parameters remained below 1. This suggests that the previously observed overshooting was of a temporary nature and possibly related to the unfolding economic crisis.

<sup>12</sup> EU membership and its economic impact on the countries covered in this analysis can be considered a smooth process and is not what is referred to as a "structural break" in the time series literature.

<sup>13</sup> We chose this method as it is also used by Eurostat to deseasonalize the EU and euro area series.

Table 3

### List of Variables Included in the Model and Summary of Their Time Series Properties

Variable name	BG	HR	CZ	HU	PL	EU/EA
GDP, constant prices	+	+	+	+	+	n.u.
Private consumption	+	+	+	+	+	n.u.
Public consumption	+	+	+	+	+	n.u.
Gross fixed capital formation, constant prices	x	+	+	+	+	n.u.
Exports, constant prices	+	+	+	+	+	+
Imports, constant prices	+	+	+	+	+	+
Stock changes, constant prices	+	+	+	+	z	n.u.
Nominal exchange rate (local currency/euro), period average	z	+	+	+	+	n.u.
Real exchange rate, CPI deflated	+	+	+	+	+	+
Real exchange rate, PPI deflated	+	+	+	+	+	+
Nominal 3-month interbank deposit rate, period average	+	+	+	+	+	+
Real 3-month interbank deposit rate, CPI deflated	z	+	+	z	+	+
Real 3-month interbank deposit rate, PPI deflated	z	z	+	z	+	+
PPI index	+	+	+	+	+	+
PPI inflation, year on year	z	z	+/z	+/z	+/z	+
CPI index	+	+	+/z	+	+	+
CPI inflation, year on year	z	+	+	+/z	+/z	+
Central government expenditure	+	+	+	+	+	n.u.
Central government revenues	+	+	+	+	+	n.u.
M3, EUR million	+	+	+	+	+	+

Source: Authors' calculations.

Note: z denotes that a unit root can be rejected, i.e. the corresponding time series is not considered to be  $I(1)$ ; x denotes that the time series can be considered to be trend stationary. For all other time series, the hypothesis of a unit root cannot be rejected and hence they are considered to be  $I(1)$  and thus fulfill the necessary requirements for use in our error correction model. "n.u." means "not used."

countries' cointegration equations as endogenous variables. Overall, we can therefore conclude that the time series largely fulfill the necessary requirements for use in our econometric model.

## 4 Model Validation

To evaluate the forecasting power of our model in terms of accuracy and direction of change, we carry out the following exercise: We exclude a time window of eight quarters at the beginning of the sample and use the remaining data to simultaneously estimate the parameter values for (1) our EC model and (2) a parsimonious benchmark model, in which all variables are modeled as simple AR(1) processes. Using these parameter estimates, we produce an out-of-sample forecast with both models – the structural model and the AR benchmark model – for one to eight quarters for the eight-quarter time window previously excluded. The forecasting errors are computed by comparing both sets of forecasts with the realized values.

Based on a rolling regression framework, the eight-quarter time window is subsequently moved one quarter ahead, the models are re-estimated and new out-of-sample forecasts are obtained for the shifted eight-quarter time window. In principle, this procedure could be repeated until the time window reaches the end of the sample and all available observations have been used to estimate the model parameters. However, in order not to spoil the model estimation, we prefer to exclude the recent period of financial turmoil. We therefore move the eight-quarter time window over the sample until its start reaches the third quarter of 2008.

This means that the last model parameters are estimated using data only up to the second quarter of 2008.

For each of the eight forecasting horizons, we compute three quality indicators to evaluate the forecasting ability of our EC model: the hit rate, an indicator of the growth rates' sign matching and the Diebold-Mariano test (a description of these indicators is given in the annex). The results of these calculations – carried out for all five countries and for three selected variables: GDP, imports and the exchange rate – are rather mixed (see table A1). Starting with the hit rate, a few striking observations are worth noting. First, the hit rate is particularly high for Poland, the Czech Republic and Hungary, while it is significantly lower for Croatia and rather poor for Bulgaria. Second, except for the Czech Republic and Bulgaria, the hit rate is typically slightly higher for GDP than for imports, and is substantially lower for the exchange rate. Nevertheless, against the backdrop of the well-documented fact that predicting the exchange rate is an extremely challenging task, the hit rate for the exchange rate is comparatively high, especially in the case of the Czech Republic. Similar conclusions to those for the hit rate may be drawn for the growth rates' sign matching indicator, although the differences between the variables and countries are much less pronounced. Moreover, the sign of the forecast growth rates rather tends to coincide with the actual growth rates at shorter horizons.

Furthermore, the results of the Diebold-Mariano test reveal that the forecasting performance of the EC model is moderate. Our structural model seems to significantly outperform the benchmark AR model only when forecasting the exchange rate for Poland (at most horizons), the GDP in Hungary (four to eight quarters ahead) and imports in the Czech Republic (in the medium run). In some cases, the simple benchmark model has a significantly better forecasting ability than our structural model, particularly at some horizons, for GDP in Poland and Croatia, and for both GDP and imports in Bulgaria. In all other cases, both models demonstrate equal forecasting power in the statistical sense.

Although the flexible design of our model allows for some country-specific adjustments that might still leave scope for improvement in the predictive power, the mixed results of the evaluation exercise most likely reflect the dynamic nature of the transition process as well as the limited availability and, in some cases, quality of data. This can best be seen by comparing the forecast results for Bulgaria with those of the other countries. Such a comparison shows that the latter forecasts outperform the forecasts for Bulgaria by a wide margin. Against this backdrop, our structural model for the CESEE countries performs fairly well, and we expect further gains in forecasting accuracy as more data become available and their quality improves.

## 5 Conclusions

Given the strong economic linkages between Austria and the CESEE region, well-founded, timely and reliable estimates of future developments of fundamental macroeconomic variables are highly relevant in general, but especially for the OeNB, as it is involved in banking supervision in Austria and monetary policy decision making within the ESCB.

In this paper, we have therefore provided an overview of our country-specific macroeconomic EC model as it currently stands, which is estimated in a multi-

variate time series framework for five CESEE countries. The model provides an additional tool for forecasting short-term macroeconomic developments in the CESEE countries, a region for which model-based forecasts other than those generated by national institutions are still rare. Our structural model has been kept rather simple and well-specified from a statistical point of view. As such, however, it does not yet outperform even more simple time series models in terms of forecasting ability. This may be related to the dynamic developments that the transition countries have been experiencing over the last few years as well as to data limitations (both in terms of the shortage and quality of available time series). It was our intention, however, to include economic reasoning in our model, and so we did not opt for a pure time series model. We have conducted a range of validation tests, but will continue to validate the model outcome on a regular basis, by also extending the range of tests to include tests for structural breaks in the time series and by estimating impulse response functions to important policy-control variables.

Despite the fact that there is still scope for improvement in the model's forecasting power, we believe that our simple macromodel is superior to other econometric forecasting tools for several reasons. To begin with, our model provides a simple and flexible framework for obtaining forecasts for GDP and its components. It relies exclusively on estimated parameters and therefore avoids any uncertainty associated with calibration based on deep parameters that are not country-specific. This is particularly relevant for the CESEE countries, where part of the transition dynamics is systematically interpreted as an out-of-equilibrium adjustment. Furthermore, we can readily include country-specific factors based, for instance, on monetary policy strategies (exchange rate regimes, inflation targeting, etc.). Yet another advantage of this framework is that some of the variables can easily be made exogenous, should this be necessary for the incorporation of information emanating from forecasts outside the model framework or from expert assessments. Finally, owing to its autoregressive components, the model reacts extremely quickly to exogenous shocks, albeit at the cost mostly of missing turning points. Moreover, as has been documented in the literature, simpler and less resource-consuming aggregate supply and aggregate demand models often outperform even sophisticated dynamic stochastic general equilibrium (DSGE) models in terms of predictive power and accuracy (see for instance Colander et al., 2008; Rubaszek and Skrzypczyński, 2008; Wang, 2008).

## References

- Colander, D., P. Howitt, A. Kirman, A. Leijonhufvud and P. Mehrling. 2008.** Beyond DSGE Models: Towards an Empirically-Based Macroeconomics. Paper for presentation at the 2008 American Economics Association Meetings. Retrieved from [http://www.econ.brown.edu/fac/Peter\\_Howitt/publication/complex%20macro6.pdf](http://www.econ.brown.edu/fac/Peter_Howitt/publication/complex%20macro6.pdf) on August 25, 2009.
- Diebold, F. X. and R. S. Mariano. 1995.** Comparing Predictive Accuracy. In: *Journal of Business and Economic Statistics* 13, 253–263.
- Enders, W. and C. W. J. Granger. 1998.** Unit-Root Tests and Asymmetric Adjustment with an Example Using the Term Structure of Interest Rates. In: *Journal of Business and Economic Statistics* 16(3), 304–311.

- Engle, R. F. and C. W. J. Granger. 1987.** Co-Integration and Error Correction: Representation, Estimation, and Testing. In: *Econometrica* 55(2). 251–276.
- Engle, R. F. and C. W. J. Granger. 1991.** Long-run economic relationships: Readings in cointegration. *Advanced Texts in Econometrics*. Oxford: Oxford University Press.
- Reininger, T. 2008.** Factors Driving Import Demand in Selected Central, Eastern and South-eastern European Countries. In: *Focus on European Integration* 1/08. OeNB. 100–125.
- Rubaszek, M. and P. Skrzypczyński. 2008.** On the forecasting performance of a small-scale DSGE model. In: *International Journal of Forecasting* 24. 498–512.
- Stock, J. and M. W. Watson. 1993.** A simple estimator of cointegrating vectors in higher order integrated systems. In: *Econometrica* 61(4). 783–820.
- Wang, M.-Ch. 2008.** Comparing the DSGE model with the factor model: an out-of-sample forecasting experiment. *Deutsche Bundesbank Discussion Paper Series 1: Economic Studies* No 04/2008.
- Merlevede, B., J. Plasmans and B. Van Aarle. 2003.** A Small Macroeconomic Model of the EU-Accession Countries. In: *Open Economies Review* 14. 221–250.

## Annex: Model Validation

The following three measures are used to evaluate the forecasting ability of our model:

- the Diebold-Mariano test (Diebold and Mariano, 1995), for which the null hypothesis is that the forecasting ability of the EC model and the benchmark AR model are equal. In other words, we test whether the difference between the root mean squared error (RMSE) of the EC model and the benchmark AR model is statistically different from 0. The RMSE is a measure of the forecasts' accuracy and is defined as

$$\text{RMSE}_h = \sqrt{\frac{\sum_{n=1}^{N_h} (g_n - \hat{g}_n)^2}{N_h}},$$

whereby  $N_h$  denotes the number of  $h$ -steps ahead forecasts computed,  $g_n$  is the actual value of the respective variable and  $\hat{g}_n$  is the corresponding forecast.

- the hit rate states, for a given horizon, the percentage of cases in which the forecast movement direction of a variable relative to its current level coincides with the direction of change of the realized data. Hence, formally, the hit rate for a horizon  $h$  ( $\text{HR}_h$ ) is defined as follows:

$$\text{HR}_h = 1 \text{ if } \{(g_{t+h} - g_t) > 0 \text{ and } (\hat{g}_{t+h} - g_t) > 0\} \text{ or if } \{(g_{t+h} - g_t) < 0 \text{ and } (\hat{g}_{t+h} - g_t) < 0\}$$

and  $\text{HR}_h = 0$  else.

$g_{t+h}$  denotes the actual value of the respective variable  $h$ -steps ahead from time  $t$ , while  $\hat{g}_{t+h}$  is again the corresponding forecast.

- finally, the growth rates' sign matching indicates, for each horizon, the percentage of cases in which the sign of the year-on-year growth rate of the forecast series matches the sign of the year-on-year growth rate of the realized data series.

Table A1

## Results of the Model Evaluation

### Bulgaria

Forecast horizon (quarters)	Number of observations	Diebold-Mariano test		Hit rate		Growth rates' sign matching	
		GDP	IMP	GDP	IMP	GDP	IMP
1	38	<b>-8.3E-05</b> (-2.2605)	-1.4E-04 (-0.4628)	0.737	0.763	1.000	1.000
2	38	5.5E-05 (0.5835)	-4.5E-04 (-0.5775)	0.895	0.816	1.000	0.974
3	38	-4.5E-05 (-0.2394)	-2.6E-04 (-0.3090)	0.921	0.868	0.974	0.947
4	37	9.6E-05 (0.2885)	-8.5E-05 (-0.0465)	0.892	0.811	0.947	0.921
5	36	4.1E-04 (0.8038)	1.1E-03 (0.4768)	0.889	0.861	0.921	0.895
6	35	7.1E-04 (1.1013)	2.7E-03 (0.9333)	0.914	0.886	0.895	0.868
7	34	1.0E-03 (1.0565)	2.8E-03 (0.6631)	0.912	0.853	0.868	0.842
8	33	<b>2.0E-03</b> (1.6846)	3.6E-03 (0.7188)	0.939	0.909	0.842	0.816

### Czech Republic

Forecast horizon (quarters)	Number of observations	Diebold-Mariano test			Hit rate			Growth rates' sign matching		
		GDP	IMP	ER	GDP	IMP	ER	GDP	IMP	ER
1	47	<b>5.9E-05</b> (1.6647)	1.1E-04 (0.9595)	-4.2E-05 (-0.4352)	0.660	0.830	0.638	0.915	0.979	0.957
2	47	<b>2.1E-04</b> (1.7022)	-4.1E-04 (-0.9694)	-2.0E-04 (-0.5048)	0.766	0.894	0.745	0.851	0.957	0.894
3	47	5.0E-04 (1.4535)	-2.0E-03 (-1.6231)	-6.5E-04 (-0.9680)	0.830	0.979	0.596	0.872	0.957	0.894
4	46	<b>1.0E-03</b> (1.7104)	-2.1E-3 (-1.5781)	-6.3E-04 (-0.8380)	0.848	0.957	0.652	0.851	0.957	0.745
5	45	<b>1.6E-03</b> (1.7808)	<b>-2.2E-03</b> (-1.8664)	-4.1E-04 (-0.5078)	0.911	0.933	0.711	0.851	0.872	0.787
6	44	<b>2.4E-03</b> (1.9416)	-2.5E-03 (-1.6258)	-6.9E-04 (-0.6151)	0.909	0.932	0.818	0.851	0.851	0.872
7	43	<b>3.2E-03</b> (1.9628)	-2.8E-03 (-1.2980)	-1.2E-03 (-0.7546)	0.907	0.977	0.814	0.830	0.830	0.872
8	42	<b>4.0E-03</b> (1.8803)	-3.3E-03 (-1.2586)	-2.2E-03 (-1.0418)	0.929	0.976	0.857	0.830	0.809	0.894

### Hungary

Forecast horizon (quarters)	Number of observations	Diebold-Mariano test			Hit rate			Growth rates' sign matching		
		GDP	IMP	ER	GDP	IMP	ER	GDP	IMP	ER
1	47	-1.4E-05 (0.4965)	-5.1E-05 (-0.3773)	1.0E-04 (-1.3411)	0.702	0.766	0.638	1.000	1.000	0.936
2	47	-4.2E-06 (0.0403)	1.1E-04 (0.1567)	-2.6E-04 (-0.7717)	0.787	0.830	0.596	1.000	0.979	0.872
3	47	-5.0E-04 (-1.4172)	-2.2E-04 (-0.0931)	-2.3E-04 (-0.2829)	0.957	0.915	0.638	1.000	0.957	0.851
4	46	<b>-7.8E-04</b> (-1.7106)	2.7E-04 (0.0989)	7.4E-06 (0.0051)	1.000	0.957	0.609	0.979	0.936	0.894
5	45	<b>-1.1E-03</b> (-1.9570)	4.2E-04 (0.1437)	-1.0E-04 (-0.0483)	0.978	0.956	0.511	0.957	0.915	0.872
6	44	<b>-1.4E-03</b> (-1.9966)	1.7E-04 (0.0485)	-3.8E-04 (-0.1386)	0.977	0.955	0.477	0.936	0.894	0.809
7	43	<b>-1.8E-03</b> (-1.9919)	-1.5E-04 (-0.0360)	-6.1E-04 (-0.1781)	0.977	0.953	0.465	0.915	0.851	0.745
8	42	<b>-2.4E-03</b> (-1.9448)	2.0E-04 (0.0421)	-1.7E-03 (-0.4158)	0.976	0.976	0.429	0.894	0.830	0.723

Table A1 continued

**Results of the Model Evaluation****Croatia**

Forecast horizon (quarters)	Number of observations	Diebold-Mariano test			Hit rate			Growth rates' sign matching		
		GDP	IMP	ER	GDP	IMP	ER	GDP	IMP	ER
1	47	<b>3.4E-04</b> (2.6356)	2.1E-04 (0.7954)	2.3E-05 (0.9892)	0.660	0.596	0.574	1.000	1.000	0.830
2	47	7.7E-04 (1.5228)	4.6E-04 (0.6422)	1.5E-04 (1.6392)	0.617	0.617	0.447	0.979	0.957	0.766
3	47	1.7E-03 (1.3882)	2.3E-04 (0.1509)	<b>3.2E-04</b> (1.9741)	0.638	0.596	0.426	0.957	0.894	0.766
4	46	<b>3.3E-03</b> (1.8100)	1.3E-03 (0.5469)	3.0E-04 (1.2612)	0.565	0.543	0.478	0.915	0.872	0.702
5	45	<b>4.4E-03</b> (1.6504)	1.1E-03 (0.3334)	-8.8E-06 (-0.0304)	0.644	0.600	0.600	0.894	0.872	0.723
6	44	5.6E-03 (1.4461)	1.3E-03 (0.3023)	-3.4E-04 (-0.9725)	0.659	0.636	0.523	0.872	0.851	0.681
7	43	6.9E-03 (1.3670)	1.5E-03 (0.2794)	-5.7E-04 (-1.3621)	0.651	0.651	0.581	0.830	0.830	0.532
8	42	9.2E-03 (1.4501)	2.2E-03 (0.3517)	-8.1E-04 (-1.6004)	0.667	0.690	0.548	0.809	0.830	0.468

**Poland**

Forecast horizon (quarters)	Number of observations	Diebold-Mariano test			Hit rate			Growth rates' sign matching		
		GDP	IMP	ER	GDP	IMP	ER	GDP	IMP	ER
1	47	<b>2.0E-04</b> (1.7399)	-5.6E-04 (-1.1249)	-3.8E-04 (-1.5348)	0.745	0.638	0.638	1.000	0.894	0.851
2	47	<b>5.4E-04</b> (2.6867)	-3.8E-04 (-0.4908)	-6.8E-04 (-1.3767)	0.766	0.745	0.532	1.000	0.915	0.809
3	47	<b>7.9E-04</b> (2.7561)	-0.19E-04 (-0.1140)	<b>-1.9E-03</b> (-1.8728)	0.766	0.702	0.638	0.979	0.894	0.745
4	46	<b>9.7E-04</b> (2.8986)	9.4E-04 (0.3555)	<b>-3.0E-03</b> (-2.0718)	0.826	0.804	0.587	0.957	0.809	0.617
5	45	<b>1.0E-03</b> (2.9687)	1.9E-03 (0.5925)	<b>-5.2E-03</b> (-2.6300)	0.889	0.844	0.533	0.936	0.787	0.574
6	44	<b>8.8E-04</b> (2.2149)	2.4E-03 (0.6268)	-7.7E-03 (-3.0989)	0.955	0.864	0.591	0.915	0.766	0.553
7	43	5.9E-04 (1.1152)	1.1E-03 (0.2316)	<b>-1.0E-02</b> (-3.4557)	0.977	0.907	0.605	0.894	0.766	0.532
8	42	4.7E-04 (0.7063)	5.2E-04 (0.0975)	<b>-1.4E-02</b> (-3.8108)	1.000	0.881	0.595	0.872	0.745	0.447

Source: Authors' calculations.

Note: *t*-values are reported in parentheses below the Diebold-Mariano test statistics and values in bold imply rejection of the null hypothesis of no difference between the EC model and the AR(1) benchmark model at the 10% or higher significance level. If the test statistic is negative (positive), the EC (the AR) model performs better in terms of predictive accuracy. The hit rate reports the percentage of cases in which the forecast movement direction of a variable relative to its current level coincides with the direction of change of the realized data. The growth rates' sign matching indicates, for each horizon, the percentage of cases in which the sign of the year-on-year growth rate of the forecast series matches the sign of the year-on-year growth rate of the realized data series.



## Highlights

# The Euro's Contribution to Economic Stability in CESEE

## Conference on European Economic Integration

Compiled by  
Andreas  
Breitenfellner<sup>1</sup>

This year's *Conference on European Economic Integration* (CEEI) of the *Oesterreichische Nationalbank* (OeNB) was dedicated to the theme "The Euro's Contribution to Economic Stability in CESEE" and took place in Vienna on November 16 and 17, 2009.<sup>2</sup> The central issue was whether the euro has become an attractive anchor of financial and economic stability in the countries of Central, Eastern and South-eastern Europe (CESEE), in particular for those countries that have not yet introduced the euro. More than 300 participants from over 30 countries followed the lively discussions of high-profile representatives of central banks, international organizations and academia.

In his opening speech, *Ewald Nowotny*, Governor of the OeNB and Member of the Governing Council of the ECB, recalled the stabilizing effects of the euro. While failing to prevent the build-up of internal and external imbalances, the common currency had indeed cushioned the effects of global shocks in the euro area. Especially in times of crisis these stabilizing effects had to be counter-weighted adequately to offset risks, though. One such risk, namely an additional risk of foreign exchange fluctuation, had been created by the high volumes of foreign currency loans granted in some CESEE countries. Banks would therefore have to adapt their business models accordingly.

According to Nowotny, the optimal timing for introducing the euro differs from country to country. The positive stability effects for the respective economy had to be balanced against the risk of giving up the exchange rate too early as an economic policy instrument, which makes getting the timing of euro introduction right a challenge. To this end, the so-called Maastricht criteria as well as sufficient flexibility of labor and product markets would offer a suitable framework for decision-taking.

In referring to the euro's place as one of the leading world currencies, Nowotny recalled the fact that the European Union – the potential future monetary union – exceeded the U.S.A. even today in terms of GDP. At the same time, the common currency had been constantly gaining in importance outside the euro area, in particular in Southeastern Europe, where the euro is high in demand for transactions and as a store of value.

Finally, Nowotny paid tribute to the anniversary of two important milestones in the process of European integration, namely the fall of the Iron Curtain 20 years ago and the beginning of European Economic and Monetary Union (EMU) 10 years ago. The fact that Europe had mastered the deepest financial and economic crisis of post-war history relatively well might in no small part be attributed to the preparedness of European policymakers to meet the challenges together.

<sup>1</sup> On the basis of notes taken by Markus Eller, Martin Feldkircher, Jarko Fidrmuc, Sándor Gardó, Mathias Lahnsteiner, Thomas Reiningger, Thomas Scheiber, Tomáš Slačik and Julia Würz.

<sup>2</sup> The conference proceedings will be published by Edward Elgar Publishing Ltd. in the course of the year 2010. Presentations and papers as well as information about speakers and the program are available at [www.oenb.at](http://www.oenb.at) under Services and Events.

## The Euro's Role on the World Stage

*Joaquín Almunia*, Member of the *European Commission* responsible for Economic and Monetary Affairs, held the first keynote lecture, in which he addressed above all developments in the new EU Member States (NMS) and the EU candidate and potential candidate countries in CESEE: While all these countries had been badly hit by the crisis (following a sharp decline in global demand and retrenchment of capital inflows), the recession and financial strains had been stronger in those countries that had been suffering from major imbalances or policy weaknesses already at the onset of the crisis. However, the EU had rapidly shown its solidarity with its members in difficulty, activating the EU's medium-term assistance facility for the first time in 15 years and raising the ceiling of this facility fourfold to EUR 50 billion. Since October 2008, support programs (in cooperation with international institutions and in combination with bilateral support) had been launched for Hungary, Latvia and Romania, bringing total commitments under the facility to EUR 14.6 billion. In conjunction with the accompanying policy programs, the international assistance had contributed to stabilizing market expectations, restoring access to private external financing and preventing an even larger recession (by providing budget financing to allow greater operation of automatic stabilizers than would have been possible otherwise). This had helped limit the social effects of the crisis. The private sector had been involved in the crisis resolution efforts as well. Parent banks had so far provided the necessary funding to their affiliates in the new EU Member States, and in the context of the European banking coordination initiative – the so-called *Vienna Initiative* – parent banks had pledged to maintain exposure to these countries and recapitalize their affiliates if necessary.

Almunia stressed the heightened attractiveness of the euro: Among countries with pegged exchange rate regimes, the crisis had reinforced the prevailing euro adoption strategies. Euro adoption was perceived as a credible exit strategy proping up confidence (residents and nonresidents alike) in the pegs and as offering a relief to liquidity constraints and eliminating exchange rate mismatches while not imposing additional challenges on economic policies.

For countries with floating exchange rates, the crisis had highlighted the vulnerabilities coming from large fiscal deficits. However, euro adoption should not be seen as a quick fix to economic vulnerabilities, but rather as part of a broader long-term policy strategy. Membership in the euro area was enhancing resilience, but it had not eliminated the need to work out underlying imbalances. New entrants needed to prepare thoroughly to cope with life under an irrevocably fixed exchange rate. This might involve the need to improve the state of public finances, in some cases changes to the exchange rate regime, and structural reforms to strengthen domestic adjustment capacity. In this respect, the crisis might serve to galvanize public and political support for the necessary measures. Euro adoption remained a key anchor for medium-term policies and expectations. However, an accelerated euro area enlargement that would require a loosening of the entry criteria was not an option. Without sustainable convergence, euro adoption might turn out to be a suboptimal strategy for the country concerned, and it would make the management of EMU more difficult by heightening economic divergences. Compliance with the convergence criteria in a sustainable manner was in the interest of both the prospective and existing members of the euro area.

### Living with or without the Euro in Times of Crisis

The first session, chaired by OeNB Governor *Nowotny*, discussed the euro's role as an anchor for stability as illustrated by the contrasting experiences of Portugal (a euro area member since its existence), Sweden (an EU Member State that has postponed its euro adoption after a negative referendum) and Serbia (a potential candidate country with a high degree of euroization). Representatives of those three countries shared their views on the single currency against the backdrop of the current crisis.

*Pedro Duarte Neves* (Governor of *Banco de Portugal*) summarized Portugal's macroeconomic developments since adopting the euro. A strong synchronization of the business cycle and quick inflation convergence on the one hand and a substantial increase in the indebtedness of the private sector and a loss in export market shares on the other hand illustrated the costs and benefits of giving up the domestic currency. Duarte Neves concluded that enhancing banking supervision and the implementation of structural reforms to ensure competitiveness were the main challenges that some countries within the euro area – in particular Portugal – had to manage.

*Karolina Ekholm* (Deputy Governor of *Sveriges Riksbank*) noted that while the crisis had hit all economies, the consequences for the countries had varied quite strongly. As a case in point, Sweden's real economy had been affected by the recent downturn more severely (high export dependency) than its financial markets, which had remained resilient. The measures to counter the crisis taken by the Riksbank were in line with those implemented by the ECB: strong liquidity provisioning for financial markets and gradual cuts of interest rates. In the current environment – with (real) interest rates standing at record low levels – securing bank funding, lowering future policy rates and raising inflation expectations were the key measures to further provide stimuli to the economy. The Riksbank had lowered expected future policy rates by offering fixed rate loans and had recently started publishing policy rate forecasts. Moreover, the central bank had been able to provide foreign currency under swap agreements with the Federal Reserve and the ECB. Ekholm concluded that the current environment was exactly the time when an own currency was most beneficial since the crisis constituted an external shock with asymmetric consequences for the economies. At the same time, the (likely) limited ability of foreign currency provisioning to the Swedish banking sector in the event of a local crisis constituted a downside of being outside the euro area.

*Radovan Jelašić* (Governor of *Narodna banka Srbije*) pointed to the unique position of the Serbian economy, which was practically living with the euro while having officially retained its own currency. Serbia had traditionally reported high amounts of savings and loans in foreign currency, partly for historical reasons. Local banks simply had to lend in foreign currency since the level of deposits denominated in domestic currency was small. Jelašić stressed that the banking system had been remarkably resilient, although the Serbian dinar had witnessed a sizeable depreciation during the crisis despite the economy's high level of euroization. For economies with a floating exchange rate regime, it was of particular importance to have a sound supervisory policy framework and stable capital adequacy ratios in the banking system. The limits of floating would be reached when the banking system was endangered. In his concluding remarks Jelašić mentioned the stabilizing effect of coordinated policy measures undertaken by the IMF and the *Vienna Initiative*

and the need for the central bank in Serbia as a lender of last resort to provide support not only in local but also in foreign currency.

### **A Case for Rapid Euro Adoption?**

The first panel discussion brought together central bank governors of the Czech Republic, Hungary and Poland, who shared their take on how their respective country had fared during the crisis and indicated how this experience was influencing their plans and time tables for euro adoption.

The framework for this discussion was provided by an introductory statement delivered by *Gertrude Tumpel-Gugerell*, Member of the *ECB's* Executive Board. She pointed out that while national authorities in CESEE had adopted various measures to alleviate the impact of the crisis on their respective economies, the entire region had benefited from the stabilizing assistance provided by the ECB, particularly through its support to parent banks in EMU. Moreover, she emphasized that the crisis had unveiled the necessity to embark on a sustainable growth and convergence path, not only in CESEE. Alluding to often heard opinions suggesting a quick short-cut into the euro area for some countries, she explained that it was important to distinguish between necessary stabilizing measures and EMU membership. She unmistakably declared that the euro was no panacea and that the fulfillment of the Maastricht criteria was essential for EMU membership as well as in the interest of the countries in question. Hence, according to Tumpel-Gugerell the crisis has neither changed the ECB's policy on euro adoption nor its view on unilateral euroization, which is considered not in line with the Treaty.

*András Simor* (Governor of *Magyar Nemzeti Bank*) started off by assuring that the Hungarian central bank had always favored early euro adoption despite a number of risks. However, prior to the crisis an unhealthy macroeconomic policy mix by former governments had provided wrong incentives and had eventually led to serious structural imbalances. These imbalances, which the monetary regime had been unable to mitigate, had started to unwind in the wake of the crisis. To find a long-term solution to these challenges required a policy mix, possibly tough in the short run, but setting strong fundamentals for steady long-term growth. Hence, according to Simor, the lesson that Hungary has learned is that it should enter the euro area as soon as possible to minimize vulnerabilities, however, not before structural problems are fixed and convergence is well on track.

In a similar vein, *Sławomir Skrzypek* (Governor of *Narodowy Bank Polski*) recalled that the experience of euro area countries suggested that a positive net balance of euro adoption was not certain at every point in time and hinged on structural reforms enhancing a country's competitiveness. Moreover, he stressed that while it was very important to be part of the EU and the euro area, which had, particularly during the crisis, functioned as an umbrella and institutional anchor, EU and euro area membership would not fix every problem. Against this background, Skrzypek concluded that, like Hungary, Poland was aiming at adopting the euro as fast as possible but in line with fundamentals.

The presentation of *Zdeněk Tůma* (Governor of *Česká národní banka*) added a different perspective. He began by saying that he had accepted that the debate on the meaningfulness of the Maastricht criteria was over although the criteria had been designed in a very different environment than they were being applied now. Tůma proceeded to doubt that the euro had had any significant impact on the

economic performance of EMU countries. Subsequently he presented simulation results of a dynamic general equilibrium (DGE) model for the Czech Republic, suggesting that the euro would not significantly reduce, but partially even increase volatility. Tůma then backed up his case by arguing that whereas inflation, consumption and GDP volatility had increased substantially in Finland in the decade after euro adoption, in Sweden this increase had been much less pronounced or even negative. He thus concluded that the effects of the euro were time- and country-specific and that it was in principle possible to fare well or even better without the euro.

### The Euro Area: A Shelter?

The second panel, chaired by *Peter Mooslechner*, Director of the *OeNB's* Economic Analysis and Research Department, addressed the question whether the euro area had acted (or, respectively, could have acted) as a shelter in the course of the 2008–09 global economic crisis. The panel brought together high-level central bank representatives from three CESEE EU Member States that are at quite different stages in this respect: Romania, which follows an inflation targeting strategy with a flexible exchange rate vis-à-vis the euro; Estonia, which has pegged the kroon to the euro within the framework of a currency board arrangement and has participated in the exchange rate mechanism II (ERM II) since June 2004; and Slovakia, which adopted the euro in January 2009 after entering ERM II in November 2005.

*Cristian Popa*, Deputy Governor of *Banca Națională a României*, stressed that the position of the Romanian central bank (euro adoption at the earliest in January 2015) had not changed in the course of the crisis, pointing to a still low degree of business cycle synchronization of Romania with the most important euro area countries, a low degree of flexibility if the euro were adopted too early, nonnegligible *Balassa-Samuelson* effects, a potential pick-up in inflation after euro adoption, and also the difficulty to fix central parities given considerable crisis-related distortions for the accurate estimation of equilibrium exchange rates.

*Märten Ross*, Deputy Governor of *Eesti Pank*, concluded that Estonia had definitely benefited during the crisis from the euro area being a shelter, namely in terms of foreign stability or the pass-through of low euro area interest rates. However, macroeconomic costs could have been even lower if Estonia had already been inside the euro area. This held especially for pronounced foreign exchange positions (e.g. the very high share of euro-denominated credits) that were under special scrutiny throughout the crisis.

*Ivan Šramko*, Governor of *Národná banka Slovenska*, emphasized that the euro changeover in Slovakia had passed very smoothly (high public support played an important role) and that the successful euro adoption had brought several immediate benefits, such as higher price stability, increased investors' confidence together with sound public ratings and no liquidity shortages. Nonetheless, Slovakia had experienced a temporary deterioration of its price competitiveness and the euro had not been able to shield the Slovak economy from adverse effects of the global recession. But a relatively quick economic recovery was expected – partly supported by the benefits of the euro.

### **Euro Assets: A Safe Haven?**

The second session, chaired by *Doris Ritzberger-Grünwald*, Head of the *OeNB's* Foreign Research Division, focused on the role of foreign currencies in household portfolios.

*Helmut Stix* (*OeNB*) investigated the question whether the euro has been a safe haven for households' assets in CESEE countries before and during the economic and financial crisis and whether it will be a safe haven in the near future. The answer to all three questions is yes, in particular for SEE countries. Although the SEE economies stabilized and prospered over the last decade, the extent of euroization of households' total financial assets (i.e. savings deposits and cash holdings irrespective of the currency denomination) still ranged from 31% to 88% in SEE. In particular, foreign currency cash holdings were an important component in households' portfolios. Econometric analysis of micro data provided by the *OeNB's Euro Survey* attributed this persistence of euroization and the preference for cash to respondents' memories of past periods of instabilities and bad economic governance, hysteresis (biased formation of expectations, which ignores changes in fundamentals), network externalities, low trust in banks, and expectations of higher inflation as well as the expected depreciation of the local currency. During the crisis people had re-activated former patterns of behavior, growing mistrust in banks and in the local currency resulted in, partly temporary, deposit withdrawals in all SEE countries and in a change of the overall degree of euroization in some countries. Given the high sensitivity and the severe extent of shock, the reactions of households had not been overly strong. This subdued impact was likely to signal that pre-crisis and crisis stabilization policies had paid off. Analyzing the plans of the households surveyed, Stix concluded that the euro would continue to have an important role in the portfolios of CESEE households.

*Asel Isaková* (*EBRD*) presented a paper about the costs of currency substitution in Central Asia. Kazakhstan, the Kyrgyz Republic and Tajikistan had faced a severe and prolonged period of macroeconomic and political instability in the 1990s after the collapse of the Soviet Union. Private agents in these countries had reacted by substituting local currency cash and savings deposits for foreign currency cash and savings deposits in order to safeguard the value of their savings and to establish a more reliable medium of exchange and unit of account. Isaková's empirical model succeeded in replicating the high extent of dollarization in the three countries and proved that the foreign currency was indeed efficient in terms of providing liquidity services. Although the monetary authorities lost seigniorage revenues due to the substitution of domestic currency by foreign currency, the Central Asian economies still incurred an overall welfare gain through an optimal extent of currency substitution.

### **Current EMU Divergence: Lessons for an Enlarged EMU**

Chairing also the third session, *Doris Ritzberger-Grünwald* explained the motivation of the session, which addressed a controversial topic: While all EMU countries had to fulfill the convergence criteria before adopting the euro, significant differences had evidently prevailed within monetary union. This raises important questions, including whether divergence matters and what implication it can have for the functioning of monetary union.

The first speaker, *Zsolt Darvas* (*BRUEGEL*, Brussels) started with an analysis of convergence and divergence in monetary union so far. There were many examples

of both convergent and divergent economic developments. From a theoretical point of view, divergence was not necessarily disadvantageous for the functioning of a monetary union. However, the member states had to avoid extended periods of low growth and external deficits. He backed up these points with numerous country studies and analyses of selected economic developments in the current Member States. In general, he showed that an increasing number of EU members were failing to fulfill the Maastricht criteria once they had made it into the euro area. Finally, he addressed the lessons for future entrants to the euro area, advocating a flexible application and possible reform of the entry criteria.

*Agnès Bénassy-Quéré (CEPII, Paris)* picked up the arguments introduced in Darvas' presentation, starting with a discussion of the euro's effects on trade as analyzed in several CEPII studies. On the one hand, the aggregate trade impact had remained limited so far. On the other hand, however, the single currency had already had important microeconomic effects, as illustrated by the case of France, including higher competition and increased product variety for the benefit of consumers. However, prices had converged only moderately within the euro area so far, which could be attributed to a certain "reform fatigue" among member states. Euro area member states shared a high degree of product market regulation with little improvement over the last decade. Conversely, there was already important convergence of tax rates in the euro area. The financial crisis of 2008 introduced new challenges given its differing impact within the euro area. These new challenges would have to be addressed with adequate tools, including fiscal policy, structural reforms and financial regulations. Bénassy-Quéré stressed that widening current accounts within the euro area had been overlooked so far since the risk of a balance of payments crisis was contained. She questioned the common perception of imbalances as a unilateral challenge and instead suggested a coordinated approach by all parties involved, including surplus countries, namely Germany. In concluding, she proposed that some countries should be allowed to have higher inflation rates with a view to facilitating price convergence, and she highlighted the importance of sound policy surveillance in general.

## 20 Years of East-West Integration – Hopes and Achievements

The menu for the conference dinner included a special course, so to speak, namely a brief celebration of the 20<sup>th</sup> anniversary of the fall of the Iron Curtain and the opening-up of Eastern Europe. The OeNB commemorated this historic event by publishing a special issue of its Focus on European Economic Integration. Since 1996 this publication series has served to disseminate research related to economic and financial developments in CESEE. The special issue, entitled "1989–2009: Twenty Years of East-West Integration: Hopes and Achievements" was presented with a panel discussion among renowned experts and contributors to the special issue: *Elena Kohútiková*, management board member of *VÚB Banka* and former Deputy Governor of the Slovak central bank, *Marianne Kager*, managing director of *MK CEBA* and former chief economist of BA-CA for 20 years, and *Michael Landesmann*, Scientific Director of The Vienna Institute for International Economic Studies (*wiiw*). The discussion was chaired by OeNB Governor *Ewald Nowotny*. Drawing on their very personal experiences, all three panelists emphasized the great success of the transformation in CESEE. Kager referred to the importance of the EU accession perspective and a clearly defined roadmap for the catching-up process. Kohútiková

pointed out that the process had indeed been successful, but also painful and that it had lasted considerably longer than initially expected. She concluded that 1989 had not only taken Eastern Europe by surprise, but that Western Europe had not been fully ready for the changes to come, either. Landesmann supported this view and highlighted a number of research fields that either arose newly from the process of transition and catching-up or that were challenged by this process. When asked about their views on future challenges for the region, the panelists referred to various aspects relevant for resuming sustainable growth in the region once the current crisis has been digested. Mention was made, in particular, of developments in FDI flows, current and trade accounts, exit strategies from expansionary fiscal policies, regional income disparities and migration pressure.

### **A Macro Perspective on Crisis Lessons**

*Paul De Grauwe*, professor at the *University of Leuven*, opened the second conference day with a keynote lecture pointing out the discrepancy between the causes of the current crisis on the one hand and mainstream macroeconomic modeling on the other: Whereas the crisis had come about as a result of inefficiencies in the financial market and economic agents' poor understanding of risk, standard macroeconomic models, which have become popular in recent years, were based on the unrealistic assumption that agents are capable of using and processing all available complex information. Hence, these rational expectations *top-down* models, as De Grauwe referred to them, needed to be replaced by what he dubbed *bottom-up* systems, in which individuals understand only small bits of total information and apply simple decision rules. De Grauwe then presented such a bottom-up model, in which agents have cognitive limitations and use simple rules to guide their behavior. As a simplified example, he introduced two types of hypothetical agents forming output and inflation forecasts either as weighted averages of extrapolated past values (chartists) or of their own fundamentals-based estimation in the case of output or the announced target in the case of inflation (fundamentalists). Since agents learn in a "trial and error" manner they continuously adjust the weights assigned to each component depending on how each particular rule performed in the past. The calibrated model generates endogenous unpredictable waves of pessimism and optimism. Hence, while in rational expectations top-down models, business cycles are exogenous shock phenomena that central banks can do nothing about, the slow bottom-up process based on backward evaluation in this new model type generates an endogenous inertia and business cycle.

The immediate implication is that whereas in a top-down setting the present economic downturn is the result of an exogenous increase in risk premiums in August 2007, in De Grauwe's bottom-up model it results from the excessive boom prior to 2007. Moreover, model-based simulations suggest that central banks can reduce both output and inflation variability when they move away from strict inflation targeting and assign a certain weight also to the minimization of the output gap in the Taylor rule. The reason for this result is that when the central bank leaves output unattended, its fluctuations lead to stronger waves in optimism and pessimism, which in turn bring about higher inflation variability. Overall, De Grauwe thus concluded that inflation targeting was necessary but not sufficient and that central banks must also explicitly care for output stabilization. This is in

sharp contrast with the implications of top-down models that have assigned only a minimalist role to central banks, which failed to act when bubbles occurred.

### Regaining Financial Market Stability in CESEE

The fourth session, chaired by *OeNB* Governor *Ewald Nowotny*, dealt with the highly topical issue of financial market stability.

*Diana Dragutinović*, Minister of Finance of the *Republic of Serbia*, focused her presentation on the strengths and weaknesses of the Serbian economy prior to the global crisis, on the impact of the crisis as well as on the global and domestic policy responses to the crisis. In particular, she stressed the quick reaction of the central bank of Serbia and the importance of the IMF support package for the Serbian economy. Finally *Dragutinović* pointed to the current challenges related to the financial system and the need for fiscal adjustment.

Thereafter *Vladimir Dubrovskiy* (*CASE*, Ukraine), highlighted various factors that may have caused the severe impact of the global crisis on Ukraine. Inter alia, he mentioned the lack of effective reforms, the unsustainably rapid growth of real incomes, the real appreciation of the hryvnia, skyrocketing inflation and the deteriorating trade balance. On a positive note he said that Ukraine's labor market had reacted quite flexibly to the crisis as evidenced by the immediate adjustment of real wages.

Last but not least, *Christoph B. Rosenberg*, Advisor at the *IMF*, outlined the stabilization tendencies on financial markets, which were almost entirely driven by the rebound of global risk appetite. *Rosenberg* argued that short-term market stabilization had been achieved through the various global policy response measures to the crisis. In this respect he also pinpointed the importance of the Vienna Initiative in coordinating public and private sector agents (foreign parent banks). Moreover, *Rosenberg* highlighted that financial markets were now differentiating more strongly between individual CESEE countries. In concluding he addressed long-term issues in securing financial market stability, including the need for establishing macroprudential policy frameworks and improving cross-border cooperation and coordination.

### Post-Crisis Business Models of Banks in CESEE

The final panel of the 2009 CEEI, chaired by *OeNB* Executive Director *Andreas Ittner*, brought together high-profile bank managers and experts.

The first speaker, *Erik Berglöf*, chief economist of the *EBRD*, stressed that although CESEE had been hit hard by the global economic and financial crisis, the impact of the crisis on CESEE could have been worse. On a positive note, there had been no uncontrolled currency collapses, system-wide bank runs, populist or coercive policy responses and reform reversals in the region, all characteristic elements of previous emerging market crises. In his view, this can be first and foremost attributed to the forceful crisis response, which ranged from mature support measures in Western Europe and CESEE over large international support packages (IMF, EU, G-20, ECB) to the *Vienna Initiative* as an important tool for public-private coordination. According to *Berglöf*, financial integration, which was the key driver of the growth and convergence process in CESEE alongside capital inflows, was a double-edged sword. While foreign financing contributed to credit booms, excess leverage and increased foreign exchange risks in CESEE,

foreign banks were a crucial stabilizing factor for the region during the crisis. Finally, Berglöf called for a “Vienna Plus” initiative, which would address the issue of foreign exchange exposures in CESEE.

The second speaker, *Natalia Orlova*, chief economist of the Russian *Alfa-Bank*, shared her views on financial market developments in Russia since the start of the crisis, while highlighting the initial resilience of the country to the crisis given the global commodity price boom and the relatively small size of the Russian mortgage market. According to Orlova, the strong decline in commodity prices had triggered strong capital outflows in the second half of 2008, however. At the same time, downward pressures on the exchange rate had led to sharply falling foreign exchange reserves and had made banks more vulnerable. Although financial markets and the real economy seemed to have stabilized, the current macro trends had triggered a slowdown in credit growth and a pick-up in nonperforming loans, in both the corporate and retail segments. Thus, in Orlova’s view the current difficult economic environment has to be used to consolidate the banking sector and to reduce the number of banks.

Next, *Herbert Stepic*, CEO of *Raiffeisen International*, identified the transition process as a “unique window of opportunity” for Austrian banks, which have exported the traditional banking model based on universal banking to the region. Stepic stressed that commercial banks had initially above all feared bank runs, prompting them to stock up cash vaults to be prepared for the worst-case scenario of system-wide bank runs. The worst-case scenario had, however, not materialized; on the contrary, the situation had quickly changed from under- to overliquidity. Concerning future banking models, he stressed that in order to cope with the present “risk tsunami” banks would have to change their internal organizational procedures. Also, capital and liquidity (in particular long-term) would get more expensive in the future, so that banks would have to find ways to balance these increases in costs. Nevertheless, as in his view the transition process has been completed only to one-third, the CESEE region still promises “juicy” banking business in the future.

Finally, *György Surányi*, Regional Head of CEE at *Intesa Sanpaolo*, first sketched the stylized facts of the growth and convergence process in CESEE, which had been largely export- and investment-driven and had been actively supported by capital inflows. The flipside of the coin was, however, the widening external imbalances throughout the region. In this context, Surányi stressed the need for differentiation across countries in CESEE with a view to their pre-crisis vulnerability levels. Surányi sees the prevalent foreign exchange risks as a natural consequence of the permanent external deficits of the region, so that, in his view, banking sector balance sheets (micro level) purely mirror the prevalent macro imbalances. He called the request of international financial institutions for restrictions on credits in foreign currency as cynical, since these lending practices had only become feasible after the same institutions had pressured the countries to fully liberalize capital flows. In this context, he underscored that limiting foreign currency lending was acceptable only if medium- and long-term local currency-based financing was available at a reasonable price. Put differently, restricting foreign currency lending while not providing local currency-based financing would only result in a prolonged economic stagnation of the region. He also added that the region would not be able

to return to the growth levels seen before the crisis, but would have to adjust to a lower growth path.

In addition to the official debates, the two conference days provided welcome room for informal talks and networking among central bankers, government officials, finance sector managers, journalists and researchers. The conference received a lot of press coverage and positive feedback from participants, which confirmed its status as one of the leading discussion events on regional economic and monetary integration.

# 65<sup>th</sup> East Jour Fixe

## Credit Default Swaps – Blessing or Curse?

Compiled by  
Sándor Gardó and  
Mathias Lahnsteiner

On September 28, 2009, the Oesterreichische Nationalbank (OeNB) hosted the 65<sup>th</sup> East Jour Fixe (EJF) on “Credit Default Swaps – Blessing or Curse?”. Almost 100 participants took part in the event organized by the OeNB’s Foreign Research Division, which reflects the great interest in issues related to credit default swaps (CDS). All in all, by bringing together regulators, economists, market participants and representatives of academia, the EJF greatly benefited from a wide range of different perspectives. The lively debates on the various topics attested to the relevance of developments on the CDS market and the timeliness of the event. The scope of the 65<sup>th</sup> East Jour Fixe was broader than usual,<sup>1</sup> since the topic has gained a lot of interest during the global economic and financial crisis and since regulatory issues are still under permanent debate. Representatives of a number of important institutions discussed various issues ranging from structural shortcomings of the CDS market and regulatory proposals to the behavior of CDS spreads during the global crisis. The event was divided into four parts:

- Keynote Session: Credit Default Swaps – Blessing or Curse?
- Session 1: Sovereign Credit Default Swaps – Functions, Pricing and Interpretation
- Session 2: CDS-Driven Crisis or Crisis-Driven CDS? Are CDS a Prerequisite or an Obstacle for Macrofinancial Stability?
- Session 3: Credit Default Swaps – What Role for Emerging Europe?

OeNB Governor *Ewald Nowotny* made an introductory statement and chaired the Keynote Session. In his statement Governor Nowotny pointed to the increasing use of CDS spreads as indicators in macroeconomic analyses and even in the mass media. In particular during the global financial and economic crisis, many economists have started to interpret CDS premiums as a leading financial market indicator in addition to or instead of “traditional” indicators like stock market indices and Eurobond spreads. Moreover, Governor Nowotny highlighted the sharp rise and high volatility of CDS spreads of various Western European and CESEE countries during the crisis. Finally, he stressed the importance of regulatory reforms to counteract structural weaknesses of the CDS market.

In the first keynote speech, *Hans-Helmut Kotz* (Member of the Executive Board, Deutsche Bundesbank) gave an overview on the CDS market. In sketching the underlying economic functions (mainly hedging and diversification opportunities as well as market completion) Kotz pointed to the high growth of the CDS market, in particular between 2005 and 2007. He drew attention to the opaqueness and intransparency that surrounds over-the-counter (OTC) derivatives markets (including the CDS market) in general. Opaqueness would arise somehow endogenously – being strongly correlated with high margins for major market players. As an upshot, margins would most probably decrease if CDS contracts would get more standardized (as envisaged in all major current reform proposals). In addition, he noted that the establishment of central counterparties (CCPs) would be beneficial, that is, welfare enhancing from a stability as well as from an

<sup>1</sup> Usually, the EJF focuses on CESEE only.

allocative angle: CCPs would – via collateralization, margin accounts and variation margins – allow to manage and absorb counterparty risks. Moreover, via systematic netting the absolute level of risk should also be reduced. Finally, operational risks (like confirmation backlogs, etc.) could also be controlled more effectively. In concluding and in reference to the title of the event, Kotz held that CDS could be both blessing and curse, depending on the way they were utilized and handled. Moreover, possible systemic issues might arise depending on the economic context (or regime). In this vein, when assessing possible benefits and drawbacks related to CDS, one should distinguish between normal times and times of crisis. In a crisis environment CDS, inappropriately used or managed, might reinforce instabilities.

*Willi Hemetsberger* (President, Ithuba Capital AG) started his keynote speech by stating that rules and regulation would be necessary to make CDS more useful. He also stressed shortcomings related to market transparency and highlighted the interrelations between the CDS market and other markets. For example, if a company took out a CDS-linked loan, an increase in the company's CDS spread would automatically increase interest rates, which could in turn lead to liquidity problems. He also mentioned possible conflicts of interest in cases in which a bank participates in a syndicated loan arrangement and at the same time holds a short position on the receiver of the syndicated loan. Moreover, Hemetsberger underscored pricing inefficiencies in the CDS market, especially in times of crisis. According to Hemetsberger, the widening of Austrian sovereign CDS spreads was associated with Austria being used as a "proxy-hedge" and with the attempt of some market participants to insure themselves against CESEE-related risks. Furthermore, he said that CDS have been the most liquid credit instrument throughout the crisis. When the corporate bond market stopped working, CDS were the only remaining instruments that could be used to actively manage credit risk. He also highlighted the importance of CDS in facilitating portfolio diversification and risk distribution (hedging).

*Peer Ritter* (European Commission) reported on the state of play of the European Commission's reform proposals. In October 2008 (one month after the collapse of Lehman Brothers), EU Commissioner McCreevy called for concrete proposals how to mitigate the risks arising from credit derivatives; in particular, he called for ambitious plans for moving CDS on to CCPs. More generally, the intention of the European Commission was to have a systematic look at derivatives markets. Meanwhile, ten market participants have committed themselves to using one or more EU CCPs for clearing European-referenced CDS (index and single name) as of July 31, 2009. Since then, two European clearing houses (ICE Clear Europe and Eurex Clearing) have started operations. To conclude the public consultation on OTC derivatives markets, the European Commission hosted a high-level conference on September 25, 2009. Ritter summarized the main results of this conference as follows: There was a broad consensus that a close cooperation between Europe and the U.S.A. was necessary to prevent regulatory arbitrage. The panelists also agreed that a broad use of CCPs would be beneficial and that central data repositories are essential. However, some issues still have to be discussed in more detail, including the questions: Should central clearing be mandated or incentivized? How will the cost of hedging by corporate end-users be affected by more regulation?

Session 1, which was chaired by *Rudolf Trink*, Director of the OeNB's Treasury Department, provided insights into particular segments of the CDS market. A range of speakers spotlighted differences and interlinkages between these segments.

*Dawid Zochowski* from the ECB's Financial Stability Division, scrutinized developments of CDS spreads on euro area banks and sovereigns. A decomposition of CDS spreads into a risk premium and an expected loss component shows that the risk premium was the major driver behind the sharp increases of euro area banks' CDS spreads during the crisis. Turning to the sovereign sector Zochowski first pointed to the strong impact of the collapse of Lehman Brothers on sovereign CDS spreads. He then went on to stress the strong linkage between bank and sovereign spreads after the collapse of Lehman Brothers. According to Zochowski, this linkage has possibly been related to a transfer of contingent or actual credit risk from the financial sector to the governments of several EU Member States following the rollout of national rescue packages for the banking sectors. In this respect, he also pointed to the possible occurrence of wrong-way risks (or risk circularity). An extreme example of wrong-way risk would occur if a bank sold CDS on its host sovereign reference country and at the same time benefited from state rescue packages. Another critical aspect is that counterparty risk-dealers and other financial institutions are tied to each other through chains of OTC derivative contracts, which makes it difficult for investors to separate credit risk from pure counterparty risk.

*Burkhard Raunig* (Economic Studies Division, OeNB) presented a paper he had prepared jointly with Martin Scheicher (ECB), entitled "Are Banks Different? Evidence from the CDS Market" (OeNB Working Paper 152). The paper aims to shed light on how CDS traders discriminated between banks and other types of firms and how their views changed over time, in particular, during the crisis. The paper uses regression analysis to compare the market pricing of the default risk of banks to that of corporates. CDS premiums are decomposed into expected loss and risk premium by means of a panel analysis. The authors conclude that CDS traders saw banks differently (namely as constituting lower risk) in the benign period before August 2007. However, since then a very strong repricing became evident in an environment of higher risk and uncertainty.

Session 2, chaired by *Philip Reading*, Director of the OeNB's Financial Stability and Bank Inspections Department, was dedicated to the financial stability implications of past and present developments on CDS markets. In particular, the speakers addressed the role of counterparty risks in CDS markets and the related structural and regulatory issues.

*Richard Metcalfe*, Deputy Regional Director at the International Swaps and Derivatives Association (ISDA), tried to put the current debate on CDS in perspective by stressing that despite the strong growth dynamics evident in recent years, the global derivatives market remained fairly small (at USD 5 trillion (net) as at end-2008) in comparison to other financial market segments, such as stock markets (USD 33 trillion), domestic bond markets (USD 60 trillion at face value), international bond markets (USD 24 trillion) and cross-border bank positions (USD 22 trillion). Adjusted for collateral, the size of the global credit derivatives market is estimated to be much smaller still (USD 1.25 trillion). Moreover, Metcalfe stressed that while global stock and domestic bond markets have recorded

considerable losses in 2008, the credit derivatives market grew by 180%. In assessing the size of the CDS market, he underlined the need to focus on “net” instead of “gross” values. According to Metcalfe, the case of American International Group (AIG) was a good example illustrating the need to distinguish between “gross” and “net” exposures to the CDS market. In fact, the net view revealed a more “dominant footprint” of AIG in CDS markets than gross values would have otherwise suggested.

The second speaker in Session 2, *Jacob Gyntelberg*, Senior Economist at the Bank for International Settlements (BIS), presented his views on CCPs for OTC derivatives. With a view to financial stability, according to Gyntelberg, the current crisis revealed several systemic risk factors related to OTC derivatives markets, in particular the lack of transparency (by making large exposures difficult to detect), insufficient financial resources to cover potential losses, and increased procyclicality. In light of these shortcomings, more recently there has been a strong push to introduce CCPs for CDS. In this regard, according to Gyntelberg, the introduction of well-designed CCPs can help to lower systemic risks by mitigating counterparty risks, increasing operational efficiency and improving market transparency. However, in his view there are certain challenges related to the introduction of CCPs, i.a. the need for (1) strong risk management standards, as CCPs by definition concentrate risks, (2) public support in crisis periods, (3) stepped-up international coordination of the oversight of systemically important CCPs, and (4) complementing the introduction of CCPs with improvements in the trading and settlement infrastructure.

Finally, *Nadège Jassaud*, Deputy Head of the Banque de France’s Financial Stability and Markets Research Division and Chairwoman of the ESCB’s CDS Task Force, presented the main findings of the Task Force report on “Credit Default Swaps and Counterparty Risk.” In the first instance, Jassaud sketched the developments global CDS markets took in recent years, highlighting the difficulties in properly assessing the size of the CDS market given considerable differences in estimates between available data sources (BIS, ISDA, Depository Trust and Clearing Corporation). Against this background, Jassaud pinpointed four main features of the CDS market that play a role for financial stability: (1) the high and – due to the market exit of important players – increasing concentration of CDS markets, which is a major concern as regards counterparty risk, (2) the interconnected nature of the CDS market (i.e. strong trading ties between major market participants), which implies limited risk transfer and thus higher contagion risks, (3) the low degree of collateralization in banks’ OTC exposures and (4) the price discovery function of CDS as a leading indicator for different markets, which raises the question of its reliability for pricing purposes in times of distress. In concluding, Jassaud highlighted some factors – such as improved data availability and quality, standardization and the establishment of CCPs – that might help mitigate counterparty (and systemic) risks.

The final session of the OeNB’s 65<sup>th</sup> East Jour Fixe was chaired by *Peter Mooslechner*, Director of the OeNB’s Economic Analysis and Research Department, and dealt with aspects related to emerging markets. In particular, Session 3 aimed to improve the understanding of the fundamental factors driving CDS spreads and markets in CESEE.

First, *Manmohan Singh* from the IMF's Monetary and Capital Markets Department dealt with CDS spreads in emerging markets in times of distress. In his presentation, Singh underscored the important role of CDS spreads as a leading indicator for sovereign risk compared to the EMBI+ subindex for individual countries. In this context, he stressed that CDS mispricing might magnify the financial distress of a sovereign. He then provided some evidence from Argentina and Brazil that reveals inconsistency between theory and practice in pricing CDS spreads in emerging markets. Subsequently, he argued that the process of deleveraging in the aftermath of the collapse of Lehman Brothers led to a negative basis (i.e. CDS spreads are below the bond spread curve), although crisis situations usually entail a positive basis. Moreover, this process of deleveraging was characterized by an acute shortage of high-quality collateral, rising costs of funding, worsening relationships between banks and hedge funds due to increasing counterparty risk and a lack of funding and liquidity in the course of the unwinding of the "shadow banking system." However, according to Singh prevalent bank regulations have also contributed to a negative basis.

The second speaker of this session, *Sergiu Manea*, Head of UniCredit Group's EEMEA Markets Department, talked about recent developments on the CDS market for CESEE sovereigns. He argued that the collapse of Lehman Brothers triggered a process of deleveraging and market exit, while at the same time increasing the need for hedging. As most markets lost liquidity, CDS very quickly turned from the "most fashionable investment product" to the "most fashionable hedge product." Given these adjustments, CESEE CDS markets temporarily stopped operating, with trading volumes collapsing and spreads skyrocketing. In this context, Manea, according to the degree of CDS market tensions, grouped the CESEE countries into three categories: (1) Russia, Ukraine and Kazakhstan (with CDS spreads temporarily reaching values of over 1.000 basis points), i.e. countries with generally low levels of sovereign debt, but experiencing severe banking sector problems with a feedback loop on sovereign default risks, (2) Hungary, Bulgaria and Romania (with CDS spreads of some 700 to 800 basis points), and (3) Turkey, the Czech Republic and Poland, which have been less affected (300 to 400 basis points). At the same time, Manea stressed that often CDS on Austria and Sweden were used as proxies for the CESEE region. In Manea's view, CESEE CDS markets are slowly starting to return to normal operation, an indication of which is that contracts are now again being traded over the full maturity range (one to five years).

Last but not least, *Lóránt Varga*, senior economist at the Financial Analysis Department of Magyar Nemzeti Bank, presented a case study on Hungary, focusing particularly on the information content of Hungarian sovereign CDS spreads. By way of introduction, Varga provided an overview of the structure, characteristics and functioning of the Hungarian sovereign CDS market, which is more important (in terms of outstanding amounts) and liquid than the secondary market of underlying Hungarian sovereign foreign currency bonds. In assessing the information content of Hungarian sovereign CDS spreads, Varga stressed the co-movement of Hungarian sovereign CDS spreads and foreign currency bond yield spreads in the long run (implying a basis close to zero), while admitting that the two rates may temporarily deviate from one another due to microstructural factors. On this note, the speaker underlined that Hungary's credit risk premium is primarily

defined in the Hungarian sovereign CDS market, implying that any new information pertaining to Hungary's credit risk is captured in the CDS spreads first and that foreign currency bond credit spreads merely adjust to the changes of CDS spreads afterwards. Based on a comparative international analysis controlled for credit ratings, Varga argued that the sharp increase of Hungarian CDS spreads in October 2008 seems to have been largely determined by adverse country-specific factors, while the considerable drop in CDS spreads since March 2009 can be mainly attributed to the improving global risk appetite.

# IMF Outlook for Europe: Securing Recovery

Compiled by  
Christina Lerner<sup>1</sup>

On October 6, 2009, *Helge Berger*, Deputy Division Chief of the EU Policies and Regional Studies Division of the IMF's European Department, presented the IMF's "Regional Economic Outlook: Europe" at a seminar hosted by the OeNB. Berger's presentation was followed by a lively and inspiring exchange of views between economists from the OeNB and experts from various commercial banks and economic institutions.

*Peter Mooslechner*, Head of the OeNB's Economic Analysis and Research Department, and *Franz Nauschnigg*, Head of the OeNB's European Affairs and International Financial Organizations Division, provided the opening remarks to the seminar.

## A Moderate Recovery

Recent data show that the current recession in Europe, after gathering pace through early 2009, appears to have ended at mid-2009. Berger suggested that the ebbing of the economic contraction could be attributed to external demand on the one hand and effective monetary and fiscal policies on the other: Interest rate cuts, unconventional monetary policy measures and rapidly increasing fiscal deficits helped put a floor under falling economic activity. He also pointed out that countries particularly hard hit by the crisis, such as the U.K., Spain and Ireland, would need much longer to recover.

An array of financial sector interventions succeeded in stabilizing markets, although their implementation and coordination was complicated at first by the unprecedented nature of the crisis. Hence, according to Berger, the recovery taking place is moderate. Also, it is likely to be slow and fragile: An increasing amount of bankruptcies, rising unemployment and scarcity of credit will weigh on economic activity. Thus, financial problems persist and the potential output is weakened.

Berger went on to stress that policymakers should focus their attention on repairing the financial system and supporting demand in order to secure a strong and sustained recovery: They should adopt a more proactive approach to assessing the balance sheet risks faced by banks and take action to recapitalize and restructure viable institutions. At the same time, monetary and fiscal policy should prepare an exit strategy from the extraordinary measures put in place during the crisis.

In order to achieve higher long-term growth, a new supervisory and regulatory environment and structural reforms should be defined. These regulatory reforms should also set the stage for the post-crisis financial industry. Berger pointed out that the introduction and implementation of stress tests represented a huge success in macroprudential regulation.

## Fiscal Policy to Focus on Sustainability

In order to sustain the upswing, Berger recommended to implement stimulus measures and to let automatic stabilizers work. Nevertheless, as soon as the recovery takes hold, exit strategies should be pursued and consolidation should be

<sup>1</sup> *Oesterreichische Nationalbank, European Affairs and International Financial Organizations Division, christina.lerner@oenb.at.*

reached. The contingent costs of the crisis represent a risk and are adding to pressures from an aging population. According to Berger, the costs of Europe's rapidly aging population already exceed the costs of the crisis.

### **Central Banks to Exercise Caution in Monetary Policymaking**

As regards monetary policy, Berger warned that the additional policy options should remain in place for only as long as they are needed, as interventions come at a cost. Central banks should thus plan to implement an exit strategy as soon as the recovery has taken hold. However, the unwinding of the unconventional monetary measures requires careful judgment with respect to pace and timing. Berger then focused on the output gap and stated that uncertainty regarding the output-gap can drive a wedge between central banks and public expectations. He stressed that it was important to clearly communicate the commitment to price stability and to adjust to new information accordingly in order to anchor expectations.

### **Emerging Europe: The "EU Halo Effect" Is Gone**

On the subject of emerging Europe, Berger's assessment was that the situation is different now: Post-crisis emerging Europe, as an integrated region, faces a more volatile environment and higher risk premiums. The perception of investors has changed; they now clearly differentiate between countries, dismissing the EU "halo effect" for this region. Policies should focus on ensuring banking stability and steadying fiscal policy around a sustainable path.

### **Structural Change Critical to Sustain Long-Term Growth**

Finally, Berger underlined that higher longer-term growth through structural change would support the recovery, smooth the exit from unconventional monetary policy and help emerging markets adjust to lower capital inflows in the aftermath of the crisis. Hence, policymakers should pursue opportunities to reform labor and product markets and try to rejuvenate the Lisbon Agenda. In this context, Berger emphasized that labor hoarding was a massive phenomenon in Europe, including the U.K.

In the ensuing discussion, *Doris Ritzberger-Grünwald*, Head of the OeNB's Foreign Research Division, pointed out that labor hoarding could also be perceived as positive, as it represents the pillar of private consumption, whereas *Franz Nauschnigg*, Head of the OeNB's European Affairs and International Financial Organizations Division, posed the question of whether labor hoarding might contribute to potential output. Berger concluded that labor hoarding per se could not be condemned and recommended structural change as a means of promoting long-term growth in Europe.

## Olga Radzyner Award Winners 2009

2009 marks the 10<sup>th</sup> year that the Olga Radzyner Award of the OeNB was bestowed on young economists from Central, Eastern and Southeastern Europe (CESEE) for scientific work on European economic integration. This award commemorates *Olga Radzyner*, the former Head of the OeNB's Foreign Research Division, who died in a tragic accident in August 1999.

The interest in the award has been rising continually over the years. In 2009, economists from 14 countries submitted 32 papers, a great number of which was of outstanding quality. The many different aspects of European economic integration covered ranged from trade issues, exchange rate developments and determinants, financial integration, business cycle synchronization to the role of remittances.

Of this pool of promising young CESEE economists, the OeNB's Governing Board selected four winners, whose papers were considered outstanding in terms of originality, overall presentation of the research question and the analysis, and the use of state-of-the-art methods. On November 16, 2009, Governor Ewald Nowotny conferred this year's award at the OeNB's Conference on European Economic Integration on (in alphabetical order):

- *Tomáš Havránek* (Czech Republic), aged 24, from Česká národní banka: In his meta-analysis about the effect of currency unions on trade with a focus on the euro area, Havránek demonstrated that the Rose effect, i.e. the positive effect of currency unions on trade, reported in the literature is overestimated and even insignificant in the euro area after correcting for publication bias.
- *Dániel Holló* (Hungary), aged 29, from Magyar Nemzeti Bank: Analyzing price elasticities on the Hungarian consumer lending and deposit markets, Holló found (1) that wealthier consumers are less sensitive to lending and deposit interest rate variations than poorer clients, (2) that the demand for credit denominated in domestic currency is more price sensitive than the demand for loans denominated in foreign currency, and (3) that the rise in domestic (Hungarian) interest rates increases the demand for foreign currency loans more than vice versa, which provides important insights about the effectiveness of monetary policy.
- *Cecília Hornok* (Hungary), a PhD student at the Central European University in Budapest aged 34: In her paper on the border effects of trade in the enlarged EU, Hornok assessed the impact of full membership on bilateral trade flows between the Central and Eastern European and Baltic countries that joined the EU in 2004 (EU-8) and the EU-15, as well as within the EU-8. Hornok found a stronger effect of EU membership on trade flows among the EU-8 than between the EU-8 and the EU-15, thus explaining the very recent revival of regional trade in CESEE.
- *Joanna Parteka* and *Aleksandra Wolszczak-Derlacz* (Poland), both from Gdansk University of Technology, Faculty of Management and Economics, aged 29 and 33: In their joint paper, they investigated the impact of trade and outsourcing on skill-specific wage convergence in the integrating Europe, pinpointing a faster convergence of low-skilled wages in intermediatethan in total goods trade.

## Selected Abstracts

The selected abstracts below alert readers to studies on CESEE topics in other OeNB publications. You may find the full-length contributions at [www.oenb.at](http://www.oenb.at).

### **Investor Commitment Tested by Deep Crisis: Banking Development in Ukraine**

Stephan Barisitz,  
Mathias Lahnsteiner

Ukraine's banking sector was strongly hit by the global economic crisis which began in September 2008 and triggered an extreme output contraction (–20%) in the first quarter of 2009 and a sharp depreciation of the Ukrainian hryvnia (–35%). Loss of confidence in the banking sector and deposit withdrawals (about one-fifth of total deposits) were reined in by large-scale liquidity support by the National Bank of Ukraine (NBU), administrative measures and macroeconomic adjustment (unwinding of the current account disequilibrium) in the spring of 2009. However, credit growth (month on month) ground to a halt in early 2009 and confidence in the hryvnia remains fragile in a situation where about 50% of private sector credit stock is denominated in foreign currency. The authorities' bank recapitalization program, assisted by the structural conditionality of an IMF Stand-By Arrangement, should help banks cope with the persisting deep recession and strongly rising nonperforming loans. While political instability in the run-up to the presidential election early in 2010 could yet derail bank rehabilitation, credit institutions have substantially raised provisioning and started cutting costs and restructuring overdue loans. Continuing support by international financial institutions and sustained commitment by foreign (including Austrian) parent banks and corporations also represent key stabilizing factors.

To be published in *Financial Stability Report 18*.

## Statistical Annex

# Statistical Annex

This section presents statistical information on selected economic indicators for CESEE countries not covered in the Recent Economic Developments section, namely Albania, Bosnia and Herzegovina, FYR Macedonia<sup>1</sup>, Serbia, Montenegro and Ukraine.

Table 1

## Gross Domestic Product

	2002	2003	2004	2005	2006	2007	2008
	Annual real change in %						
Albania	4.2	5.8	5.7	5.7	5.4	6.0	8.0
Bosnia and Herzegovina	4.9	3.8	6.3	3.9	6.9	6.0	5.4
FYR Macedonia <sup>1</sup>	0.9	2.8	4.1	4.1	4.0	5.9	4.9
Serbia	3.9	2.4	8.3	5.6	5.2	6.9	5.4
Montenegro	1.9	2.5	4.4	4.2	8.6	10.7	8.1
Ukraine	5.2	9.6	12.1	2.7	7.3	7.9	2.1

Source: wiiw.

<sup>1</sup> Former Yugoslav Republic of Macedonia.

Table 2

## Industrial Production

	2002	2003	2004	2005	2006	2007	2008
	Annual real change in %						
Albania	-5.1	29.0	14.1	11.7	12.1	-10.3	2.0
Bosnia and Herzegovina	5.7	5.1	12.1	10.8	11.5	6.4	11.0
FYR Macedonia	-4.8	4.1	-2.2	7.1	3.6	3.7	5.5
Serbia	1.8	-3.0	7.1	0.8	4.7	3.7	1.1
Montenegro	0.6	2.4	13.8	-1.9	1.0	0.1	-2.0
Ukraine	7.0	15.8	12.5	3.1	6.2	10.2	-3.1

Source: wiiw.

Table 3

## Average Gross Wages – Total Economy

	2002	2003	2004	2005	2006	2007	2008
	Annual change in %						
Albania	11.6	12.0	2.8	5.0	9.2	25.2	6.0
Bosnia and Herzegovina <sup>1</sup>	5.7	5.1	12.1	10.8	11.5	6.4	11.0
FYR Macedonia	6.4	4.9	4.1	2.7	8.0	4.8	8.7
Serbia	52.6	25.3	23.7	24.1	24.4	22.0	17.9
Montenegro	42.6	7.8	11.7	7.8	15.6	31.7	22.5
Ukraine	21.0	22.8	27.6	36.7	29.2	29.7	33.7

Source: wiiw.

<sup>1</sup> Net wages.

<sup>1</sup> Former Yugoslav Republic of Macedonia.

Table 4

**Unemployment Rate**

	2002	2003	2004	2005	2006	2007	2008
	%						
Albania <sup>1</sup>	15.8	15.0	14.4	14.1	13.8	13.5	12.8
Bosnia and Herzegovina <sup>1</sup>	40.9	41.9	43.2	44.1	44.1	42.5	40.6
FYR Macedonia <sup>2</sup>	31.9	36.7	37.2	37.3	36.0	34.9	33.8
Serbia <sup>2</sup>	13.3	14.6	18.5	20.8	20.9	18.1	13.6
Montenegro <sup>2</sup>	20.7	22.7	27.7	30.3	29.6	19.3	17.2
Ukraine <sup>2</sup>	9.6	9.1	8.6	7.2	6.8	6.4	6.4

Source: *wiiw*.<sup>1</sup> Registered unemployment, end of period.<sup>2</sup> Labor Force Survey, period average.

Table 5

**Industrial Producer Price Index**

	2002	2003	2004	2005	2006	2007	2008
	Period average, annual change in %						
Albania <sup>1</sup>	-1.5	8.7	12.2	4.9	0.8	3.5	6.5
Bosnia and Herzegovina <sup>2</sup>	-0.3	-0.1	2.3	-0.6	3.4	4.6	7.1
FYR Macedonia	-0.9	-0.3	0.9	3.2	7.3	2.5	10.3
Serbia	8.8	4.6	9.1	14.2	13.3	5.9	12.4
Montenegro	14.5	4.5	5.8	2.1	3.6	8.5	14.0
Ukraine	3.0	7.6	20.5	16.7	9.6	19.5	35.5

Source: *wiiw*, national sources.<sup>1</sup> Manufacturing industry.<sup>2</sup> Federation of Bosnia and Herzegovina.

Table 6

**Consumer Price Index**

	2002	2003	2004	2005	2006	2007	2008
	Period average, annual change in %						
Albania	5.2	2.4	2.9	2.4	2.4	2.9	3.4
Bosnia and Herzegovina	1.3	1.1	0.8	3.0	6.2	1.5	7.5
FYR Macedonia	1.8	1.2	-0.4	0.5	3.2	2.3	8.3
Serbia	16.6	9.9	11.4	16.2	11.7	7.0	11.7
Montenegro	16.0	6.7	2.4	2.3	3.0	4.2	7.4
Ukraine	0.8	5.2	9.0	13.5	9.1	12.8	25.2

Source: *wiiw*.

Table 7

**Trade Balance**

	2002	2003	2004	2005	2006	2007	2008
	<i>% of annual GDP</i>						
Albania	-25.9	-23.3	-21.7	-22.5	-23.1	-26.8	-27.1
Bosnia and Herzegovina	-49.9	-49.5	-45.6	-45.8	-34.8	-37.2	-38.1
FYR Macedonia	-21.4	-18.3	-21.1	-18.4	-20.1	-20.3	-26.7
Serbia	-21.4	-20.4	-27.3	-20.9	-21.3	-22.6	-20.2
Montenegro	-31.2	-23.8	-24.9	-28.3	-39.5	-41.3	-44.6
Ukraine	1.7	1.0	5.8	-1.3	-4.8	-7.4	-8.9

Source: wiiw.

Table 8

**Current Account Balance**

	2002	2003	2004	2005	2006	2007	2008
	<i>% of annual GDP</i>						
Albania	-9.4	-6.9	-5.8	-9.0	-6.6	-10.6	-14.7
Bosnia and Herzegovina	-17.7	-19.4	-16.3	-17.3	-7.9	-10.4	-14.9
FYR Macedonia	-10.0	-4.1	-8.4	-2.6	-0.9	-7.2	-13.1
Serbia	-4.3	-7.8	-13.8	-8.7	-10.1	-15.7	-17.5
Montenegro	-12.0	-6.8	-7.2	-8.5	-24.7	-22.9	-30.1
Ukraine	7.5	5.8	10.6	2.9	-1.5	-3.7	-7.1

Source: wiiw.

Table 9

**Net FDI Inflows**

	2002	2003	2004	2005	2006	2007	2008
	<i>% of annual GDP</i>						
Albania	3.0	3.1	4.5	3.2	3.5	6.0	6.6
Bosnia and Herzegovina	4.0	4.6	7.0	5.7	5.8	13.7	5.5
FYR Macedonia	2.8	2.4	6.0	1.6	6.8	8.8	6.5
Serbia	3.1	6.9	4.1	6.1	14.5	6.2	5.4
Montenegro	6.6	2.6	3.0	21.0	21.7	18.7	17.0
Ukraine	1.6	2.8	2.6	8.7	5.3	6.5	5.5

Source: wiiw.

Table 10

**Reserve Assets Excluding Gold**

	2002	2003	2004	2005	2006	2007	2008
	<i>End of period, % of annual GDP</i>						
Albania	16.7	15.6	16.7	17.9	18.5	18.0	18.2
Bosnia and Herzegovina	18.0	19.3	22.0	25.0	28.5	30.8	25.5
FYR Macedonia	17.3	16.7	15.1	22.0	25.8	24.2	20.9
Serbia	13.0	15.7	15.8	23.4	37.6	31.9	23.2
Montenegro	2.6	1.8	2.0	3.4	8.0	9.2	6.5
Ukraine	9.1	12.1	13.4	23.2	19.3	20.8	17.7

Source: wiiw.

Table 11

**Gross External Debt**

	2002	2003	2004	2005	2006	2007	2008
	<i>End of period, % of annual GDP</i>						
Albania	25.3	22.0	20.8	20.9	20.2	18.4	19.0
Bosnia and Herzegovina <sup>1</sup>	31.1	27.7	25.6	25.7	21.3	18.2	17.1
FYR Macedonia	39.3	35.9	47.9	53.9	49.1	48.9	51.0
Serbia	67.2	62.3	54.3	64.2	63.3	60.2	64.0
Montenegro	65.7	30.6	29.3	28.3	23.5	16.5	14.4
Ukraine	27.3	42.9	43.1	48.5	48.2	52.2	58.5

Source: wiiw.

<sup>1</sup> Gross external public debt.

Table 12

**General Government Balance**

	2002	2003	2004	2005	2006	2007	2008
	<i>% of GDP</i>						
Albania	-6.1	-4.9	-5.1	-3.5	-3.3	-3.5	-5.2
Bosnia and Herzegovina	-0.1	0.8	1.6	2.4	2.9	1.3	-2.0
FYR Macedonia	-5.0	-1.1	0.0	0.3	-0.5	0.6	-0.9
Serbia	-3.2	-1.1	0.9	0.9	-1.7	-1.9	-2.5
Montenegro	-2.8	-3.1	-2.0	-1.7	1.6	6.4	1.5
Ukraine	0.7	-0.2	-3.2	-1.8	-0.7	-1.1	-1.5

Source: wiiw.

Table 13

**Gross General Government Debt**

	2002	2003	2004	2005	2006	2007	2008
	<i>% of annual GDP</i>						
Albania	65.3	60.7	57.7	58.1	55.0	54.5	53.6
Bosnia and Herzegovina	x	30.2	27.5	25.6	22.0	30.5	34.3
FYR Macedonia	48.7	45.0	43.8	39.6	31.4	23.4	21.4
Serbia	x	64.3	53.3	50.3	36.2	29.4	25.6
Montenegro	88.3	47.1	44.5	38.6	32.6	26.3	26.8
Ukraine	33.5	29.3	24.7	17.7	14.8	12.5	19.9

Source: European Commission, wiiw.

Table 14

**Broad Money**

	2002	2003	2004	2005	2006	2007	2008
	<i>End of period, annual nominal change in %</i>						
Albania (M2)	12.2	7.6	8.2	11.7	7.6	9.8	7.4
Bosnia and Herzegovina (M2)	66.7	4.8	21.0	17.6	21.6	25.0	13.6
FYR Macedonia	-9.5	15.7	17.0	15.0	25.0	29.3	11.4
Serbia (M3)	73.4	29.1	31.2	39.1	37.4	41.1	29.6
Montenegro (M21)	x	-0.3	10.6	58.7	82.9	71.9	-14.3
Ukraine	41.8	46.5	32.4	54.3	34.5	51.7	30.2

Source: European Commission, wiiw.

Table 15

**Official Key Interest Rate**

	2002	2003	2004	2005	2006	2007	2008
	<i>End of period, %</i>						
Albania (refinancing base rate)	8.50	6.50	5.30	5.00	5.50	6.30	6.30
Bosnia and Herzegovina <sup>1</sup>	x	x	x	x	x	x	x
FYR Macedonia <sup>2</sup>	15.21	6.15	10.00	8.52	5.74	4.77	7.00
Serbia (two-week repo rate) <sup>3</sup>	9.72	10.63	16.44	19.16	14.00	10.00	17.75
Montenegro <sup>4</sup>	x	x	x	x	x	x	x
Ukraine (refinancing rate) <sup>5</sup>	7.00	7.00	9.00	9.50	8.50	8.00	12.00

Source: Eurostat, Bloomberg, wiiw, IMF.

<sup>1</sup> Currency board.<sup>2</sup> Monthly weighted average interest rate on Central Bank Bills auctions (28 days).<sup>3</sup> 2002–2005: Weighted average interest rates on securities used in open market operations by Narodna banka Srbije.<sup>4</sup> Unilateral euroization.<sup>5</sup> Average.

Table 16

**Exchange Rate**

	2002	2003	2004	2005	2006	2007	2008
	<i>Period average, national currency per EUR</i>						
Albania	132.36	137.51	127.67	124.19	123.08	123.63	122.80
Bosnia and Herzegovina	1.96	1.96	1.96	1.96	1.96	1.96	1.96
FYR Macedonia	60.98	61.26	61.34	61.30	61.19	61.18	61.27
Serbia	60.68	65.05	72.57	82.91	84.19	79.98	81.90
Montenegro	x	x	x	x	x	x	x
Ukraine	5.03	6.02	6.61	6.39	6.34	6.92	7.71

Source: wiiw, national sources, Thomson Reuters.

Notes

# Legend, Abbreviations and Definitions

## Legend

x = No data can be indicated for technical reasons

.. = Data not available at the reporting date

Discrepancies may arise from rounding.

## Abbreviations

AR	autoregressive
BIS	Bank for International Settlements
BOFIT	Bank of Finland Institute for Economies in Transition
BMPE	broad macroeconomic projection exercise (ECB)
CCP	central counterparty
CEE	Central and Eastern Europe(an)
CEEI	Conference on European Economic Integration (OeNB)
CESEE	Central, Eastern and Southeastern Europe(an)
CDS	credit default swap
CiC	currency in circulation
CIS	Commonwealth of Independent States
CPI	consumer price index
DOLS	dynamic ordinary least squares
DSGE	dynamic stochastic general equilibrium
EJF	East Jour Fixe (OeNB)
EBRD	European Bank for Reconstruction and Development
EC	error correction
ECB	European Central Bank
Ecofin	Council of Economic and Finance Ministers (EU)
EDP	excessive deficit procedure
EI	euroization index
EMU	Economic and Monetary Union
ER	exchange rate
ERM (II)	exchange rate mechanism (II)
ESA 95	European System of Accounts 1995
ESCB	European System of Central Banks
EU	European Union
FCC	foreign currency cash
FCD	foreign currency deposit
FDI	foreign direct investment
FEEI	Focus on European Economic Integration (OeNB)
GDP	gross domestic product
HICP	Harmonised Index of Consumer Prices
ILO	International Labour Organization
IMF	International Monetary Fund
ISDA	International Swaps and Derivatives Association
LCC	local currency cash
LCD	local currency deposit
NCB	national central bank

NER	nominal exchange rate
NPL	nonperforming loan
NUTS	Nomenclature des unités territoriales statistiques (Nomenclature of territorial units for statistics)
OECD	Organisation for Economic Co-operation and Development
OLS	ordinary least squares
OTC	over-the-counter
PPI	producer price index
PPP	purchasing power parity
RER	real exchange rate
RMSE	root mean squared error
SDR	Special Drawing Right
SEE	Southeastern Europe(an)
SME	small and medium-sized enterprise
SVAR	Structural Vector Autoregressive
ULC	unit labor cost
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)

### National Central Banks

BNB	Bulgarian National Bank
BoA	Banka e Shqipërisë (Bank of Albania)
BOF	Suomen Pankki – Finlands Bank (Bank of Finland)
BNR	Banca Națională a României (National Bank of Romania)
BS	Banka Slovenije (Bank of Slovenia)
CBBH	Centralna banka Bosne i Hercegovine (Central Bank of Bosnia and Herzegovina)
CBCG	Centralna banka Crne Gore (Central Bank of Montenegro)
CBR	Central Bank of the Russian Federation (Bank of Russia)
ČNB	Česká národní banka (Czech National Bank)
HNB	Hrvatska narodna banka (Croatian National Bank)
MNB	Magyar Nemzeti Bank (Hungary's central bank)
NBP	Narodowy Bank Polski (National Bank of Poland)
NBS	Národná banka Slovenska (Slovakia's central bank)
NBS	Narodna banka Srbije (National Bank of Serbia)
NBU	National Bank of Ukraine
OeNB	Oesterreichische Nationalbank (Austria's central bank)
TCMB	Türkiye Cumhuriyet Merkez Bankası (Central Bank of the Republic of Turkey)

### ISO Currency Codes

ALL	Albanian lek
BGN	Bulgarian lev
CZK	Czech koruna
EUR	euro

HRK	Croatian kuna
HUF	Hungarian forint
PLN	Polish złoty
RON	Romanian leu
RSD	Serbian dinar
RUB	Russian ruble
SFR	Swiss franc
SIT	Slovenian tolar
SKK	Slovak koruna
TRY	Turkish lira
USD	U.S. dollar

### ISO Country Codes

AL	Albania
AT	Austria
BA	Bosnia and Herzegovina
BE	Belgium
BG	Bulgaria
BY	Belarus
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
KZ	Kazakhstan
LT	Lithuania
LU	Luxembourg
LV	Latvia
MD	Moldova
ME	Montenegro
MK	former Yugoslav Republic of Macedonia (FYR Macedonia)
MT	Malta
NL	Netherlands
PL	Poland
PT	Portugal
RO	Romania
RS	Serbia
RU	Russia
SE	Sweden
SI	Slovenia

SK	Slovakia
TR	Turkey
UA	Ukraine
UK	United Kingdom

### Definitions

*Croatia, FYR Macedonia* and *Turkey* are candidate countries within the EU enlargement process. Candidate countries are countries which have formally applied to the European Union for membership and have been officially recognized by the European Council as a candidate for membership. Accession negotiations with Croatia and Turkey were opened in October 2005. No date has been set yet for the opening of accession negotiations with FYR Macedonia.

*Albania, Bosnia and Herzegovina, Montenegro, Serbia* and *Kosovo under UNSC Resolution 1244/99* are potential EU candidate countries, i.e. countries that may become officially recognized candidates for membership. Western Balkan countries involved in the Stabilisation and Association process are recognized as potential candidate countries.

# Periodical Publications of the Oesterreichische Nationalbank

For further details on the periodical publications of the OeNB see [www.oenb.at](http://www.oenb.at)

## **Monetary Policy & the Economy** quarterly

This quarterly publication, issued both in German and English, offers analyses of current cyclical developments, medium-term macroeconomic forecasts and studies on central banking and economic policy topics. It also summarizes the findings of macroeconomic workshops and conferences organized by the OeNB.

## **Focus on European Economic Integration** quarterly

The Focus on European Economic Integration (FEEI) is a channel for communicating the OeNB's ongoing research on Central, Eastern and Southeastern European (CESEE) countries, thus reflecting a strategic regional research priority of the OeNB. Contributions to the quarterly FEEI include peer reviewed studies dealing primarily with macrofinancial and monetary integration as well as economic country analyses and cross-regional comparisons.

## **Statistiken – Daten & Analysen** quarterly

This publication contains brief reports and analyses focusing on Austrian financial institutions, cross-border transactions and positions as well as financial flows. The contributions are in German, with executive summaries of the analyses in English. The statistical part covers tables and explanatory notes on a wide range of macroeconomic, financial and monetary indicators. The tables and additional information and data are also available on the OeNB's website in both German and English. This series also includes special issues on selected statistics topics published at irregular intervals.

## **Research Update** quarterly

The quarterly English-language newsletter is published only on the Internet and informs an international readership about selected findings, research topics and activities of the OeNB's Economic Analysis and Research Department. This publication addresses colleagues from other central banks or international institutions, economic policy researchers, decision makers and anyone with an interest in macroeconomics. Furthermore, the Research Update offers information on publications, studies or working papers as well as events (conferences, lectures and workshops).

For further details see [www.oenb.at/research-update](http://www.oenb.at/research-update)

## **Financial Stability Report** semiannual

Issued both in German and English, the Financial Stability Report contains first, a regular analysis of Austrian and international developments with an impact on financial stability and second, studies designed to provide in-depth insights into specific topics related to financial market stability.

## **Workshops – Proceedings of OeNB Workshops**

three to four issues a year

The Proceedings of OeNB Workshops were introduced in 2004 and typically comprise papers presented at OeNB workshops at which national and international experts, including economists, researchers, politicians and journalists, discuss monetary and economic policy issues. Workshop proceedings are generally available in English only.

## **Working Papers**

about ten papers a year

The OeNB's Working Paper series is designed to disseminate, and provide a platform for discussing, findings of OeNB economists or outside contributors on topics which are of special interest to the OeNB. To ensure the high quality of their content, the contributions are subjected to an international refereeing process.

## **Conference Proceedings of the Economics Conference**      annual

The Economics Conference hosted by the OeNB is an international platform for exchanging views and information on monetary and economic policy as well as financial market issues. It convenes central bank representatives, economic policy-makers, financial market players, academics and researchers. The conference proceedings comprise all papers presented at the conference.

## **Conference Proceedings of the Conference on European Economic Integration**      annual

The OeNB's Conference on European Economic Integration (CEEI) focuses on Central, Eastern and Southeastern European issues and the ongoing EU enlargement process. The Conference Proceedings comprise contributions to the CEEI and are published in English by a renowned international publishing house. For further details see <http://ceec.oenb.at>

## **Annual Report**      annual

The Annual Report of the OeNB provides a broad review of Austrian monetary policy, economic conditions, new developments in the financial markets in general and in financial market supervision in particular as well as of the OeNB's changing responsibilities and its role as an international partner in cooperation and dialogue. It also contains the OeNB's financial statements.

## **Intellectual Capital Report**      annual

The Intellectual Capital Report is a review of the OeNB's intellectual capital and its use in the OeNB's business processes and services. The report clarifies the relationships between different types of human, relational, structural and innovation capital and describes various determinants that influence the OeNB's intellectual capital. The report provides an integrated view of the OeNB and serves to assess the consistency of the OeNB's intellectual capital with its knowledge-based strategic orientation.

# Addresses of the Oesterreichische Nationalbank

	<i>Postal address</i>	<i>Telephone/Fax/E-mail</i>
<b>Head Office</b> Otto-Wagner-Platz 3 <b>1090 Vienna, Austria</b> Internet: <a href="http://www.oenb.at">www.oenb.at</a>	PO Box 61 1011 Vienna, Austria	Tel: (+43-1) 404 20-6666 Fax: (+43-1) 404 20-2399 E-mail: <a href="mailto:oenb.info@oenb.at">oenb.info@oenb.at</a>
<b>Branch Offices</b>		
<b>Northern Austria Branch Office</b> Coulinstraße 28 <b>4020 Linz, Austria</b>	PO Box 346 4021 Linz, Austria	Tel: (+43-732) 65 26 11-0 Fax: (+43-732) 65 26 11-6399 E-mail: <a href="mailto:regionnord@oenb.at">regionnord@oenb.at</a>
<b>Southern Austria Branch Office</b> Brockmanngasse 84 <b>8010 Graz, Austria</b>	PO Box 8 8018 Graz, Austria	Tel: (+43-316) 81 81 81-0 Fax: (+43-316) 81 81 81-6799 E-mail: <a href="mailto:regionsued@oenb.at">regionsued@oenb.at</a>
<b>Western Austria Branch Office</b> Adamgasse 2 <b>6020 Innsbruck, Austria</b>	Adamgasse 2 6020 Innsbruck, Austria	Tel: (+43-512) 594 73-0 Fax: (+43-512) 594 73-6599 E-mail: <a href="mailto:regionwest@oenb.at">regionwest@oenb.at</a>
<b>Representative Offices</b>		
<b>London Representative Office</b> Oesterreichische Nationalbank 48 Gracechurch Street, 5 <sup>th</sup> floor <b>EC3V 0EJ, London, United Kingdom</b>		Tel: (+44-20) 7623-6446 Fax: (+44-20) 7623-6447
<b>New York Representative Office</b> Oesterreichische Nationalbank 450 Park Avenue, Suite 1202 <b>10022, New York, U.S.A.</b>		Tel: (+1-212) 888-2334 Fax: (+1-212) 888-2515
<b>Brussels Representative Office</b> Oesterreichische Nationalbank Permanent Representation of Austria to the EU Avenue de Cortenbergh 30 <b>1040 Brussels, Belgium</b>		Tel: (+32-2) 285 48-41, 42, 43 Fax: (+32-2) 285 48-48