OESTERREICHISCHE NATIONALBANK
EUROSYSTEM

FOCUS ON EUROPEAN ECONOMIC INTEGRATION

Stability and Security.

1/08

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Editorial

Dear reader,

It is a rare occasion when we get the opportunity to explore uncharted territory. A few years ago, OeNB researchers seized one of these few chances by contributing to the discussion on the fact that many households in Central and Eastern Europe (CEE) still held foreign currency assets (mainly in DEM, but also in USD and SFR) even though the turbulent transition years were more or less over. To this end, the OeNB launched a survey to investigate into the amounts these households hold and their motives for doing so. Another interesting question arose in connection with the introduction of the euro: How would foreign currency holders in CEE react?

To tackle these questions, a team of OeNB researchers (most notably Helmut Stix) conducted a survey in which households in five CEE countries are asked about the amounts of foreign currency cash and deposits they hold as well as about their motives. The first of these OeNB surveys, which are repeated twice per year, was conducted already in 1997, so that the period of the cash changeover was fully covered. Interestingly, most respondents refrained from exchanging their foreign currency holdings into domestic currency, but opted for euro instead. The result was a special type of euroization, which opened up a new field of research that addresses cash-related, but also monetary policy-related questions and is in several respects similar to the literature on dollarization. The main results of the OeNB Euro Survey were published by the ECB in its 2005, 2006 and 2007 reports on the international role of the euro.

In light of the fact that households' foreign currency holdings are still substantial in some CEE countries and are suspected to be even bigger in Southeastern Europe (SEE), the OeNB has recently decided to extend both the number of countries and questions covered in the survey so as to get an even larger and more informative data set. To date, the survey covers four CEE countries (Slovakia will drop out at the beginning of 2009, as Slovenia did in 2007) as well as seven SEE countries.

The main results of the OeNB Euro Survey are presented in the contribution on Euroization in Central, Eastern and Southeastern Europe by Sandra Dvorsky, Thomas Scheiber and Helmut Stix. The authors conclude that the euro still plays a dominant role in foreign currency-denominated assets (both cash and deposits) throughout the region. Interestingly, the amounts and the motives differ significantly: People in SEE hold relatively large amounts of euro cash mainly as a store of value, whereas people in CEE hold relatively small amounts of euro cash mainly for the purpose of making transactions abroad (notably during vacations or shopping trips to euro area countries). As the OeNB survey is still a quite unique piece of research, we will keep you informed about its results in future editions of the Focus on European Economic Integration.

The dynamic development of the Croatian banking sector is at the core of Sándor Gardó's contribution Croatia: Coping with Rapid Financial Deepening. Having undergone sweeping structural changes in the late 1990s, the sector has remained relatively stable and profitable since then. Driven by brisk credit growth, financial deepening has continued dynamically in recent years, so that the level of

bank intermediation is now among the highest in Central, Eastern and Southeastern Europe (CESEE). The large share of foreign-owned banks in the country's banking sector has contributed significantly to this development, with Austrian banks being among the most active players in Croatia.

Another contribution in the studies section introduces the topic of this year's Conference on European Economic Integration: the integration of European labor markets. The paper by Josef Schreiner gives an overview of Labor Markets in Central, Eastern and Southeastern European EU Member States – General Trends and Migration Effects.

Austria's activities are not confined to the banking sector: Like many other EU Member States, the country also has intensive trade links with the CESEE region. In his contribution, Thomas Reininger examines Factors Driving Import Demand in Selected CESEE Countries. His results confirm the existence of a strong export-import link in most of the countries under review, the prominent role of fixed investment in determining imports in nearly all countries and, with some exceptions, the relatively smaller role of private consumption for imports.

Finally, Jesús Crespo Cuaresma and Tomáš Slačík provide another piece of evidence to solve a puzzle that has kept many economists busy so far: Determinants of Currency Crisis: A Conflict of Generations? The results of this follow-up to an earlier study suggest that crisis episodes in the 1980s were driven predominantly by adverse developments of macroeconomic fundamentals, while the results for crises in the 1990s might well be interpreted as empirical support for the second-generation type of crises, in which fundamental developments play only a secondary role.

Last but not least, let me take the opportunity to invite you to the OeNB's 2008 Conference on European Economic Integration, which will take place in Vienna on November 17 and 18. This year, the conference will address issues related to the integration of European labor markets including migration issues, and our main focus will be on the associated economic developments that are of major concern for central banks. If you are interested in joining us, please do not hesitate to contact us at

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You may also fax your comments to (43-1) 404 20-5299 or mail them to doris.ritzberger-gruenwald@oenb.at, Head of the Foreign Research Division.

Klaus Liebscher
Governor

Recent Economic Developments

Developments in Selected Countries [1, 2]

1 Introduction

In 2007 economic activity in the Central, Eastern and Southeastern European (CESEE) region turned out to be strong again, averaging around 6%, compared to 2.6% in the euro area and 2.2% in the U.S.A.[3] Many CESEE countries even registered higher annual average growth than in 2006, but in some countries under review, growth decelerated somewhat toward the end of 2007. Domestic demand remained the main pillar of economic growth, while the growth of exports lost some of its momentum in most countries, even though economic growth in major CESEE trading partner countries held up relatively well in the second half of 2007. Against the background of global financial market turbulences since August of last year, the issue of potential spillover effects has moved to center stage. So far, however, the CESEE financial markets have not been affected by the turbulences to a larger extent than the markets of other emerging market economies (see box 1). Nevertheless, looking forward, some impact on the real economies of CESEE countries can be expected in 2008 and 2009: Economic growth will moderate somewhat compared to buoyant developments in 2007, but is widely expected to remain comparatively strong (see box 2).

Increasing price pressures have been an important issue in all countries under review: Inflation has picked up in the last months of 2007 and in the beginning of 2008, pushed up by increases in global energy and food prices, but also by domestic factors. In particular the two newest EU Member States, Bulgaria and Romania, and to a lesser extent also the two candidate countries, Croatia and Turkey, have been affected by high and rising external imbalances, which makes them vulnerable to negative external shocks. Fiscal positions have generally improved in 2007, but this development was largely driven by cyclical factors and less by consolidation efforts.

2007: A year of robust economic growth across CESEE, with gross fixed capital formation expanding strongly

The CESEE region saw another year of robust economic activity. Real GDP growth gained further momentum in 2007 in annual average terms in Slovenia, Poland, and Slovakia, as well as Croatia and Russia. In Hungary, Romania, and Turkey, economic growth turned out to be weaker in 2007 than a year earlier. In the case of Romania and Turkey, the unfavorable development was largely the result of deteriorating net exports and bad harvest, whereas in Hungary, the fiscal consolidation program left its marks. Real GDP growth was almost unchanged in Bulgaria and the Czech Republic. At 3.4 percentage points, the growth differential (measured at current prices) of the CESEE EU Member States with the euro area was slightly lower in 2007 than in 2006.

In 2007, gross fixed capital formation (GFCF) expanded more strongly than private consumption in all countries except Turkey. Some countries (notably Bulgaria, Poland, and Romania) even registered record-high GFCF growth rates

[1] *Compiled by Antje Hildebrandt with input from Stephan Barisitz, Johann Elsinger, Sándor Gardó, Thomas Reininger, Josef Schreiner, Tomáš Slaćík, and Zoltan Walko.*

[2] *Cutoff date: April 18, 2008. This report primarily focuses on data releases and developments from November 2007 up to the cutoff date.*

[3] *One set of countries covered in this contribution – Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia, and Slovenia – is referred to as the CESEE EU Member States throughout the report. The CEE-5 subgroup of countries comprises the Czech Republic, Hungary, Poland, Slovakia, and Slovenia. The second set of countries covered here consists of Croatia and Turkey (referred to as EU candidate countries), as well as Russia.*

that were partly driven by the dynamic development of real credit as well as by the inflow of net FDI and EU structural funds. GFCF growth weakened significantly only in the two EU candidate countries. Among the CESEE EU Member States,[4] Slovenia, Poland, and Romania registered double-digit growth rates in construction investments year on year in 2007, whereas this type of investment shrank in Hungary. In the field of equipment investments, growth turned out to be very dynamic in Poland and Romania (at above 20% year on year), while Slovenia, Hungary, and Slovakia registered growth rates of around 10%; growth was somewhat lower in the Czech Republic. As in 2006, private consumption growth remained robust throughout the region in 2007, with the notable exception of Hungary, where private consumption even contracted as a result of the fiscal austerity package. Consumption growth was supported by rapid growth of real credit (in particular in Slovenia, Bulgaria, Poland, Romania, as well as Russia) and dynamic wage growth, which was most pronounced in Bulgaria, Poland, Romania, as well as in Russia (for more details, see below). Apart from Hungary, private consumption growth in 2007 turned out to be weaker only in Slovenia, Bulgaria, and Romania compared with 2006, although growth rates remained comparatively high in the latter two countries. Overall, domestic demand remained the main contributor to GDP growth in most of the countries under review.

Negative contribution of net exports to GDP growth in many countries of the region

With the exception of the Czech Republic, Hungary, and Slovakia, the contribution of net exports to GDP growth was negative in 2007 and even highly negative in Bulgaria, Romania, and Russia. Comparing 2007 with 2006, the contribution of net exports to GDP growth improved (at least slightly) in the Czech Republic, Poland, Slovakia, Bulgaria, as well as Croatia, despite lower export growth (except in the Czech Republic) as import growth fell more strongly. In Hungary the positive contribution of net exports declined in 2007 as export growth decelerated more strongly than import growth, whereas in Slovenia the negative contribution of net exports declined as import growth outpaced export

Table 1

Gross Domestic Product (Real)

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Annual change in %								
Slovenia	4.1	5.7	6.1	6.1	6.3	7.2	6.0	6.4	4.7
Bulgaria	6.2	6.3	6.2	7.1	6.2	5.5	7.3	4.9	6.9
Czech Republic	6.4	6.4	6.5	6.3	6.2	6.5	6.5	6.3	6.6
Hungary	4.1	3.9	1.3	3.9	3.7	2.7	1.2	0.9	0.8
Poland	3.6	6.2	6.5	6.6	6.6	7.2	6.4	6.4	6.1
Romania	4.2	7.9	6.1	8.4	7.9	6.1	5.7	5.7	6.6
Slovakia	6.6	8.5	10.4	9.0	8.2	8.3	9.3	9.4	14.3
Croatia	4.3	4.8	5.6	4.7	4.8	7.0	6.6	5.1	3.7
Turkey	8.4	6.9	4.5	6.3	5.7	7.6	4.0	3.4	3.4
Russia	6.4	7.3	8.1	7.5	8.0	7.4	8.0	7.3	9.5
Memorandum item: Euro area	1.6	2.7	2.6	2.5	3.1	3.1	2.5	2.6	2.2

Source: Eurostat, national statistical offices, wiiw.

[4] *No comparable data are available for Bulgaria and the non-EU Member States.*

growth. In Romania, Turkey and Russia, import growth gained more speed in 2007 compared with 2006, whereas export growth slowed down. In Romania and Russia, the negative contribution of net exports to GDP growth turned out to be much higher than in 2006 at almost 15 percentage points and 7 percentage points, respectively.

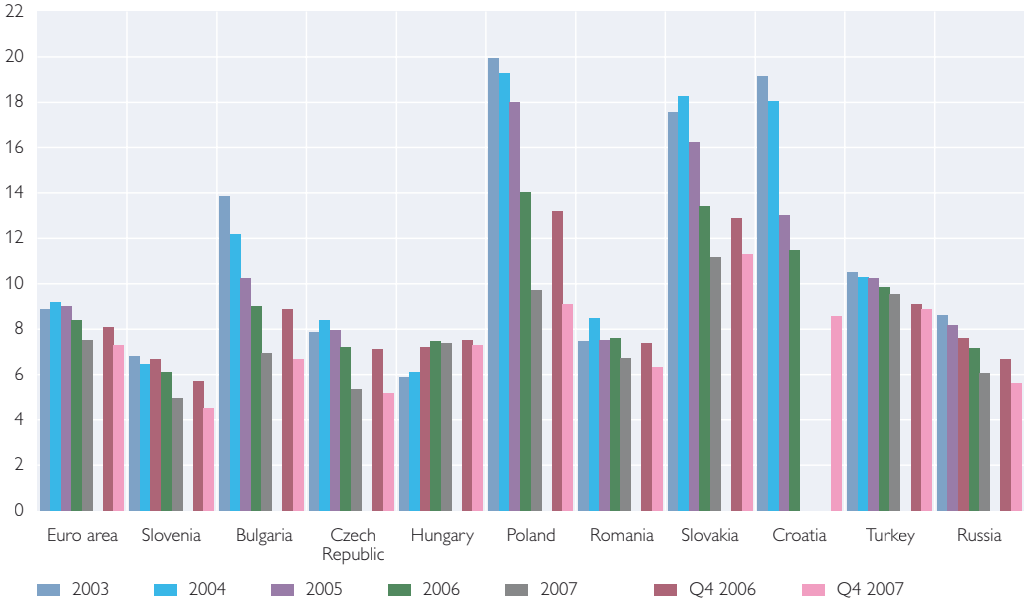
Tight labor markets become increasingly problematic in some countries

In 2007, unemployment rates in many CESEE countries reached the lowest levels recorded since the early stages of the transition process, which was primarily due to strong economic growth. While the unemployment rate in the euro area also declined to the lowest level in history, it still dropped less markedly than it did in most CESEE countries. Favorable labor market developments have led to labor shortages in some CESEE countries and sectors, especially with regard to skilled labor for which demand has increased rapidly. Tightening labor market conditions along with increasing inflation put further upward pressure on wages. In most countries, total economy compensation per employee rose more sharply in 2007 than in 2006, with nominal growth rates ranging between around 6% (Slovenia and Croatia) and above 20% (Romania) year on year. In this context, productivity growth (measured as gross value added per employee) increased most strongly in Slovakia by above 8%, while most countries saw an acceleration of around 3% to 4% year on year. Only Hungary and Poland registered lower productivity growth rates of about 2%. Overall, nominal ULC growth rates were positive in all countries in 2007, with the lowest increase being recorded in Slovakia (0.2%) and the highest in Bulgaria and Romania (above 14%).[5] In the euro

Chart 1

Unemployment Rates

ILO definition, period average



Source: Eurostat.

[5] *No comparable data are available for Russia.*

area, nominal ULC on the basis of the whole economy accelerated by 1.5% year on year in 2007 (against 1.0% in 2006).

Price pressures remain strong

Price pressures increased across the region in the last months of 2007 and early 2008, and thus became a key policy issue in most CESEE countries. As already highlighted in FEEI 2/2007, exogenous factors (i.e. rising world market prices for energy and food) had a strong impact on inflationary developments. For comparison, the euro area was also affected by worldwide price increases, as is reflected in higher inflation rates over the past months. However, the CESEE region was hit even more strongly by the unfavorable development of world market prices, given that the share of energy and food in the consumer goods basket (which is incorporated in the weights for calculating the HICP) is higher in the CESEE countries than in more advanced economies. In Romania, the weights of energy and food items add up to above 60%, while they come to around 40% in the other CESEE EU Member States except Slovenia (35%).[6] The corresponding weight in the euro area is just around 30%. Moreover, some CESEE countries were severely hit by crop failure in 2007, which put additional pressure on food prices. Thus, in the period from October 2007 to March 2008, the food and energy components clearly added more to inflation than they did in the period from April to September 2007.

Apart from these developments, country-specific factors pushed up inflation, as well. In some countries, strong consumption growth and accelerating real ULC on the basis of the whole economy also contributed to inflation. Bulgaria, Poland and Romania registered positive growth rates of real ULC whereas ULC declined in several countries, most strongly in Slovakia (1.6% year on year). In Croatia and Turkey, real ULC remained almost unchanged in 2007 compared with 2006.[7]

Table 2

Consumer Price Index (here: HICP)

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007	Q1 2008
	Annual change in %									
Slovenia	2.5	2.5	3.8	2.5	2.3	2.6	3.2	3.7	5.5	6.5
Bulgaria	6.0	7.4	7.6	6.7	5.7	5.3	4.7	9.0	11.2	12.4
Czech Republic	1.6	2.1	3.0	2.4	1.1	1.7	2.6	2.7	4.9	7.5
Hungary	3.5	4.0	7.9	4.6	6.4	8.8	8.5	7.3	7.1	6.9
Poland	2.2	1.3	2.6	1.5	1.3	2.0	2.3	2.4	3.7	4.5
Romania	9.1	6.6	4.9	5.9	4.8	3.9	3.9	5.1	6.8	8.0
Slovakia	2.8	4.3	1.9	4.8	3.5	2.1	1.7	1.4	2.4	3.4
Croatia[1]	3.4	3.2	2.8	3.2	2.2	1.5	2.1	2.9	4.9	5.9
Turkey	8.1	9.3	8.8	10.6	9.7	10.3	9.5	7.1	8.2	8.8
Russia[1]	12.5	9.8	9.1	9.6	9.2	7.9	8.1	9.0	11.5	12.9
Memorandum item:										
Euro area	2.2	2.2	2.1	2.2	1.8	1.9	1.9	1.9	2.9	3.4

Source: Eurostat, national statistical offices, wiiw.

[1] *CPI.*

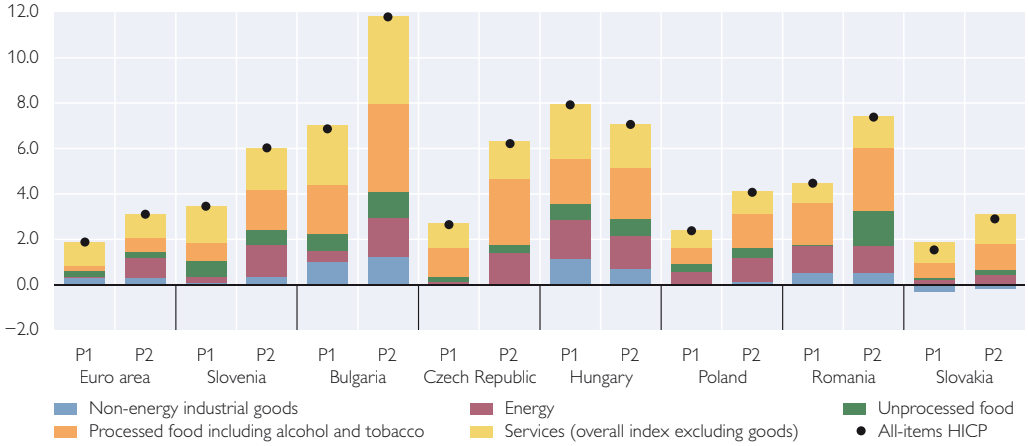
[6] *For the non-EU Member States, no comparable figures are available on the contribution of these components to HICP.*

[7] *For Russia, no comparable ULC data for the whole economy are available.*

Chart 2

Contribution to the HICP

percentage points, dots in %, year on year



Source: Eurostat.

Note: P1 stands for the period from April 2007 to September 2007, P2 for the period from October 2007 to March 2008.

Accelerating wages in 2007, however, call for some caution. Higher administered prices and VAT increases are further factors behind the pickup in inflation, e.g. in Bulgaria and the Czech Republic in 2007, and in Poland in early 2008, which is also reflected in a higher contribution of services to HICP. Regarding aggregate demand conditions relative to aggregate supply, which have a bearing on inflation pressures, it is useful to look at the development of output gaps.[8] It is noteworthy that the output gap became more positive in most countries in 2007 compared with 2006. In Romania, the output gap moderated slightly, but remained high at 3%. In contrast, Hungary's output gap fell to 0.2% in 2007 after 1.8% in 2006.[9]

High real growth rates of credit to the private sector

Domestic demand was also underpinned by strong real growth of credit to the private sector. It is particularly noticeable that all countries except Hungary featured higher real credit growth than the euro area, reflecting (at least to some extent) the process of income convergence and catching-up in terms of financial intermediation.[10] However, even when accounting for these factors, real credit growth was outstandingly dynamic in Romania, Bulgaria, and Russia. In 2007, credit growth picked up markedly in the latter two countries and Poland, whereas it dropped sharply in Hungary, Turkey, and Croatia. The slowdown in Hungary was largely the result of low growth and low consumer confidence. In Turkey, it was ascribable to tight monetary policy, while in Croatia, it was attributable to the central bank's prudential and administrative measures.

Monetary tightening

In contrast to some major central banks (e.g. the Federal Reserve, the Bank of England), several central banks in CESEE hiked their policy rates (see table 3) in the last quarter of 2007 and early 2008, largely in response to rising inflationary

[8] *No comparable data are available for the non-EU Member States.*

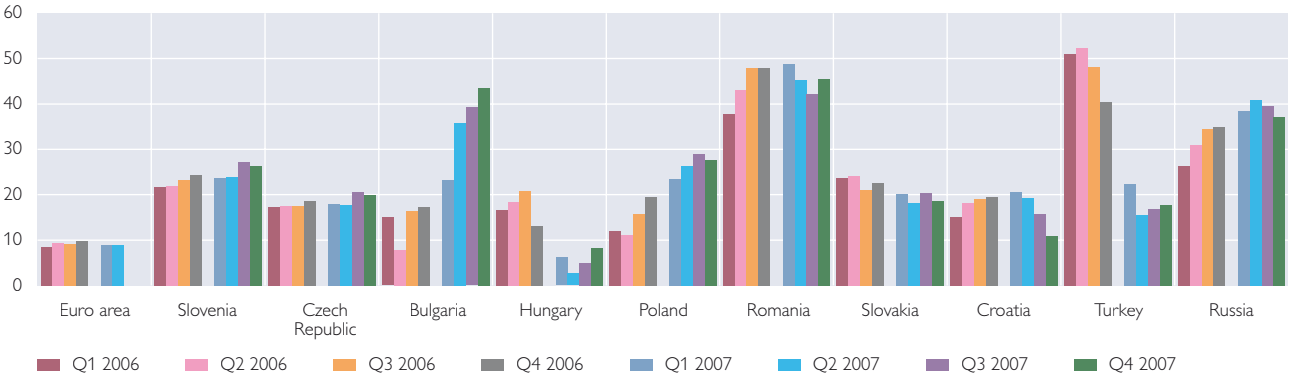
[9] *The output gap is defined as the gap between actual and potential GDP, measured as a percentage of potential GDP. For comparison, the output gap of the euro area was −0.2% in 2006 and 0.2% in 2007.*

[10] *Financial intermediation is measured as the share of credit to the private sector in relation to GDP. It is still considerably lower in CESEE than in the euro area.*

Chart 3

Domestic Credit to Nonbanks and the Nongovernment Sector, Deflated by the CPI

Annual change in %, period average



Source: National central banks, OeNB.

Table 3

Inflation: Assessment and Key Factors

	Assessment		Key Factors: Monetary Policy Issues	
	Price stability	Inflation level	Inflation targets	Change of the key interest rate
Slovenia	↓	◙	euro area monetary policy framework	euro area interest rates
Bulgaria	↓	●	no target	..
Czech Republic	↓	◙	inflation target of 3% ±1 percentage point (CPI) until end-2009	increase by 50 basis points in two steps to 3.75%
Hungary	↔	◙	inflation target: 3% ±1 percentage point (medium-term)	increase by 50 basis points in one step to 8.0%
Poland	↓	◙	inflation target of 2.5% ±1 percentage point (national headline CPI)	increase by 100 basis points in four steps to 5.75
Romania	↓	●	inflation target of 3.8% ±1 percentage point for end-2008	increase by 200 basis points in four steps to 9.5%
Slovakia	↓	○	inflation target of <2% at end 2008	no change, monetary policy rate at 4.25% since end-April 2007
Croatia[1]	↓	◙	no target	increase from 3.86% to 4.95%[1]
Turkey	↓	●	inflation target of 4% ±2 percentage points	decrease by 150 basis points in four steps to 15.25%
Russia	↓	●	no explicit target	increase by 25 basis points in one step to 10.25%

Source: Eurostat, national central banks, OeNB.

[1] Weighted monthly averages of weighted repo rates achieved at regular reverse repo auctions of the HNB.

Note: The table refers to the review period (beginning of November 2007 until mid-April 2008).

↑ *: improvement* ↓ *: deterioration* ◙ *: intermediate risk*
↔ *: no significant change* ○ *: moderate risk* ● *: high risk*

Table 4

External Equilbria: Assessment and Key Factors

	Assessment		Key Factors: FDI and Gross External Debt			
	Development of the combined current and capital account[1]	Level of the combined current and capital account	Coverage of combined current and capital account by net FDI in %		Gross external debt, % of GDP	
			2006	2007	2006[2]	2007[2]
Slovenia	↓	○	–20.9	–0.0	78.5	101.7
Bulgaria	↓	●	135.1	100.7	80.7	97.3
Czech Republic	↔	○	113.2	173.0	38.1	39.5
Hungary	↑	○	52.5	26.0	91.4	96.5
Poland	↔	○	113.0	148.7	46.5	50.7
Romania	↓	●	85.1	44.1	28.0	27.9
Slovakia	↑	○	95.5	74.9	54.8	54.9
Croatia	↓	◙	93.0	101.8	85.6	87.8
Turkey	↔	◙	58.0	52.5	37.3	35.0
Russia	↓	○	–10.0	–9.9	30.3	26.6

Source: Eurostat, national central banks, OeNB.

[1] *Comparing 2007 with 2006.*
[2] *% of GDP (rolling four-quarter GDP, euro basis), end of period.*

Note: The table refers to the review period (beginning of November 2007 until mid-April 2008).

↑ *: improvement* ↓ *: deterioration* ◙ *: intermediate risk*
↔ *: no significant change* ○ *: moderate risk* ● *: high risk*

pressures. A notable exception is Turkey, which has lowered the policy rate by a total of 150 basis points since the beginning of November 2007, albeit from a high level.

Substantial combined current and capital account deficit widening further in Bulgaria and Romania

In the CEE-5, the deficits of the combined capital and current accounts generally remained well contained in 2007. Interestingly, in Hungary and Slovakia the deficit ratio even declined markedly. Overall, the deficits were largely covered by net FDI inflows in the Czech Republic, Poland and Slovakia. In contrast, deficit ratios in Bulgaria and Romania continued to widen in 2007, moving further into double-digit territory. Nevertheless, Bulgaria's deficit continued to be fully covered by net FDI inflows (following substantial overcoverage in previous years), whereas in Romania the coverage ratio almost halved to 44% in 2007. Russia's surplus of the combined capital and current account shrank in 2007 due to strong import growth and more moderate export growth.

Competitiveness: ULC in industry on the rise in most countries

Among the CESEE EU Member States, ULC in industry measured in local currency declined in Hungary and Slovakia in 2007. In Slovenia the increase of ULC in industry was less than 1 percentage point higher than in the euro area (where ULC decreased slightly). The Czech Republic, Hungary, Poland, and Slovakia posted ULC increases (in euro terms) between 4.3 percentage points and 6.9 percentage points compared with the euro area. Bulgaria and, even more so, Romania registered significant increases in nominal industrial wages that came to more than 20% year on year in 2007 and were by far not matched by productivity gains. In relation to the euro area, ULC thus increased by 10 percentage points and almost 18 percentage points, respectively. Despite rising ULC, the CEE-5 posted higher market shares in world imports in 2007 than in 2006, whereas Bulgaria's market share was steady and Romania lost some market share. Croatia's

Table 5

Wages, Productivity and Unit Labor Cost

	Nominal Wages in Industry				Productivity in Industry				Unit Labor Cost in Industry (local currency)			
	2006	2007	Q3 2007	Q4 2007	2006	2007	Q3 2007	Q4 2007	2006	2007	Q3 2007	Q4 2007
	Annual change in %											
Slovenia	5.5	6.7	6.6	8.6	7.9	6.3	6.0	3.8	−2.3	0.4	0.6	4.6
Bulgaria	10.8	20.1	20.0	22.8	8.2	9.5	10.9	9.7	2.5	9.7	8.2	11.9
Czech Republic	6.1	8.6	8.6	8.1	9.4	6.5	4.4	5.1	−3.0	1.9	4.1	2.8
Hungary	8.6	8.5	7.6	7.4	11.5	9.3	10.6	8.2	−2.6	−0.7	−2.7	−0.7
Poland	5.2	8.7	8.8	9.3	9.5	6.0	4.5	4.8	−4.0	2.6	4.1	4.3
Romania	15.7	21.6	20.9	22.8	11.3	9.5	8.8	8.0	4.0	11.0	11.1	13.7
Slovakia	6.7	6.4	6.1	5.5	11.3	10.0	10.1	9.2	−4.1	−3.3	−3.6	−3.4
Croatia	7.5	5.6	6.0	5.0	2.7	5.9	4.7	3.6	4.7	−0.2	1.2	1.3
Turkey	11.5	9.4	10.9	9.9	6.7	2.6	1.1	4.0	4.5	6.6	9.8	5.7
Russia	21.4	26.0	24.8	28.5	8.3	4.6	2.0	3.4	12.0	20.5	22.4	24.2
Memorandum item:												
Euro area[1]	2.6	3.2	3.1	3.2	5.2	3.5	3.6	1.9	−2.5	−0.3	−1.1	0.5

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

[1] *Nominal wages, productivity and ULC in manufacturing.*

Table 5 continued

Wages, Productivity and Unit Labor Cost

	Euro per Local Currency (annual average)				Unit Labor Cost in Industry (euro)			
	2006	2007	Q3 2007	Q4 2007	2006	2007	Q3 2007	Q4 2007
	Annual change in %							
Slovenia	−0.0	−0.0	−0.0	−0.0	−2.3	0.4	0.6	4.6
Bulgaria	0.0	0.0	0.0	0.0	2.5	9.7	8.2	11.9
Czech Republic	5.1	2.1	1.4	4.5	1.9	4.0	5.5	7.5
Hungary	−6.1	5.1	9.4	2.9	−8.6	4.4	6.4	2.2
Poland	3.2	3.0	4.3	5.2	−0.8	5.6	8.6	9.7
Romania	2.7	5.7	9.6	0.9	6.8	17.4	21.7	14.7
Slovakia	3.7	10.2	12.7	7.5	−0.6	6.6	8.6	3.9
Croatia	1.1	−0.2	0.1	0.5	5.8	−0.4	1.3	1.9
Turkey	−7.3	1.3	8.1	8.8	−3.1	8.0	18.7	15.0
Russia	3.3	−2.7	−2.4	−4.4	15.8	17.3	19.4	18.8

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

[1] *Nominal wages, productivity and ULC in manufacturing.*

ULC remained roughly unchanged in 2007 compared with the euro area, whereas the positions of Turkey and especially Russia in terms of ULC worsened considerably. Despite increasing ULC, Turkey gained some market share in 2007 compared with 2006. Croatia's share remained almost unchanged, whereas Russia lost some of its world market share.

Fiscal notification of the CESEE EU Member States as of April 2008: Headline fiscal balances improved in 2007 but presumably mostly due to robust GDP growth

Fiscal outcomes in the CESEE EU Member States improved in most countries, but were apparently largely driven by cyclical developments (i.e. revenue overperformance). Nevertheless, in 2007, structural fiscal balances (cyclically adjusted, excluding one-off items) improved in all CESEE EU Member States (but Romania) and even substantially in Hungary. Still, at above 5% of GDP, Hungary reports the highest headline deficit among the countries covered in this contribution. Notably, the countries under excessive deficit procedure (EDP), i.e. the Czech Republic, Poland, and Slovakia, posted deficits well below 3% of GDP in 2007. In Slovenia, the only euro area country under review here, the government budget was almost balanced in 2007 after a deficit of 1.2% in 2006, while Bulgaria increased its budget surplus further to 3.4% of GDP. Only Romania saw a widening of its budget deficit by 0.3 percentage points to 2.5% of GDP in 2007.

In Croatia, the budget deficit is expected to narrow to 1.6% of GDP in 2007 (after –2.5% of GDP a year earlier). In Turkey, the fiscal balance turned from a close-to-balance position in 2006 into a deficit of 1.2% of GDP in 2007, as a result of weak tax collection and some election-related spending. In Russia, fiscal policy somewhat loosened in the election year 2007. However, the general government budget still recorded a surplus of 6.1% of GDP (2006: 8.4% of GDP). In February 2008, Russia's Stabilization Fund was split into a Reserve Fund to assist budget spending in the event of a large oil price drop and a new National Wealth Fund to finance structural reforms, as planned.

Updated stability and convergence programs assessed by the EU Council

In early 2008 the Council of the European Union assessed the updated stability and convergence programs of the EU Member States covered in this report for the period from 2007 to 2010 (until 2011 for Hungary). Hungary's program is considered to be adequate to correct the excessive deficit by 2009. In the Czech Republic (despite risks concerning the long-term sustainability of public finances) the EDP can be expected to be closed soon. The same applies to Slovakia where the program is consistent with a correction of the excessive deficit by 2007. Poland, in contrast, was considered not to have taken adequate steps to correct the deficit by 2007 as planned. The Council expressed serious concerns regarding the medium-term fiscal framework of Romania, which entails the risk of breaching the 3% limit, and criticized that budget spending was unpredictable and transparency insufficient. The Bulgarian and Slovenian programs were evaluated positively.

Croatia and Turkey – Pre-Accession Economic Programmes

In a similar vein, the candidate countries Croatia and Turkey submitted their medium-term Pre-Accession Economic Programmes (PEPs) to the European Commission in late 2007. These programs were assessed by the European Commission in April 2008. According to this assessment, the programs generally provide a relatively consistent macroeconomic and fiscal framework. Croatia intends to continue reducing its deficit in the years ahead and turn it into a small surplus by 2010, mainly based on a reduction of public spending. According to the Turkish PEP, Turkey will revert to a general government surplus target and is planning to increase the surplus in 2009 and 2010.

Accession negotiations with the EU candidate countries proceeding

Since our last report, Croatia and the European Commission have opened two more chapters, bringing the total number of chapters opened to 16 out of 35, 2 of which have already been closed provisionally. In October 2008, the European Commission is expected to publish a roadmap for concluding the (technical) negotiation process with Croatia. Turkey has so far opened five negotiation chapters (one more than in our last report); to date, one chapter has been closed provisionally.

Box 1

Walking on a Narrow Trail: An Interim Look at the Impact of Recent Global Financial Market Turbulence on Central, Eastern and Southeastern Europe[1]

Major market disruptions originating from the U.S. subprime crisis have shaken financial markets worldwide in several waves since July 2007. In the Central, Eastern and Southeastern European (CESEE) countries, the effects of the financial turbulence became noticeable in the second half of 2007, indicating that the region's financial market integration with European and global structures has deepened in recent years.

The impact of the financial turmoil on the CESEE region cannot be fully assessed yet, as the turbulence has not come to an end and many underlying data are published with some time lag. Nevertheless, a few preliminary conclusions can be drawn already at this stage. So far, the CESEE financial markets seem to have weathered relatively well the international financial market turbulence, which was accompanied by a tightening of global liquidity conditions and a repricing of risk. Still, corrections occurred in most financial market segments. The crisis hit the CESEE financial markets in several waves and peaked in mid-March 2008. Following repeated liquidity operations by major central banks worldwide and the rescue of an investment bank by the Federal Reserve, global financial market turbulence appears to have subsided somewhat in recent weeks. The CESEE financial markets seem to have calmed down to some extent, too, as is indicated e.g. by the movements in exchange rates, eurobond spreads and the credit default swap (CDS) rate (see charts below). In general, developments were, however, not homogeneous across the region, with countries and financial market segments being affected to different extents, in terms of both prices and volumes. In line with expectations, countries with certain characteristics were affected the most: those with the largest economic imbalances and/or insufficient macroeconomic policies, as well as countries that had previously experienced strong capital inflows coupled with particularly high asset valuation and buoyant demand conditions (e.g. Bulgaria, Croatia, Hungary, Romania, Turkey). Indeed, the performance of selected market indicators (such as exchange rates in Turkey and Romania or CDS spreads in Hungary) suggests that market participants are starting to take greater account of country-specific signs of vulnerability.

In the current fragile environment, risk propagation through financial market linkages might play a more prominent role than it would otherwise, and could manifest itself in rising funding costs and/or decreasing financial flows. These risks could materialize if the risk appetite for emerging markets in general or emerging Europe in particular declined further, or if the parent banks in the mostly foreign-owned CESEE banking systems were forced to cut back lending seriously. Given that the majority of foreign creditors active in the region come from just a few Western European countries (most notably Austria, France, Germany, and Italy), the risk of contagion could increase, too. However, prudential indicators are mostly rather solid and stable, pointing to some buffer in the banking systems that will help cope with unexpected shocks. Furthermore, the governance structures of (mostly foreign-owned) banks as well as the quality of the prudential and supervisory systems should mitigate the risk to some extent.

According to the latest data on the development of credit to the private sector, there is no widespread indication of a possible change in banks' lending behavior yet (as is reflected by the sustained brisk growth of credit extended by local banks). Furthermore, the available balance of payments data do not provide any strong evidence of dwindling capital inflows. Quite on the contrary: Gross capital inflows into the region even accelerated in the third quarter of 2007 and remained at elevated levels in the final quarter of 2007. On the back of increasing funding costs, however, some reduction of capital inflows is not inconceivable in the future. While a sharp decline of capital inflows cannot be fully excluded, it appears to be rather unlikely, given sizeable parent bank and/or intercompany financing as well as ongoing policy

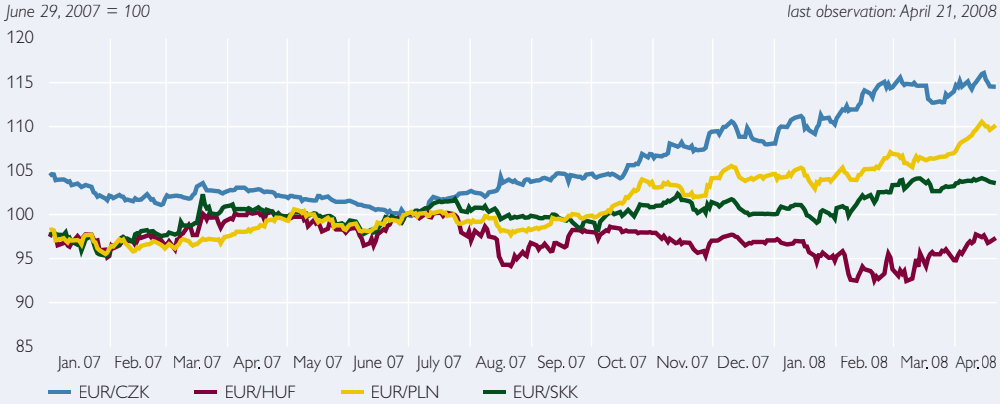
[1] *For an in-depth discussion on this issue, see Gardó, S., A. Hildebrandt, and Z. Walko, 2008. Walking the Tightrope: A First Glance on the Impact of Recent Global Financial Market Turbulences on Central, Eastern and Southeastern Europe. OeNB. Financial Stability Report 15.*

tightening in many countries of the region. In this context, even a substitution effect in favor of relatively low-risk CESEE countries might materialize, assuming that parent companies will try to sustain business activities in the region so as to benefit from the profit-making opportunities provided by the region's catching-up potential and generally higher (risk-adjusted) returns.

Overall, countries with relatively weak macroeconomic fundamentals might come under additional pressure if global financial market turmoil persisted or deepened. A sudden stop of capital inflows may lead to major exchange rate corrections, which could have substantial balance sheet and wealth effects in countries with sizeable unhedged foreign currency positions. Therefore, correcting existing (in particular external) imbalances in the near future remains key to preventing a loss of investor confidence in a relatively fragile international environment. At the same time, increasing liquidity constraints and higher external financing costs could help the CESEE countries to contain overheating pressures, thus placing growth and convergence on a sounder footing in some countries.

Chart 1

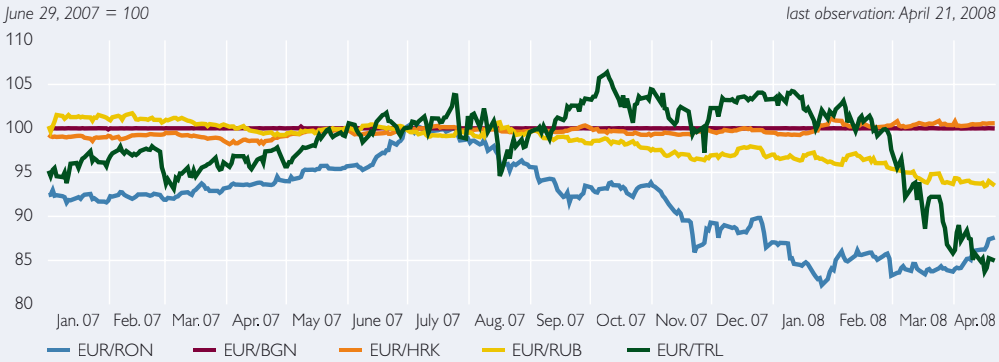
Exchange Rate Developments against the Euro[1]



Source: Eurostat, OeNB.
[1] An increase in value means a nominal appreciation.

Chart 2

Exchange Rate Developments against the Euro[1]

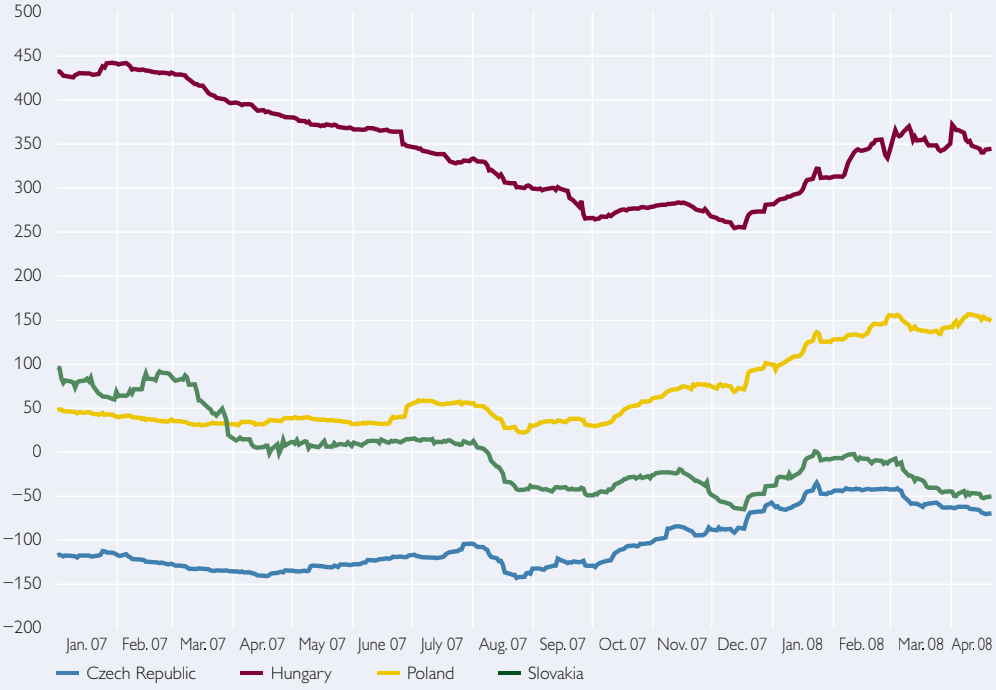


Source: Eurostat, OeNB.
[1] An increase in value means a nominal appreciation.

Chart 3

3-Month Money Market Spreads against the Euro Area

basis points *last observation: April 21, 2008*

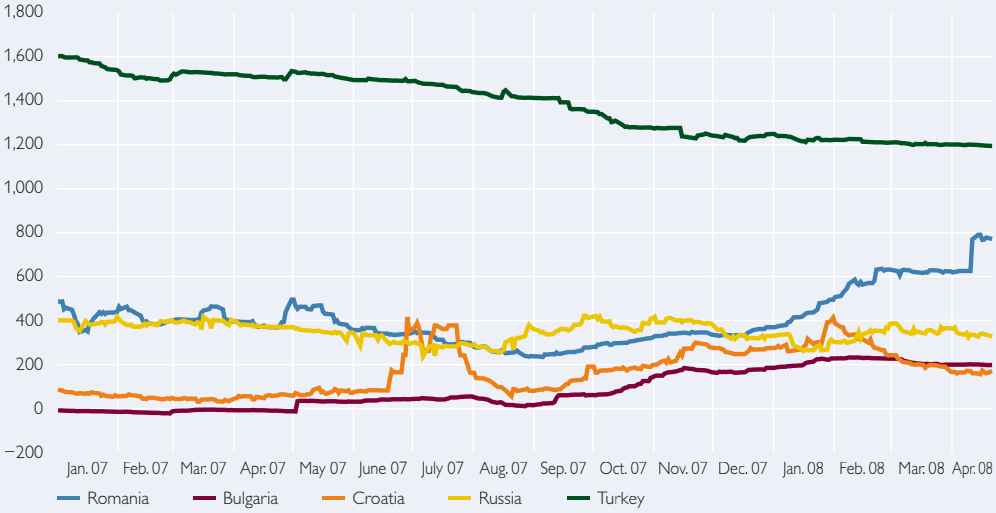


Source: Datastream, OeNB.

Chart 4

3-Month Money Market Spreads against the Euro Area

basis points *last observation: April 21, 2008*

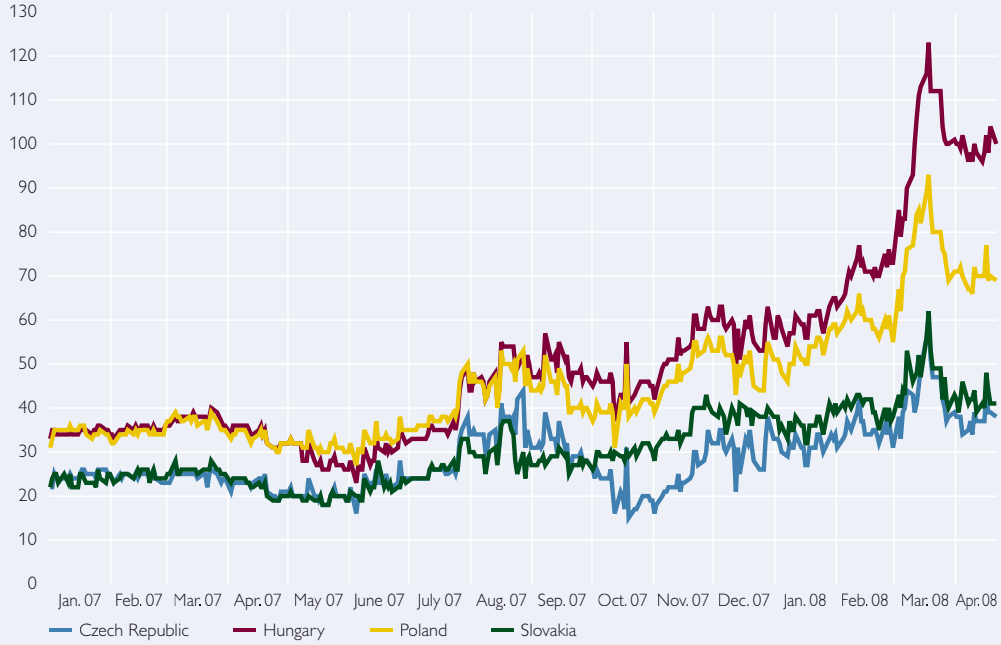


Source: Datastream, OeNB.

Chart 5

Euro-Denominated Eurobond Yield Spreads

JPM Euro EMBI global index *last observation: April 21, 2008*

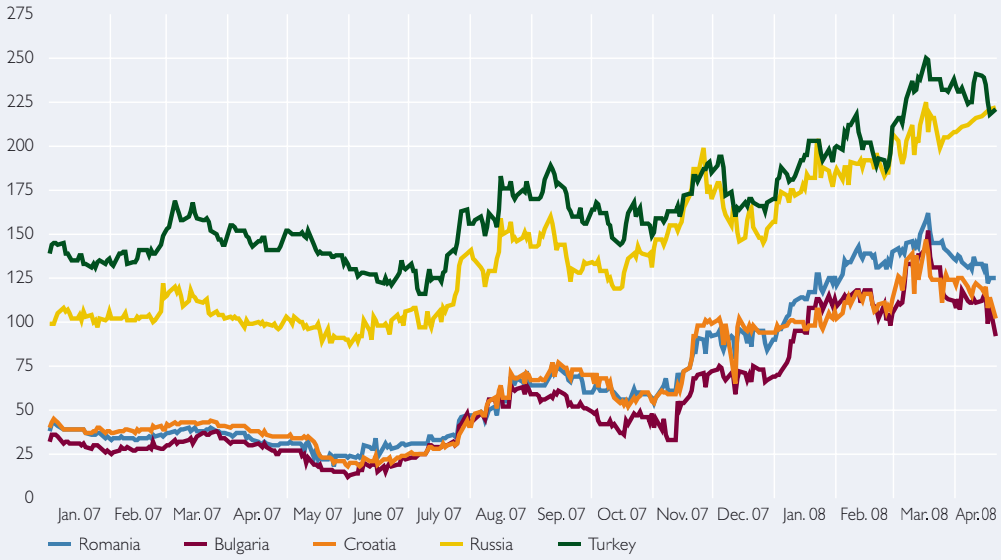


Source: Bloomberg, OeNB.

Chart 6

Euro-Denominated Eurobond Yield Spreads

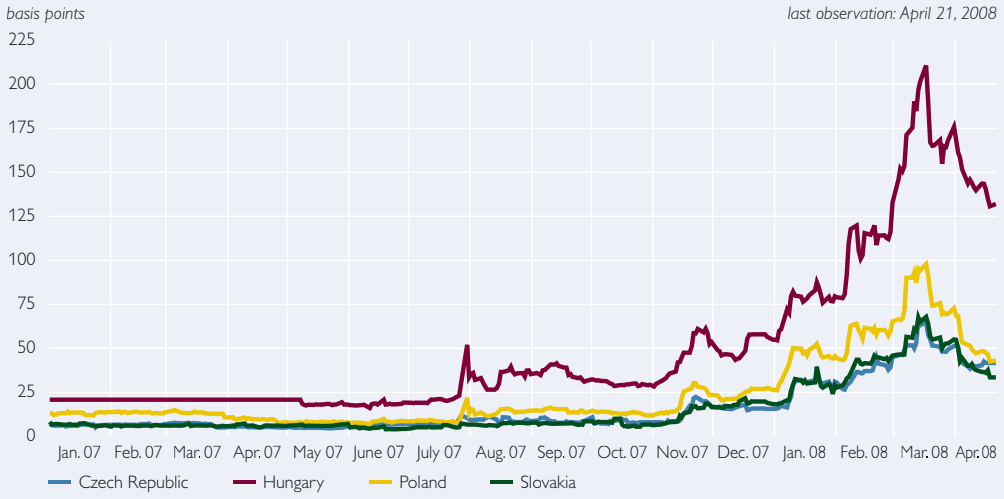
JPM Euro EMBI global index, for Russia JPM EMBI global index *last observation: April 21, 2008*



Source: Datastream, OeNB.

Chart 7

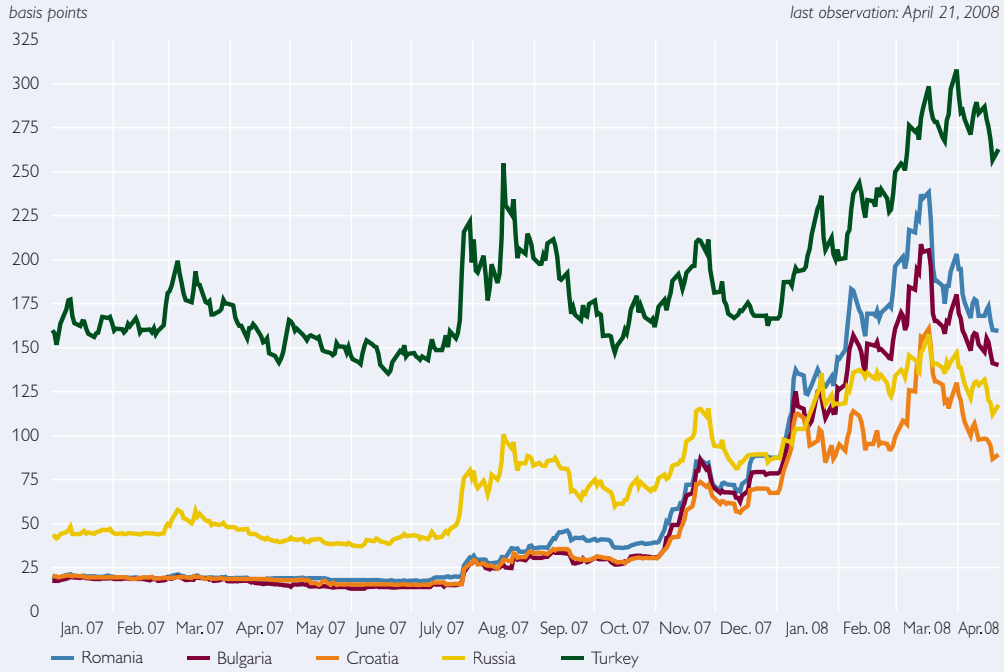
Sovereign 5-Year Credit Default Swap Spreads



Source: Datastream.

Chart 8

Sovereign 5-Year Credit Default Swap Spreads



Source: Datastream, OeNB.
Note: Data for Bulgaria and Russia are based on USD.

2 Slovenia: Janus-Faced Development after Euro Adoption

Real GDP growth peaks in 2007

Real GDP growth in Slovenia reached 6.1% year on year in 2007, the highest level since the beginning of transition. The growth momentum slowed toward year-end, though, in particular owing to a deceleration of investment growth, especially non-housing construction. Domestic demand was the main driver of growth, both in the second half of 2007 and full-year 2007. Gross fixed capital formation (GFCF) expanded strongly, which was in part due to accelerated motorway construction projects, but also supported by a further pickup in corporate lending, some rise in FDI inflows, and the expectation that the transitional period in which Slovenia was permitted to apply lower VAT rates to construction, renovation and maintenance work for residential housing would expire by end-2007 (it was extended until end-2010 in a EU Council decision of December 2007). Following a period of moderate growth (slightly above 2% year on year) in the first half of 2007, private consumption growth accelerated in the second half of 2007. This was supported by an increase in lending to households, strong employment gains, and – with a delay – a rise in real wages from the beginning of 2007 on, which was partly due to a lower tax burden. The contribution of net exports to the overall GDP growth rate was negative in 2007 largely as a result of increasing imports.

Energy and food prices drive up inflation

Following a temporary dip in inflation in the late summer of 2007, price pressures have picked up substantially again since October, with the year-on-year HICP rate reaching 6.9% in March 2008. Energy price inflation (including energy prices that are set by the government) has accelerated the most, but inflation in the food segment (including alcohol and tobacco) has also increased sharply. In the latter segment, the development was basically fueled by global food price hikes, but their effect was also magnified by the growing concentration, and thus lack of competition, in the Slovenian retail food sector in recent years. This situation may also have made it easier to relieve pent-up price pressures following the end of the dual pricing system in mid-2007.

Rising ULC call for some caution

As to underlying inflationary developments, nominal growth in unit labor costs (ULC) at the whole-economy level came to 2.8% year on year in 2007, and thus growth remained below the inflation rate despite having accelerated from 0.9 year on year in 2006. However, the increase in nominal compensation per employee calls for caution, especially considering the decline in productivity growth and the risk of second-round effects associated with the sharp increase in headline inflation and some of its most "sensitive" components (i.e., energy and food), as well as first warning strikes of employees demanding higher wages.

External balance deteriorates

Slovenia's deficit on the combined current and capital account widened to 5.0% of GDP in 2007, up from 3.2% in 2006. This development was largely attributable to a worsening of the goods and services deficit and the income deficit (mostly owing to higher interest payments on foreign debt), but also to the fact that the transfer balance moved into deficit. The external deficit was financed exclusively by foreign loans, as net FDI was nil (following modest outflows in 2005 and 2006) and portfolio investment registered large net outflows (as a result of Slovenian banks' increased investments abroad).[11]

[11] *After the adoption of the euro, Slovenia's gross official reserves decreased significantly because of the statistical treatment of international monetary reserves within the euro area. Only foreign currency reserves denominated in non-euro currency and invested in non-EMU countries are included in the country's international monetary reserves, in addition to monetary gold, reserve tranches and SDRs.*

Table 6

Main Economic Indicators: Slovenia

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	4.1	5.7	6.1	6.1	6.3	7.2	6.0	6.4	4.7
Private consumption	2.7	4.0	3.1	4.6	2.8	2.4	2.1	4.7	3.3
Public consumption	3.2	4.4	1.4	3.8	4.6	0.7	0.4	1.7	2.7
Gross fixed capital formation	2.5	8.4	17.2	11.0	12.3	21.2	21.8	18.7	8.6
Exports of goods and services	10.1	12.3	13.0	8.1	13.0	14.9	13.0	15.1	9.3
Imports of goods and services	6.7	12.2	14.1	10.3	12.3	14.4	16.2	18.2	8.6
	Contribution to GDP growth in percentage points								
Domestic demand	2.2	5.9	7.4	7.7	6.8	7.3	8.6	8.9	4.9
Net exports of goods and services	1.9	−0.1	−1.0	−1.4	−0.2	0.3	−2.1	−2.2	0.0
Exports of goods and services	6.4	8.2	9.2	5.6	8.8	10.5	9.1	10.5	6.7
Imports of goods and services	4.4	8.3	10.2	7.0	9.0	10.2	11.2	12.7	6.6
	Year-on-year change of the period average in %								
Labor productivity of industry (real)	5.9	7.9	6.3	8.9	7.0	8.3	6.9	6.0	3.8
Gross average wage of industry (nominal)	5.8	5.5	6.7	4.3	5.4	5.6	5.8	6.6	8.6
Unit labor cost of industry (nominal)	−0.1	−2.3	0.4	−4.3	−1.5	−2.5	−1.1	0.6	4.6
Producer price index (PPI) of industry	2.8	2.4	7.1	2.8	2.7	4.5	5.0	8.2	10.7
Consumer price index (here: HICP)	2.5	2.5	3.8	2.5	2.3	2.6	3.2	3.7	5.5
EUR per 1 SIT, + = SIT appreciation	−0.2	−0.0	−0.0	−0.1	−0.1	−0.1	−0.0	−0.0	−0.0
	Period average levels								
Unemployment rate (ILO definition, %, 15−64 years)	6.7	6.1	5.0	5.7	5.7	5.8	4.7	4.5	4.8
Employment rate (15−64 years)	66.0	66.6	67.8	67.2	66.1	66.0	68.3	69.0	67.7
Key interest rate per annum (%)	4.0	3.5	3.8	3.4	3.5	3.5	3.8	4.0	4.0
SIT per 1 EUR	239.6	239.6	239.6	239.6	239.6	239.6	239.6	239.6	239.6
	Nominal year-on-year change of the period average stock in %								
Broad money (including foreign currency deposits)	6.6	8.4	22.5	7.9	8.3	18.4	21.2	25.2	25.0
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	−10.4	−15.6	−21.4	−16.2	−16.3	−19.5	−18.0	−22.8	−25.3
Domestic credit of the banking system	19.7	24.7	36.6	24.9	26.7	30.6	33.9	38.6	42.9
of which: claims on the private sector	*16.6*	*26.8*	*36.0*	*27.3*	*29.5*	*29.9*	*32.7*	*38.8*	*42.3*
claims on households	*4.4*	*7.0*	*8.0*	*7.2*	*7.5*	*7.3*	*7.5*	*8.2*	*9.1*
claims on enterprises	*12.3*	*19.8*	*28.0*	*20.1*	*22.1*	*22.6*	*25.2*	*30.6*	*33.2*
claims on the public sector (net)	*3.0*	*−2.1*	*0.6*	*−2.3*	*−2.8*	*0.7*	*1.2*	*−0.2*	*0.7*
Other domestic assets (net) of the banking system	−2.7	−0.6	7.4	−0.8	−2.1	7.3	5.3	9.5	7.3
	% of GDP, ESA 95								
General government revenues	44.5	44.1	43.2	..	..	..	..	..	..
General government expenditures	46.0	45.3	43.3	..	..	..	..	..	..
General government balance	−1.5	−1.2	−0.1	..	..	..	..	..	..
Primary balance	0.1	0.2	1.2	..	..	..	..	..	..
Gross public debt	27.6	27.3	24.1	..	..	..	..	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	12.9	16.6	15.9	16.0	17.3	18.7	16.7	18.1	10.7
Merchandise imports	12.1	16.3	17.5	15.5	16.5	18.7	22.3	20.0	10.3
	% of GDP (based on EUR), period total								
Trade balance	−3.6	−3.8	−4.8	−3.3	−7.2	−3.2	−4.5	−4.4	−7.1
Services balance	3.0	2.8	3.1	3.8	2.0	2.7	4.0	3.7	1.8
Income balance (factor services balance)	−1.0	−1.3	−2.2	−2.9	−1.3	−1.9	−1.8	−2.3	−2.6
Current transfers	−0.3	−0.6	−0.9	−1.0	−0.0	−1.0	−0.4	−1.2	−1.0
Current account balance	−2.0	−2.8	−4.8	−3.3	−6.5	−3.4	−2.7	−4.2	−8.8
Capital account balance	−0.4	−0.4	−0.2	−0.5	−1.2	0.3	−0.1	−0.4	−0.4
Foreign direct investment (net)	−0.2	−0.7	−0.0	1.7	−1.9	−1.6	−0.1	−0.4	1.9
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	69.4	78.5	101.7	76.6	78.5	90.5	94.2	97.3	101.7
Gross official reserves (excluding gold)	24.2	17.5	2.0	19.5	17.5	2.7	2.6	2.3	2.0
	Months of imports of goods and services								
Gross official reserves (excluding gold)	4.6	3.1	0.3	3.5	3.1	0.5	0.4	0.4	0.3
	EUR million, period total								
Gross domestic product in current prices	28,252	30,454	33,542	7,871	7,911	7,679	8,537	8,730	8,596

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

3 Bulgaria: Strong Economic Momentum Coupled with Rising Macroeconomic Imbalances

Growth continues to be robust, based on buoyant investment activity

Following a drought-related growth dip in the third quarter of 2007, the economy regained momentum in the final quarter of 2007, with economic growth reaching 6.2% for the full-year 2007, almost the same rate as in 2006. On the expenditure side, domestic demand (in particular GFCF) remained the main pillar of growth despite a gradual slowdown over the course of 2007. In particular, private consumption growth decelerated considerably throughout 2007, coming down to +2.8% year on year in the final quarter of 2007. Domestic demand was to a large extent driven by high credit growth in both the corporate and retail segments, notwithstanding an increase in the minimum reserve requirement from 8% to 12% as of September 2007. Import growth decelerated noticeably toward year-end, so that the negative contribution of net exports declined substantially in the course of the year as export growth picked up slightly.

Labor market conditions improve considerably

Labor market conditions continued to tighten in the second half of 2007, with labor shortages becoming evident in various segments of the economy. Overall, the number of the employed increased by some 3% on average in 2007, while the unemployment rate fell to below 7%, the lowest level since the beginning of the transition process. In light of these developments and sizeable pension and public sector wage increases, wage pressures picked up in 2007. Wage dynamics accelerated to levels well above the gains in labor productivity, translating into rapidly rising nominal ULC in the whole economy of above 14% year on year in 2007 (against 4.4% year on year in 2006).

Supply- and demand-side factors triggering a strong pickup in inflation

Rapid real credit and wage growth coupled with supply-side factors (high food and energy prices) led to a substantial acceleration in inflation in the second half of 2007. During the first quarter of 2008, consumer price inflation climbed further (to 13.2% year on year in March 2008), given a strong base effect, persistently high food and energy prices, harmonization of excise taxes with EU requirements and more generous income policies (also exemplified in the increase of the minimum wage by 22% as of January 2008). Planned adjustments in regulated prices and upcoming pension and public sector wage increases (scheduled for mid-2008) might also fuel inflationary pressures.

External imbalances on the rise

Bulgaria's external imbalances continued to widen in 2007. In fact, the combined current and capital account deficit exceeded 20% of GDP last year, mainly on the back of a widening goods and services deficit, as the favorable development of real net exports was offset by sharply deteriorating terms of trade. At the same time, net FDI inflows continued to cover completely the deficit on the combined current and capital account. The country's gross external debt soared by 16.6 percentage points of GDP during 2007, mainly driven by intercompany loans and banks' foreign borrowing and despite early repayments of foreign public debt.

Table 7

Main Economic Indicators: Bulgaria

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	6.2	6.3	6.2	7.1	6.2	5.5	7.3	4.9	6.9
Private consumption	6.1	8.0	5.3	9.2	8.6	7.8	6.1	5.2	2.8
Public consumption	2.5	2.4	3.1	0.9	1.7	−2.0	−0.1	−0.4	11.2
Gross fixed capital formation[1]	23.3	17.6	21.7	21.8	31.9	35.9	24.7	19.7	14.0
Exports of goods and services	8.6	8.7	5.2	8.4	5.0	3.7	5.3	5.4	6.0
Imports of goods and services	13.1	16.2	9.9	16.1	16.2	14.7	11.1	9.3	5.7
	Contribution to GDP growth in percentage points								
Domestic demand	13.1	15.0	11.4	16.5	18.0	16.5	13.2	9.0	8.6
Net exports of goods and services	−5.1	−8.3	−5.8	−7.2	−11.3	−11.8	−6.8	−4.3	−2.0
Exports of goods and services	5.4	5.6	3.4	5.7	2.9	2.5	3.8	3.7	3.5
Imports of goods and services	10.5	13.8	9.2	12.9	14.2	14.4	10.6	8.0	5.5
	Year-on-year change of the period average in %								
Labor productivity of industry (real)	3.4	8.2	9.5	9.0	5.0	8.4	8.9	10.9	9.7
Gross average wage of industry (nominal)	8.1	10.8	20.1	11.7	12.7	17.6	19.5	20.0	22.8
Unit labor cost of industry (nominal)	4.6	2.5	9.7	2.5	7.3	8.5	9.8	8.2	11.9
Producer price index (PPI) of industry	7.0	9.4	8.8	10.7	8.3	7.4	6.8	8.8	12.1
Consumer price index (here: HICP)	6.0	7.4	7.6	6.7	5.7	5.3	4.7	9.0	11.2
EUR per 1 BGN, + = BGN appreciation	−0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Period average levels								
Unemployment rate (ILO definition, %, 15−64 years)	10.2	9.0	7.0	8.9	8.4	8.0	6.9	6.7	6.2
Employment rate (15−64 years)	55.8	58.6	61.7	60.3	59.8	59.7	61.6	62.7	62.9
Key interest rate per annum (%)	..	..	..	..	..	..	..	..	..
BGN per 1 EUR	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	Nominal year-on-year change of the period average stock in %								
Broad money (including foreign currency deposits)	27.3	21.3	29.0	22.3	26.1	28.1	28.5	29.4	29.7
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	8.9	14.7	10.4	16.0	22.6	19.2	11.4	8.3	4.1
Domestic credit of the banking system	25.8	13.0	25.3	12.2	9.4	14.4	22.3	28.0	34.2
of which: claims on the private sector	*27.9*	*16.4*	*34.2*	*17.3*	*17.7*	*22.3*	*31.3*	*37.6*	*43.3*
claims on households	*13.0*	*9.4*	*12.0*	*8.8*	*8.3*	*9.2*	*11.1*	*12.7*	*14.5*
claims on enterprises	*14.9*	*7.0*	*22.2*	*8.5*	*9.4*	*13.1*	*20.2*	*24.9*	*28.8*
claims on the public sector (net)	*−2.1*	*−3.4*	*−8.9*	*−5.2*	*−8.3*	*−7.9*	*−9.0*	*−9.6*	*−9.1*
Other domestic assets (net) of the banking system	−7.4	−6.4	−6.6	−5.9	−5.9	−5.5	−5.3	−6.9	−8.6
	% of GDP, ESA 95								
General government revenues	41.0	39.4	41.2	..	..	..	..	..	..
General government expenditures	39.2	36.4	37.8	..	..	..	..	..	..
General government balance	1.8	3.0	3.4	..	..	..	..	..	..
Primary balance	3.5	4.4	4.4	..	..	..	..	..	..
Gross public debt	29.2	22.7	18.2	..	..	..	..	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	18.6	26.9	12.2	32.4	15.8	8.5	8.3	12.2	19.2
Merchandise imports	26.9	26.7	18.5	28.0	24.0	19.5	18.4	17.2	19.1
	% of GDP (based on EUR), period total								
Trade balance	−20.2	−22.0	−25.5	−19.8	−27.0	−27.3	−25.1	−22.3	−27.5
Services balance	3.7	3.7	3.8	11.6	−0.6	−1.0	5.5	11.4	−1.4
Income balance (factor services balance)	0.3	−2.1	−1.1	−2.2	−2.3	−0.2	−1.2	−2.7	−0.1
Current transfers	3.7	2.7	1.2	3.2	2.3	1.2	1.2	0.9	1.3
Current account balance	−12.4	−17.8	−21.5	−7.2	−27.6	−27.3	−19.5	−12.7	−27.7
Capital account balance	1.1	0.7	1.2	0.7	0.9	0.5	0.6	0.9	2.6
Foreign direct investment (net)	14.7	23.1	20.5	17.9	23.8	15.7	23.0	22.3	19.9
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	69.8	80.7	97.3	79.5	80.7	81.1	83.9	92.2	97.3
Gross official reserves (excluding gold)	31.1	32.9	38.8	32.5	32.9	32.1	33.5	39.8	38.8
	Months of imports of goods and services								
Gross official reserves (excluding gold)	4.9	4.8	5.5	4.8	4.8	4.6	4.8	5.7	5.5
	EUR million, period total								
Gross domestic product in current prices	21,882	25,238	28,899	7,057	7,165	5,771	6,720	8,050	8,358

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

[1] *National source.*

4 Czech Republic: Highest Economic Growth in History Mainly Driven by Domestic Demand

In the Czech Republic, real GDP grew by 6.5% year on year in 2007, thus fully keeping the pace already recorded in 2005 and 2006. Economic performance was mainly driven by robust domestic demand that was attributable to both private consumption and GFCF growth. Private consumption – fueled by rising real wages and employment – accounted for nearly one-half of GDP growth. Moreover, economic growth in the last quarter of 2007 was affected by increased healthcare consumption in anticipation of the introduction of a fee that patients have to pay when turning to a doctor as of January 2008. Net exports continued to contribute positively to GDP growth in 2007: Driven primarily by the country's major car producer Škoda Auto, exports continued to rise strongly and even outpaced import growth.

Labor market improvement gradually turns into a problem

In the course of 2007, unemployment declined to the lowest levels in a decade, as growth fed increasingly through to the labor market. However, regional structural mismatches have persisted, while the share of the long-term unemployed in total unemployment has remained high. At this stage, the scope for reducing unemployment further appears rather limited, unless labor supply can be increased. Emerging labor shortages have started to show in rising nominal wages and ULC in the whole economy (in 2007, nominal ULC climbed to +2.3% year on year from +1.5% year on year in 2006). The increase of ULC was even more pronounced in euro terms given the strong appreciation of the Czech koruna.

Inflation – a cause for concern?

Since end-2006, inflation has accelerated steadily, but it did not exceed the central bank's 3% target rate until the final quarter of 2007, when it jumped to a high owing to global food and oil price hikes. In January 2008 the HICP accelerated further and reached 7.5% year on year. In response to this adverse development, the Česká národní banka (ČNB) has raised its key interest rate in two steps to 3.75% since the beginning of November 2007. The most recent acceleration of inflation, however, is largely ascribable to policy-driven one-off effects, particularly the increase in the reduced VAT rate, in the excise duty on tobacco, and in regulated rents as well as the introduction of healthcare fees. Year-on-year inflation came in somewhat lower in February and March 2008. From mid-November 2007 to mid-April 2008, the koruna appreciated substantially against the euro, which is partly ascribable to the unwinding of carry trades and has a dampening effect on inflation according to the ČNB. In order to contain the strong appreciation of the currency, the government and the ČNB in early April 2008 agreed on a series of measures to prevent foreign exchange transactions that are connected to the privatization revenues and EU funds from the foreign exchange market.

Fiscal consolidation? Not really.

Windfall revenues due to unexpectedly robust growth reduced the fiscal deficit to 1.6% of GDP, much below the original target of 4%. In January 2008, the first part of a fiscal package came into force, comprising, inter alia, the introduction of a 15% flat tax on personal income. However, the net fiscal impact of this package is estimated to be neutral for 2008 and negative thereafter because of additional corporate tax cuts. Hence, long-term fiscal sustainability will essentially hinge on the implementation of further reform steps, particularly of the pension and healthcare systems.

Table 8

Main Economic Indicators: Czech Republic

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	6.4	6.4	6.5	6.3	6.2	6.5	6.5	6.3	6.6
Private consumption	2.3	5.5	5.6	5.0	6.3	6.8	6.3	5.7	4.0
Public consumption	2.2	0.0	0.9	−2.2	1.4	0.7	−0.3	−0.3	3.1
Gross fixed capital formation	2.3	5.5	6.1	5.2	5.2	5.3	5.2	5.5	8.0
Exports of goods and services	11.8	14.4	14.5	11.3	16.0	15.8	14.4	15.6	12.5
Imports of goods and services	5.0	13.8	13.7	10.7	16.1	15.8	14.2	15.1	10.2
	Contribution to GDP growth in percentage points								
Domestic demand	1.6	5.9	5.7	6.0	6.2	6.0	6.3	5.9	4.7
Net exports of goods and services	5.3	0.4	0.7	0.4	−0.4	0.3	0.2	0.2	2.1
Exports of goods and services	9.7	12.5	13.5	9.6	14.5	14.9	13.0	13.9	12.4
Imports of goods and services	4.4	12.1	12.8	9.2	14.9	14.6	12.8	13.7	10.3
	Year-on-year change of the period average in %								
Labor productivity of industry (real)	6.8	9.4	6.5	7.7	8.6	9.3	7.2	4.4	5.1
Gross average wage of industry (nominal)	4.6	6.1	8.6	5.2	6.3	9.1	8.6	8.6	8.1
Unit labor cost of industry (nominal)	−2.1	−3.0	1.9	−2.3	−2.1	−0.2	1.3	4.1	2.8
Producer price index (PPI) of industry	3.0	1.6	4.0	2.5	2.2	3.1	4.1	3.9	5.0
Consumer price index (here: HICP)	1.6	2.1	3.0	2.4	1.1	1.7	2.6	2.7	4.9
EUR per 1 CZK, + = CZK appreciation	7.1	5.1	2.1	4.8	4.5	2.0	0.4	1.4	4.5
	Period average levels								
Unemployment rate (ILO definition, %, 15−64 years)	8.0	7.2	5.4	7.1	6.6	6.1	5.3	5.2	4.9
Employment rate (15−64 years)	64.8	65.3	66.1	65.4	65.6	65.5	66.0	66.3	66.5
Key interest rate per annum (%)	2.0	2.2	2.9	2.3	2.5	2.5	2.5	3.1	3.4
CZK per 1 EUR	29.8	28.3	27.8	28.3	28.0	28.0	28.3	27.9	26.8
	Nominal year-on-year change of the period average stock in %								
Broad money (including foreign currency deposits)	6.4	12.4	14.4	12.5	12.6	13.2	14.5	14.7	15.3
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	5.2	1.2	−1.6	−4.2	−4.6	−3.2	−0.5	−0.8	−2.0
Domestic credit of the banking system	0.7	9.2	15.7	12.7	14.1	14.5	15.2	16.7	16.2
of which: claims on the private sector	*8.6*	*11.9*	*14.3*	*12.1*	*12.1*	*12.1*	*12.9*	*15.1*	*16.8*
claims on households	*5.4*	*6.7*	*7.7*	*6.8*	*6.9*	*6.9*	*7.4*	*7.9*	*8.5*
claims on enterprises	*3.2*	*5.2*	*6.6*	*5.3*	*5.3*	*5.2*	*5.5*	*7.2*	*8.2*
claims on the public sector (net)	*−7.9*	*−2.7*	*1.4*	*0.6*	*1.9*	*2.4*	*2.4*	*1.6*	*−0.5*
Other domestic assets (net) of the banking system	0.5	2.0	0.4	4.0	3.2	1.8	−0.3	−1.2	1.1
	% of GDP, ESA 95								
General government revenues	41.4	41.0	40.8	..	..	..	..	..	..
General government expenditures	44.9	43.6	42.4	..	..	..	..	..	..
General government balance	−3.6	−2.7	−1.6	..	..	..	..	..	..
Primary balance	−2.4	−1.5	−0.4	..	..	..	..	..	..
Gross public debt	29.7	29.4	28.7	..	..	..	..	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	16.1	20.5	17.5	17.6	22.3	19.7	16.7	18.3	15.6
Merchandise imports	11.6	20.5	15.5	16.6	21.4	17.5	15.0	16.8	13.1
	% of GDP (based on EUR), period total								
Trade balance	2.0	2.1	3.3	1.2	1.5	5.6	2.8	2.1	3.0
Services balance	1.2	1.1	1.4	1.3	0.6	1.1	1.7	1.5	1.4
Income balance (factor services balance)	−5.2	−5.7	−7.2	−6.3	−6.5	−4.3	−8.4	−8.4	−7.5
Current transfers	0.4	−0.6	−0.5	−1.0	−1.0	−0.5	−0.8	−0.5	−0.4
Current account balance	−1.6	−3.1	−3.0	−4.8	−5.4	2.0	−4.7	−5.3	−3.5
Capital account balance	0.2	0.3	0.6	0.3	0.6	0.3	0.0	0.4	1.4
Foreign direct investment (net)	9.3	3.2	4.2	4.9	3.5	4.3	3.2	4.1	5.2
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	39.2	38.1	39.5	37.4	38.1	37.1	37.5	37.7	39.5
Gross official reserves (excluding gold)	24.8	20.8	18.4	21.8	20.8	20.1	19.1	18.6	18.4
	Months of imports of goods and services								
Gross official reserves (excluding gold)	4.3	3.4	3.0	3.7	3.4	3.3	3.1	3.0	3.0
	EUR million, period total								
Gross domestic product in current prices	100,353	114,070	128,232	28,999	30,183	29,324	31,956	32,268	34,684

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

5 Hungary: Real GDP Growth Slowed Down Further in 2007

Real GDP growth in Hungary slowed to an 11-year low of 1.3% year on year in 2007. Economic growth in the second half of 2007 (as in full-year 2007) was carried by net exports. Domestic demand continued to contract in 2007, especially in the second half of the year. On a positive note, however, the year-on-year contraction of private and public consumption became smaller in the final quarter, and GFCF growth was moderate. Private consumption was supported by a modest recovery of real household credit growth and a deceleration in the erosion of real wage growth, mainly in the public sector. By contrast, the employment situation deteriorated toward end-2007, and household sentiment remained very weak going into 2008. Regarding investment, the decline in construction activity slowed toward the end of the year, and investment in machinery and equipment exhibited relatively solid momentum of around 10% year on year in the fourth quarter of 2007.

Inflation on the rise again, MNB tightens monetary policy

Following gradual disinflation in the first three quarters of 2007, inflation turned upward again from October 2007, and year-on-year inflation was running at 7.4% in January 2008 (mainly due to energy and food prices), before easing back to 6.7% in February and March. ULC at the whole-economy level increased by 6.8% year on year in 2007 (against –5.3% in 2006) but ULC growth continued to remain below the inflation rate. In response to the worsening inflation outlook, Magyar Nemzeti Bank (MNB) raised its policy rate by 50 basis points to 8.0% at end-March 2008. In addition, to promote the consistency of monetary policy and remove the possibility of a potential conflict between inflation and exchange rate targeting, the Hungarian forint was floated in late February 2008 (thus abolishing the previous ±15% fluctuation band around a unilaterally fixed central rate against the euro).[12] According to the MNB, Hungary would benefit from adopting the euro as soon as possible, despite clear risks involved. Several measures are required for the transition to the common currency to be smooth: further labor and product market reforms, lasting fiscal consolidation (including the strengthening of fiscal institutions), and policy measures that enhance medium-term growth prospects, most notably reducing the tax wedge or cutting back on social policies that hinder labor supply.

Resurfacing fiscal risks despite better-than-expected 2007 budget outturn

Despite a better-than-expected fiscal outcome in 2007, uncertainties about the future course of fiscal policy have intensified recently. In early April 2008 the government abolished several unpopular copayments introduced earlier, following a referendum in early March that reflected overwhelming public disapproval of these measures. While the immediate budgetary impact of the change is seen to be rather limited, the referendum outcome – in combination with the government's weak standing in opinion polls ahead of the elections in 2009 (European Parliament) and 2010 (Hungarian parliament and local government), and a tense domestic political climate – already cast a shadow over the government's future reform drive. Prospects were dimmed further in late March, when the junior coalition partner announced its withdrawal from the government as of end-April. A minority government with the tacit support of the former junior coalition partner seems to be the most likely outcome at present, which makes the reform implications mentioned above even more relevant.

[12] *The MNB had proposed to float the forint several times in recent years, but until this year could not get the necessary consent by the government to change the exchange rate regime.*

Table 9

Main Economic Indicators: Hungary

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	4.1	3.9	1.3	3.9	3.7	2.7	1.2	0.9	0.8
Private consumption	3.4	1.8	−0.5	1.7	0.1	0.1	−0.7	−0.9	−0.3
Public consumption	2.4	4.7	−6.3	−1.4	5.1	−9.8	−9.3	−5.5	−0.2
Gross fixed capital formation	5.3	−2.8	1.0	−5.1	−5.5	1.9	0.8	−1.8	2.7
Exports of goods and services	11.5	18.9	14.2	18.0	22.3	17.5	14.8	15.0	10.4
Imports of goods and services	6.8	14.5	12.2	12.1	17.7	13.1	13.4	13.6	9.2
	Contribution to GDP growth in percentage points								
Domestic demand	1.3	1.1	−0.3	0.2	0.8	−0.2	−0.1	−0.4	−0.4
Net exports of goods and services	3.6	3.7	2.3	5.0	4.0	4.5	1.8	1.8	1.5
Exports of goods and services	9.6	17.0	14.6	15.9	20.1	18.1	14.9	15.1	11.0
Imports of goods and services	6.0	13.2	12.3	11.0	16.0	13.6	13.1	13.3	9.5
	Year-on-year change of the period average in %								
Labor productivity of industry (real)	10.1	11.5	9.3	11.0	10.5	9.9	8.5	10.6	8.2
Gross average wage of industry (nominal)	7.2	8.6	8.5	9.0	9.4	8.9	10.4	7.6	7.4
Unit labor cost of industry (nominal)	−2.6	−2.6	−0.7	−1.9	−1.0	−0.9	1.7	−2.7	−0.7
Producer price index (PPI) of industry	2.9	6.7	−0.1	9.7	5.9	3.4	−0.8	−2.8	0.1
Consumer price index (here: HICP)	3.5	4.0	7.9	4.6	6.4	8.8	8.5	7.3	7.1
EUR per 1 HUF, + = HUF appreciation	1.5	−6.1	5.1	−10.8	−3.2	0.9	7.5	9.4	2.9
	Period average levels								
Unemployment rate (ILO definition, %, 15−64 years)	7.2	7.5	7.4	7.5	7.5	7.5	7.0	7.3	7.8
Employment rate (15−64 years)	56.9	57.3	57.3	57.6	57.6	56.9	57.6	57.7	57.1
Key interest rate per annum (%)	7.1	6.8	7.8	7.0	8.0	8.0	8.0	7.7	7.5
HUF per 1 EUR	248.0	264.3	251.3	275.4	260.2	252.3	248.3	251.8	252.9
	Nominal year-on-year change of the period average stock in %								
Broad money (including foreign currency deposits)	13.8	16.2	9.8	17.2	14.6	11.2	8.0	8.6	11.4
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	0.6	−2.2	−5.6	−4.7	−2.5	−4.6	−4.8	−5.9	−7.2
Domestic credit of the banking system	15.3	23.6	17.9	29.4	23.4	21.1	15.3	15.3	19.9
of which: claims on the private sector	*16.6*	*21.7*	*14.4*	*25.8*	*20.6*	*15.7*	*11.6*	*13.3*	*16.9*
claims on households	*7.3*	*9.4*	*8.1*	*10.4*	*9.2*	*8.8*	*7.6*	*7.5*	*8.5*
claims on enterprises	*9.3*	*12.3*	*6.3*	*15.3*	*11.3*	*6.9*	*4.1*	*5.8*	*8.4*
claims on the public sector (net)	*−1.3*	*1.9*	*3.5*	*3.7*	*2.8*	*5.4*	*3.7*	*1.9*	*3.0*
Other domestic assets (net) of the banking system	−2.1	−5.2	−2.5	−7.6	−6.4	−5.3	−2.6	−0.8	−1.3
	% of GDP, ESA 95								
General government revenues[1]	42.1	42.6	44.6	..	..	..	..	..	..
General government expenditures[1]	49.9	51.9	50.1	..	..	..	..	..	..
General government balance[1]	−7.8	−9.2	−5.5	..	..	..	..	..	..
Primary balance[1]	−3.7	−5.3	−1.4	..	..	..	..	..	..
Gross public debt[1]	61.6	65.6	66.0	..	..	..	..	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	11.9	17.9	16.2	15.7	20.9	19.6	17.3	18.6	10.4
Merchandise imports	9.3	16.3	12.1	12.5	18.0	14.2	13.2	13.4	8.1
	% of GDP (based on EUR), period total								
Trade balance	−1.7	−1.0	1.4	−1.8	0.1	1.2	1.7	1.2	1.4
Services balance	1.2	1.4	1.1	2.2	1.6	0.8	1.4	1.6	0.6
Income balance (factor services balance)	−6.5	−6.9	−7.9	−6.5	−6.5	−7.7	−9.2	−7.3	−7.3
Current transfers	0.2	0.4	0.3	0.5	0.1	0.8	0.1	−0.8	1.1
Current account balance	−6.8	−6.1	−5.0	−5.5	−4.7	−4.9	−5.9	−5.2	−4.1
Capital account balance	0.8	0.8	1.0	0.9	1.3	0.2	0.1	2.4	1.3
Foreign direct investment (net)	4.9	2.8	1.0	5.3	−2.2	0.7	−3.9	4.9	2.3
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	74.5	91.4	96.5	85.4	91.4	93.4	98.5	96.0	96.5
Gross official reserves (excluding gold)	17.6	18.2	16.2	18.5	18.2	18.4	17.7	16.7	16.2
	Months of imports of goods and services								
Gross official reserves (excluding gold)	3.1	2.8	2.5	3.0	2.8	2.8	2.8	2.6	2.5
	EUR million, period total								
Gross domestic product in current prices	88,860	89,858	100,959	22,420	24,888	22,624	25,465	25,521	27,350

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

[1] *Including the net costs of the pension reform.*

6 Poland: Inflation Rises Above the Tolerance Band Set by the Monetary Authorities

Investment activity continues to dominate domestic demand

Real GDP growth accelerated to 6.5% in 2007. In the course of the year, growth moderated somewhat but remained above 6%. Private consumption growth was again below total GDP growth, despite strong employment and real wage growth. The improvement in the labor market, which is reflected also in the sharp decline of the unemployment rate, is closely linked to booming GFCF, which contributed 4 percentage points to GDP growth (thus even surpassing consumption and exports), driven by the favorable financial situation of the corporate sector, the strong expansion of real credit (which, however, stabilized in the second half of the year), as well as the growing absorption of EU funds.[13] While the contribution of exports to GDP growth weakened mainly as a result of the significant slowdown of euro area import growth, the contribution of import growth weakened, as well, despite strong domestic investment activity. Thus, the contribution of net exports to GDP growth remained slightly negative, as in 2006.

ULC in industry on the rise

Nominal ULC in industry continued to rise in annual terms from the second half of 2007 onward. In euro terms, ULC in industry increased by about 9% year on year in the second half of 2007, with roughly one-half being attributable to ULC rising in national-currency terms and the other half to currency appreciation. This notwithstanding, the trade deficit widened only moderately.

Inflation pushed up mainly by food and energy prices, but also by ULC

The pickup in inflation in 2007 was cost pushed, mainly by food and energy prices, but also by rising ULC (whole-economy nominal ULC rose by 6.1% last year against –1.0% in 2006). After a low of 1.2% in August 2007, national core inflation rose from 1.7% in December to 2.7% in March mainly as a result of hikes in regulated electricity and heating prices due to higher energy prices.[14] In March 2008, HICP inflation reached 4.4%, while national CPI inflation stood at 4.1%, hence above the upper tolerance limit for deviations from the Narodowy Bank Polski's CPI target of 2.5% ±1 percentage point.

Monetary tightening continues

Starting in April 2007, the Polish Monetary Policy Council (MPC) raised its key interest rate in several steps by a total of 100 basis points in 2007 and by 75 basis points to 5.75% in the first quarter of 2008. The rising interest rate differential to the euro area may also have contributed to nominal currency appreciation, which came to 10% year on year against the euro in March 2008. Still, in its assessment of end-March 2008, the MPC considered that its past interest rate hikes, the złoty appreciation and the impact of the global slowdown might prove insufficient to bring inflation down to the target over the monetary policy transmission horizon. At the same time, the MPC held the view that higher inflation has created a risk of second-round effects via elevated inflation expectations.

Budget deficit shrinks markedly in 2007

In 2007, the general government budget deficit-to-GDP ratio dropped by 1.8 percentage points to 2.0%, which was mainly attributable to the expenditure side: The expenditure-to-GDP ratio fell by 1.4 percentage points (to 42.4%), in particular as a result of lower spending on unemployment benefits.

[13] *In 2007, growth of GFCF was particularly strong in the areas of transport equipment (45% year on year, contributing 5.3 percentage points to GFCF growth), metal products and machinery (24.8% year on year, contributing 7.7 percentage points) as well as in housing construction work (34% year on year, contributing 4.6 percentage points).*

[14] *However, it must be borne in mind that core inflation measures are subject to substantial limitations, especially if shocks to inflation are of a persistent rather than temporary nature.*

Table 10

Main Economic Indicators: Poland

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	3.6	6.2	6.5	6.6	6.6	7.2	6.4	6.4	6.1
Private consumption (excl. NPISH)	1.9	4.8	5.2	5.2	4.8	6.9	5.0	5.3	3.7
Public consumption (incl. NPISH)	5.2	5.8	0.7	4.9	4.5	0.8	1.0	0.8	0.1
Gross fixed capital formation	6.5	15.6	20.4	18.0	16.6	26.2	20.8	19.8	18.5
Exports of goods and services	8.0	14.6	9.0	14.6	10.1	11.7	6.5	9.3	8.8
Imports of goods and services	4.7	17.4	10.9	16.6	17.5	12.8	10.8	11.4	9.0
	Contribution to GDP growth in percentage points								
Domestic demand	2.5	7.3	7.4	7.5	9.3	7.7	8.3	7.5	6.3
Net exports of goods and services	1.1	−1.1	−0.9	−0.9	−2.7	−0.5	−1.9	−1.1	−0.3
Exports of goods and services	3.0	5.4	3.6	5.5	3.7	4.8	2.7	3.8	3.4
Imports of goods and services	1.8	6.5	4.6	6.4	6.5	5.3	4.6	4.9	3.7
	Year-on-year change of the period average in %								
Labor productivity of industry (real)	2.9	9.5	6.0	9.9	7.7	9.6	5.1	4.5	4.8
Gross average wage of industry (nominal)	3.2	5.2	8.7	6.0	5.5	8.3	8.5	8.8	9.3
Unit labor cost of industry (nominal)	0.3	−4.0	2.6	−3.5	−2.1	−1.2	3.2	4.1	4.3
Producer price index (PPI) of industry	0.7	2.2	2.2	3.4	2.6	3.1	2.0	1.6	2.2
Consumer price index (here: HICP)	2.2	1.3	2.6	1.5	1.3	2.0	2.3	2.4	3.7
EUR per 1 PLN, + = PLN appreciation	12.6	3.2	3.0	1.6	1.8	−1.3	3.9	4.3	5.2
	Period average levels								
Unemployment rate (ILO definition, %, 15−64 years)	18.0	14.1	9.7	13.2	12.4	11.4	9.7	9.1	8.6
Employment rate (15−64 years)	52.8	54.5	57.0	55.6	55.7	55.4	56.8	57.8	58.1
Key interest rate per annum (%)	5.3	4.1	4.4	4.0	4.0	4.0	4.3	4.6	4.9
PLN per 1 EUR	4.0	3.9	3.8	4.0	3.8	3.9	3.8	3.8	3.7
	Nominal year-on-year change of the period average stock in %								
Broad money (including foreign currency deposits)	13.0	12.6	15.9	13.0	14.0	18.1	16.7	15.4	13.8
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	5.5	1.7	−5.7	−0.9	−1.5	−0.9	−5.2	−7.3	−8.9
Domestic credit of the banking system	5.2	12.0	20.8	14.8	17.1	20.7	21.0	21.1	20.4
of which: claims on the private sector	*5.5*	*10.9*	*20.8*	*11.7*	*14.1*	*17.5*	*20.0*	*22.4*	*23.0*
claims on households	*5.6*	*8.6*	*13.8*	*9.3*	*10.3*	*12.3*	*13.3*	*14.6*	*14.9*
claims on enterprises	*−0.1*	*2.3*	*7.0*	*2.4*	*3.8*	*5.2*	*6.7*	*7.8*	*8.1*
claims on the public sector (net)	*−0.3*	*1.2*	*−0.0*	*3.1*	*3.1*	*3.2*	*1.0*	*−1.3*	*−2.7*
Other domestic assets (net) of the banking system	2.3	−1.1	0.8	−0.9	−1.6	−1.7	0.9	1.6	2.3
	% of GDP, ESA 95								
General government revenues[1]	39.0	40.0	40.4	..	..	..	..	..	..
General government expenditures[1]	43.3	43.8	42.4	..	..	..	..	..	..
General government balance[1]	−4.3	−3.8	−2.0	..	..	..	..	..	..
Primary balance[1]	−1.5	−1.1	0.6	..	..	..	..	..	..
Gross public debt[1]	47.1	47.6	45.2	..	..	..	..	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	17.9	20.3	14.9	19.6	18.8	14.7	13.8	14.4	16.6
Merchandise imports	13.4	23.9	17.3	23.8	23.4	16.8	18.4	16.6	17.5
	% of GDP (based on EUR), period total								
Trade balance	−0.9	−2.0	−2.8	−2.4	−2.4	−2.1	−3.4	−3.1	−2.7
Services balance	0.6	0.6	1.2	0.6	0.9	1.2	1.2	1.3	1.0
Income balance (factor services balance)	−3.6	−4.2	−4.3	−4.0	−4.7	−4.2	−5.0	−4.1	−4.1
Current transfers	2.3	2.4	2.4	3.3	2.1	2.1	2.4	2.9	2.1
Current account balance	−1.6	−3.2	−3.7	−2.4	−4.1	−3.1	−4.8	−3.0	−3.7
Capital account balance	0.3	0.6	1.1	0.7	0.8	0.6	0.7	1.1	1.8
Foreign direct investment (net)	2.3	3.0	3.8	2.5	2.5	5.5	2.8	4.0	3.1
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	45.8	46.5	50.7	46.2	46.5	48.0	49.3	49.1	50.7
Gross official reserves (excluding gold)	14.1	12.9	13.9	14.0	12.9	13.1	13.6	13.3	13.9
	Months of imports of goods and services								
Gross official reserves (excluding gold)	4.5	3.7	3.9	4.1	3.7	3.7	3.8	3.7	3.9
	EUR million, period total								
Gross domestic product in current prices	244,775	272,243	308,011	66,143	78,186	68,630	73,729	75,673	89,979

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

[1] *Including the net costs of the pension reform.*

7 Romania: Rising Internal and External Imbalances

Economic growth dropped in 2007 amid slowing consumption growth and accelerating import growth

With real GDP rising by 6.0% year on year in 2007, economic growth was considerably slower than in 2006 as a consequence of the bad 2007 harvest. Private consumption lost some of its momentum but continued to increase rapidly throughout the year, driven by dynamic real credit and wage growth as well as positive labor market developments. Following a decline in 2006, public consumption growth picked up strongly in 2007. GFCF growth surged in 2007, benefiting from robust real credit growth and a better absorption of EU funds.[15] Import growth accelerated markedly in 2007, while export growth slowed somewhat. As a result, growth became even more imbalanced: The negative contribution of net exports to GDP growth in 2007 was about 5 percentage points higher than in 2006, reaching almost 15 percentage points.

Strong wage gains outstrip productivity growth

High public sector wage increases, combined with favorable developments on the Romanian labor market, again paved the way to strong wage growth in other sectors. Nominal ULC in the whole economy increased by more than 14% year on year in 2007 (compared with 12.3% in 2006). Furthermore, in the industry sector, the rise in ULC by more than 17% in 2007 (in euro terms, annual average) seriously challenges the competitiveness of the Romanian economy. However, the reversal of exchange rate trends in the second half of 2007 and early 2008, which ushered in a strong nominal depreciation of the Romanian leu, has cushioned somewhat the effects of the loss of international cost competitiveness.

In 2007, fast import growth caused the foreign trade balance to deteriorate further compared with 2006. Importantly, the coverage by net FDI inflows of the combined capital and current account dropped sharply from 85% in 2006 to only 44% in 2007, as no major privatization projects were on the agenda.

Inflation rate accelerating further: BNR raises interest rates again

Inflation continued to accelerate in the last quarter of 2007 and even more so in early 2008 (also due to the base effect), reaching 8.7% in March 2008 on the back of both supply- and demand-side factors as well as worsening inflation expectations. Romania missed the inflation target of 4% ±1 percentage point for end-2007 by 1.6 percentage points. For 2008, the end-year target is set at 3.8% ±1 percentage point, but the Banca Naţională României (BNR) expects inflation to be within the inflation target corridor by the start of the second quarter of 2009. The year-end inflation target is 3.5% ±1 percentage point for 2009. The BNR has continued hiking the policy rate by a total of 200 basis points in four steps since early November 2007.

Fiscal policy not supportive of counteracting unfavorable economic developments

The budget deficit widened to 2.5% of GDP in 2007 against 2.2% of GDP in 2006, and was not supportive of counteracting the risk of economic overheating. The rise in public expenditure was largely the result of lax public sector wage policy and higher social payments, but also of public investment bolstered by higher absorption of EU funds. The revenue ratio increased, too, but to a lesser extent. Loose fiscal policy in Romania is criticized by international institutions but also by the BNR, as it increases internal and external imbalances.

[15] *In 2007, 46% of all investments were equipment investments (including means of transport) and almost 46% new construction works; the remaining 8% of investments fall in the "other expenditures" category. Investment in new construction increased by more than 31% year on year (construction of residential construction accelerated at a slightly lower speed) and equipment investments by almost 25%.*

Table 11

Main Economic Indicators: Romania

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	4.2	7.9	6.1	8.4	7.9	6.1	5.7	5.7	6.6
Private consumption	9.9	12.5	11.0	12.7	13.3	12.3	12.3	10.1	10.1
Public consumption	8.1	−2.4	5.5	−3.6	−0.6	6.3	6.8	4.9	4.8
Gross fixed capital formation	12.7	19.3	28.9	21.9	21.3	23.5	28.4	32.2	28.1
Exports of goods and services	7.7	10.6	8.7	9.8	9.3	12.0	3.5	4.8	14.9
Imports of goods and services	16.1	22.4	26.1	24.0	24.9	28.5	22.7	24.7	28.6
	Contribution to GDP growth in percentage points								
Domestic demand[1]	8.5	18.5	23.0	15.9	16.3	52.5	15.3	17.8	15.7
Net exports of goods and services	−5.9	−9.6	−14.9	−10.4	−10.4	−16.2	−16.6	−15.0	−12.8
Exports of goods and services	3.2	4.6	3.9	4.0	3.3	6.9	1.7	2.0	5.4
Imports of goods and services	9.2	14.2	18.8	14.4	13.7	23.1	18.3	17.0	18.2
	Year-on-year change of the period average in %								
Labor productivity of industry (real)	4.4	11.3	9.5	11.8	10.7	12.6	8.5	8.8	8.0
Gross average wage of industry (nominal)	16.8	15.7	21.6	15.1	16.8	20.7	21.7	20.9	22.8
Unit labor cost of industry (nominal)	11.9	4.0	11.0	2.9	5.5	7.2	12.2	11.1	13.7
Producer price index (PPI) of industry	10.8	11.7	8.1	12.8	11.1	9.4	7.5	6.1	9.3
Consumer price index (here: HICP)	9.1	6.6	4.9	5.9	4.8	3.9	3.9	5.1	6.8
EUR per 1 RON, + = RON appreciation	11.8	2.7	5.7	−0.5	4.6	5.4	7.3	9.6	0.9
	Period average levels								
Unemployment rate (ILO definition, %, 15−64 years)	7.5	7.6	6.7	7.4	7.5	7.4	6.8	6.3	6.4
Employment rate (15−64 years)	57.6	58.8	58.8	60.9	57.4	57.2	59.6	60.5	57.9
Key interest rate per annum (%)	11.7	8.5	7.5	8.8	8.8	8.4	7.6	6.8	7.3
RON per 1 EUR	3.6	3.5	3.3	3.5	3.5	3.4	3.3	3.2	3.4
	Nominal year-on-year change of the period average stock in %								
Money plus quasi-money	41.3	28.2	27.8	26.5	24.1	26.8	25.8	26.2	31.8
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	17.4	1.5	−6.0	−2.2	−1.6	−2.8	−3.8	−5.3	−11.3
Domestic credit of the banking system	9.9	31.1	39.7	34.6	27.9	33.3	34.4	36.7	52.6
of which: claims on the private sector	*25.6*	*36.1*	*42.2*	*38.0*	*38.7*	*39.1*	*39.4*	*41.0*	*48.6*
claims on households	*13.2*	*19.0*	*23.3*	*20.3*	*20.8*	*21.5*	*21.1*	*22.5*	*27.5*
claims on enterprises	*12.4*	*17.1*	*19.0*	*17.7*	*17.8*	*17.6*	*18.3*	*18.5*	*21.1*
claims on the public sector (net)	*−15.7*	*−4.9*	*−2.6*	*−3.4*	*−10.8*	*−5.8*	*−5.0*	*−4.3*	*3.9*
Other domestic assets (net) of the banking system	13.9	−4.5	−5.9	−5.9	−2.2	−3.7	−4.8	−5.1	−9.4
	% of GDP, ESA 95								
General government revenues	32.3	33.1	34.4	..	..	..	..	..	..
General government expenditures	33.5	35.3	36.9	..	..	..	..	..	..
General government balance	−1.2	−2.2	−2.5	..	..	..	..	..	..
Primary balance	−0.1	−1.4	−1.8	..	..	..	..	..	..
Gross public debt	15.8	12.4	12.9	..	..	..	..	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	17.6	16.4	13.2	9.5	17.1	12.1	11.0	12.3	17.2
Merchandise imports	24.0	25.5	24.4	22.8	28.3	33.4	25.5	23.1	18.1
	% of GDP (based on EUR), period total								
Trade balance	−9.8	−12.1	−14.5	−11.0	−13.7	−17.6	−16.4	−12.5	−13.4
Services balance	−0.4	0.0	0.2	−0.1	−0.4	1.0	0.2	−0.3	0.2
Income balance (factor services balance)	−2.9	−3.3	−3.6	−2.8	−1.8	−5.6	−5.1	−3.2	−2.1
Current transfers	4.5	4.9	4.0	4.3	5.1	5.1	4.9	4.5	2.4
Current account balance	−8.6	−10.4	−13.9	−9.6	−10.9	−17.1	−16.3	−11.5	−12.8
Capital account balance	0.7	−0.0	0.7	0.3	0.9	0.4	0.7	0.7	0.9
Foreign direct investment (net)	6.6	8.9	5.8	7.0	11.8	9.0	6.1	5.2	4.5
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt[2]	30.7	28.0	27.9	27.7	28.0	27.7	28.0	27.4	27.9
Gross official reserves (excluding gold)	21.1	21.8	20.9	20.5	21.8	21.3	20.8	22.2	20.9
	Months of imports of goods and services								
Gross official reserves (excluding gold)	5.8	5.9	5.6	5.5	5.9	5.6	5.4	5.8	5.6
	EUR million, period total								
Gross domestic product in current prices	79,739	97,898	121,212	26,600	32,487	20,360	26,553	34,354	39,946

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

[1] *In the first quarter of 2007, stock changes contributed 36.7 percentage points to the growth rate of GDP.*

[2] *Only medium- and long-term debt.*

8 Slovakia: Strong Economic Momentum Has a Favorable Impact on Foreign Trade and Productivity

Record growth in the fourth quarter driven to some extent by one-off effects

Real GDP growth in Slovakia accelerated to more than 10% year on year in 2007, which is well above the growth rates observed in all other EU countries. Growth was solid throughout the whole year, but exceptionally high in the fourth quarter of 2007, when economic activity expanded by 14.3% year on year. This acceleration can be explained at least partly by an outstanding increase in stock changes, which contributed 5.4 percentage points to economic growth in the final quarter of 2007. The contribution of net exports to GDP growth improved largely as a result of lower import growth and despite some slowing down of export growth.

On the production side, the economy was driven by a buoyant development of the industrial sector throughout 2007. This can be traced back to the large-scale buildup of (often FDI-financed) production capacities in export-oriented industries (e.g. automobiles, electronics) in recent years that fueled export growth. Despite repatriated profits exerting a negative effect on the income balance, the combined current and capital account position improved noticeably in 2007.

Rising productivity safeguards international competitiveness

FDI inflows in the industrial sector also positively impacted productivity developments. While nominal ULC declined given relatively moderate nominal wage growth in industry, ULC in industry increased (in euro terms) owing to the appreciation of the Slovak koruna, thus negatively affecting international competitiveness.

Labor market conditions continue to tighten

The unemployment rate declined further and employment showed robust growth rates of around 2%. Together with low geographical mobility of the workforce and a high share of the long-term unemployed (accounting for over 75% of total unemployment), this development contributed to growing labor shortages, especially of skilled workers in specific regions and labor market segments.

Inflation started to increase in the second half of 2007 and reached 3.6% year on year in March 2008. This development was, however, in line with global developments and mainly the outcome of rising food prices and, to some extent, also of energy price hikes. In contrast, nominal ULC in the whole economy increased only modestly (+0.4% year on year in 2007 against 1.7% year on year in 2006).

The general government deficit in Slovakia dropped to 2.2% of GDP in 2007. This positive development was mainly brought about by strong economic growth in the country and was almost entirely revenue driven.

Slovakia requests convergence assessment

On April 4, 2008, Slovakia submitted a request for a country examination (convergence assessment) in view of its intention to introduce the euro in 2009. By the time this report is published, the respective convergence reports of the ECB and the European Commission will have come available, the latter also containing a recommendation on Slovakia's request. A final decision will be taken by the Ecofin Council in early July, after the European Parliament has given its opinion and the European Council its deliberation.

Table 12

Main Economic Indicators: Slovakia

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	6.6	8.5	10.4	9.0	8.2	8.3	9.3	9.4	14.3
Private consumption	6.5	5.6	7.1	4.3	6.6	6.3	7.8	8.3	5.9
Public consumption	3.5	10.1	0.7	2.8	9.2	3.5	−3.5	2.2	0.8
Gross fixed capital formatio[n]	17.6	8.4	7.9	7.9	5.0	11.0	5.9	6.5	8.9
Exports of goods and services	13.9	21.0	16.0	24.0	23.1	22.7	18.1	8.5	16.0
Imports of goods and services	16.1	17.7	10.4	22.8	14.9	14.5	13.2	3.0	11.6
	Contribution to GDP growth in percentage points								
Domestic demand	8.7	6.8	6.1	8.9	2.9	2.8	4.9	4.6	11.6
Net exports of goods and services	−2.1	2.3	5.4	0.8	6.0	7.5	4.8	5.5	4.1
Exports of goods and services	11.5	18.6	15.8	21.0	21.7	21.0	17.3	8.4	17.1
Imports of goods and services	13.6	16.3	10.3	20.2	15.7	13.4	12.4	3.0	13.0
	Year-on-year change of the period average in %								
Labor productivity of industry (real)	0.6	11.3	10.0	12.7	11.0	9.8	10.8	10.1	9.2
Gross average wage of industry (nominal)	7.3	6.7	6.4	7.4	8.5	8.1	6.2	6.1	5.5
Unit labor cost of industry (nominal)	6.6	−4.1	−3.3	−4.7	−2.2	−1.6	−4.1	−3.6	−3.4
Producer price index (PPI) of industry	4.7	8.4	2.1	8.5	6.1	3.4	1.6	1.1	2.2
Consumer price index (here: HICP)	2.8	4.3	1.9	4.8	3.5	2.1	1.7	1.4	2.4
EUR per 1 SKK, + = SKK appreciation	3.7	3.7	10.2	2.2	7.1	9.1	11.7	12.7	7.5
	Period average levels								
Unemployment rate (ILO definition, %, 15−64 years)	16.2	13.4	11.2	12.9	12.1	11.7	11.2	11.3	10.4
Employment rate (15−64 years)	57.7	59.4	60.7	59.9	60.2	60.1	60.4	60.7	61.6
Key interest rate per annum (%)	3.2	4.0	4.4	4.5	4.8	4.7	4.3	4.3	4.3
SKK per 1 EUR	38.6	37.2	33.8	37.8	35.9	34.3	33.8	33.6	33.4
	Nominal year-on-year change of the period average stock in %								
Broad money (including foreign currency deposits)	5.0	5.5	14.8	6.7	8.6	15.2	16.7	14.9	12.5
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	−5.8	15.9	−1.7	20.8	18.2	1.1	−3.7	−3.1	−1.1
Domestic credit of the banking system	12.1	3.9	14.4	4.0	3.5	11.6	13.9	15.8	16.1
of which: claims on the private sector	*8.1*	*16.1*	*14.9*	*15.8*	*16.5*	*15.1*	*13.9*	*15.4*	*15.4*
claims on households	*5.3*	*8.7*	*7.3*	*9.1*	*9.0*	*7.6*	*7.1*	*7.1*	*7.3*
claims on enterprises	*2.8*	*7.3*	*7.7*	*6.8*	*7.5*	*7.5*	*6.8*	*8.3*	*8.1*
claims on the public sector (net)	*4.0*	*−12.1*	*−0.5*	*−11.9*	*−13.0*	*−3.5*	*0.0*	*0.4*	*0.7*
Other domestic assets (net) of the banking system	−1.3	−14.3	2.1	−18.1	−13.0	2.5	6.5	2.2	−2.5
	% of GDP, ESA 95								
General government revenues[1]	35.3	33.5	34.7	..	..	..	..	..	..
General government expenditures[1]	38.1	37.2	36.9	..	..	..	..	..	..
General government balance[1]	−2.8	−3.6	−2.2	..	..	..	..	..	..
Primary balance[1]	−1.1	−2.2	−0.8	..	..	..	..	..	..
Gross public debt[1]	34.2	30.4	29.4	..	..	..	..	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	15.3	29.3	26.9	30.1	32.9	38.1	29.8	20.3	22.0
Merchandise imports	17.4	27.7	21.4	32.0	25.9	27.7	25.5	15.5	18.3
	% of GDP (based on EUR), period total								
Trade balance	−5.0	−4.6	−1.2	−3.1	−5.5	0.4	−1.8	0.0	−3.0
Services balance	0.7	1.4	0.7	1.4	1.6	0.3	1.3	0.9	0.4
Income balance (factor services balance)	−4.1	−3.7	−4.3	−5.8	−1.9	0.3	−5.9	−5.6	−5.3
Current transfers	0.0	−0.1	−0.6	−1.0	−0.3	−1.0	−0.7	−0.9	0.1
Current account balance	−8.4	−7.0	−5.4	−8.5	−6.1	−0.1	−7.2	−5.6	−7.9
Capital account balance	−0.0	−0.1	0.6	−0.1	−0.1	1.0	0.3	0.1	1.1
Foreign direct investment (net)	4.1	6.8	3.6	7.9	4.4	−0.8	5.7	4.6	4.1
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	59.6	54.8	54.9	54.4	54.8	56.5	54.9	53.6	54.9
Gross official reserves (excluding gold)	32.7	21.6	22.6	23.2	21.6	25.4	25.5	23.8	22.6
	Months of imports of goods and services								
Gross official reserves (excluding gold)	4.9	3.0	3.1	3.2	3.0	3.5	3.5	3.3	3.1
	EUR million, period total								
Gross domestic product in current prices	38,482	44,628	54,868	11,386	12,398	12,190	13,445	14,368	14,865

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

[1] *Including the net costs of the pension reform.*

9 Croatia: Inflationary Pressures and External Vulnerabilities on the Rise

Strong economic growth driven by domestic consumption

In the latter half of 2007, the Croatian economy lost some of the strong momentum observed previously, with growth decelerating to below 4% in the final quarter. Nonetheless, annual average GDP growth reached a robust 5.6% in 2007, one of the highest rates in a decade. Domestic demand remained the main pillar of growth in 2007. Despite slowing down over the course of 2007, private consumption grew by a vigorous 6.2% on average in 2007, up from 3.5% in 2006, fueled by strong retail lending (despite restrictive measures implemented by the Hrvatska narodna banka (HNB)), improved labor market conditions and debt repayments to pensioners.[16] Similarly, public consumption growth accelerated markedly in view of the parliamentary elections in late 2007. While investment growth slackened toward year-end 2007, partly in view of more moderate public investment dynamics, it still came to 6.5%. Despite a marked slowdown in export growth in the final quarter of 2007, the gap between export and import growth narrowed in the full-year perspective. The contribution of net exports to growth improved slightly but remained modestly negative.

Rising inflationary pressures

Consumer price inflation accelerated sharply in the final months of 2007, reaching 5.8% year on year in December 2007, driven mainly by high food and energy prices. Core inflation picked up, also driven by rising nominal ULC for the whole economy (2.7% year on year in 2007 against 2.3% year on year in 2006). For similar reasons, inflationary pressures remained high in the first quarter of 2008, as well, with average consumer price inflation reaching 5.9% year on year.

External position deteriorating further

The acceleration of domestic demand triggered a further deterioration in Croatia's external position in 2007. In this context, the country's combined capital and current account gap increased noticeably on the back of a widening trade deficit. On the financing side, gross FDI inflows reached a record high of 9.7% of GDP, with the financial industry accounting for over 60% of total FDI inflows in 2007, following considerable capital increases in the banking sector. Croatia's gross external debt continued to rise moderately in 2007 and reached nearly 88% of GDP against the background of a marked change in the country's external debt structure. Croatian corporations increasingly rely on direct borrowing from abroad rather than the domestic banking system, given domestic borrowing constraints (administrative and prudential measures by the HNB). In light of this substitution effect, the HNB's efforts to mitigate the country's external indebtedness seem to have proved only partially effective. The share of public debt in total foreign debt has continued to decrease in 2007, a trend which might come to a halt in 2008: For the first time since 2004, the Croatian government has decided to tap international financial markets in 2008 with a eurobond issue worth some EUR 1.5 billion (partly to refinance previous bond issues).

Improvement of the fiscal balance in 2007

Croatia's fiscal balance improved in 2007, reaching an estimated deficit of 1.6% of GDP. Fiscal developments were largely underpinned by revenue overperformance, that were, however, spent on health care, education and agriculture in the run-up to parliamentary elections.

[16] *This debt accumulated because, between 1993 and 1998, pensions were not indexed to rises in wage levels, but to price level changes. As a result, the real value of the pensions declined considerably. According to a 1998 Constitutional Court ruling, the state had to assume liability for these unpaid pensions (amounting to some 6% of 2006 GDP). Pensioners were given the option to receive 50% of the money in four instalments in 2006 and 2007 or the full amount over a longer period (2008 to 2013).*

Table 13

Main Economic Indicators: Croatia

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	4.3	4.8	5.6	4.7	4.8	7.0	6.6	5.1	3.7
Private consumption	3.4	3.5	6.2	3.9	4.1	7.1	6.5	6.2	5.0
Public consumption	0.8	2.2	3.4	1.5	4.4	2.8	2.7	4.4	3.7
Gross fixed capital formatio[n]	4.9	10.9	6.5	9.3	9.2	11.2	5.8	5.7	4.0
Exports of goods and services	4.6	6.9	5.7	2.2	11.1	3.0	8.9	7.3	2.1
Imports of goods and services	3.5	7.3	5.8	5.5	5.0	3.7	6.4	7.0	6.0
	Contribution to GDP growth in percentage points								
Domestic demand	4.2	5.9	6.4	6.4	3.3	8.2	6.7	4.3	6.6
Net exports of goods and services	0.1	−1.1	−0.8	−1.8	1.6	−1.2	−0.1	0.7	−2.9
Exports of goods and services	2.2	3.4	2.9	1.5	4.8	1.2	4.1	4.9	1.0
Imports of goods and services	2.2	4.5	3.7	3.2	3.2	2.4	4.2	4.2	3.9
	Year-on-year change of the period average in %								
Labor productivity of industry (real)	6.2	2.7	5.9	3.7	3.5	7.7	7.3	4.7	3.6
Gross average wage of industry (nominal)	5.3	7.5	5.6	6.1	9.4	6.3	5.2	6.0	5.0
Unit labor cost of industry (nominal)	−0.8	4.7	−0.2	2.4	5.7	−1.3	−2.0	1.2	1.3
Producer price index (PPI) of industry	3.1	2.9	3.4	2.7	1.7	2.0	2.5	3.8	5.5
Consumer price index (here: CPI)	3.4	3.2	2.8	3.2	2.2	1.5	2.1	2.9	4.9
EUR per 1 HRK, + = HRK appreciation	1.3	1.1	−0.2	0.8	0.2	−0.3	−1.0	0.1	0.5
	Period average levels								
Unemployment rate (ILO definition, %, 15−64 years)	13.0	11.5	..	..	10.9	11.4	9.3	8.6	..
Employment rate (15−64 years)	55.0	55.6	..	..	56.8	55.4	56.9	58.9	..
Key interest rate per annum (%)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
HRK per 1 EUR	7.4	7.3	7.3	7.3	7.4	7.4	7.4	7.3	7.3
	Nominal year-on-year change of the period average stock in %								
Broad money (including foreign currency deposits)	9.5	14.0	17.9	15.9	17.3	20.0	20.1	17.5	14.6
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	−5.0	−3.1	9.6	−1.8	2.2	6.2	11.5	10.5	9.9
Domestic credit of the banking system	17.3	20.8	17.2	21.6	20.2	20.6	18.0	16.9	13.9
of which: claims on the private sector	*13.2*	*20.2*	*19.6*	*21.1*	*20.9*	*22.3*	*22.2*	*18.8*	*15.9*
claims on households	*9.0*	*11.1*	*11.0*	*11.3*	*11.2*	*11.9*	*11.9*	*10.5*	*9.8*
claims on enterprises	*4.1*	*9.2*	*8.7*	*9.8*	*9.7*	*10.5*	*10.3*	*8.2*	*6.1*
claims on the public sector (net)	*4.1*	*0.6*	*−2.4*	*0.5*	*−0.7*	*−1.7*	*−4.2*	*−1.8*	*−2.0*
Other domestic assets (net) of the banking system	−2.7	−3.8	−8.9	−3.9	−5.1	−6.8	−9.4	−9.8	−9.2
	% of GDP, ESA 95								
General government revenues	..	..	..	..	..	..	..	..	..
General government expenditures	..	..	..	..	..	..	..	..	..
General government balance1)	−4.0	−2.5	−1.6	..	..	..	..	..	..
Primary balance	..	..	..	..	..	..	..	..	..
Gross public debt1)	43.7	40.8	37.7	..	..	..	..	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	9.3	17.2	8.2	13.6	20.1	1.9	16.8	10.7	4.1
Merchandise imports	10.6	14.0	10.8	13.9	11.0	8.8	12.0	10.0	12.0
	% of GDP (based on EUR), period total								
Trade balance	−24.0	−24.4	−25.2	−22.6	−23.5	−25.4	−27.2	−22.6	−26.0
Services balance	17.0	16.7	16.9	43.7	3.8	1.2	16.4	41.9	4.0
Income balance (factor services balance)	−3.1	−3.3	−2.9	−1.8	−0.6	−2.7	−6.7	−1.5	−1.0
Current transfers	3.8	3.2	2.8	2.9	2.9	2.9	2.9	2.5	2.8
Current account balance	−6.4	−7.7	−8.5	22.2	−17.5	−24.0	−14.6	20.3	−20.2
Capital account balance	0.2	−0.4	0.1	0.1	0.2	0.1	0.1	0.1	0.1
Foreign direct investment (net)	4.1	7.6	8.6	4.1	10.5	14.7	10.3	3.0	7.6
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	82.3	85.6	87.8	81.5	85.6	86.2	86.8	85.2	87.8
Gross official reserves (excluding gold)	23.8	25.5	24.8	24.2	25.5	27.2	25.6	24.0	24.8
	Months of imports of goods and services								
Gross official reserves (excluding gold)	5.1	5.3	5.2	5.1	5.3	5.7	5.4	5.1	5.2
	EUR million, period total								
Gross domestic product in current prices	31,272	34,214	37,494	9,451	8,535	8,494	9,314	10,330	9,355

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

[1] *Preliminary data for 2007.*

10 Turkey: Economic Slowdown in the Course of 2007

Economic growth again mainly driven by domestic demand

Real GDP grew by 4.5% in the full-year 2007, compared with 6.9% in 2006, on the back of a severe drought that resulted in negative growth of agricultural production. On the expenditure side, the composition of economic growth changed somewhat in 2007, as the contribution of net exports turned more negative (with the acceleration of import growth outpacing the increase in export growth). Real growth of credit to the private sector decelerated from around 40 percentage points on average year on year in 2006 to about 6 percentage points on average in the second half of 2007, with lending to corporates declining even more strongly. Consequently, GFCF growth, which had started to decline substantially over the course of 2006, remained weak during 2007. Interestingly, private consumption growth remained robust backed by strong wage increases but was rather volatile.

Far-reaching revision of national account statistics

In March 2008, the Turkish Statistical Institute (Turkstat) revised upward its nominal GDP figures for 2006 by more than one-third, following a revision of the statistics that were better aligned with ESA 95, which implies a stronger consideration of the informal economy, among other things. Turkstat also adjusted the real GDP growth rates of preceding years as well as key macroeconomic indicators in relation to GDP.[17] Furthermore, in early 2008, Turkstat published new population figures, which show that the number of people living in Turkey is significantly smaller than estimated before. This fact (combined with the higher GDP estimates) pushed up Turkish GDP per capita values.

External imbalances remain a source of vulnerability

In the second half of 2007, the combined current and capital account deficit increased to 5% of GDP. This development was largely attributable to a lower surplus on the services balance. Net FDI inflows were weaker and covered almost one-half of the external deficit.

Reducing inflation is one of the major challenges

Higher oil prices, a sharp rise in food prices, increases in excise taxes on alcohol and tobacco as well as nominal effective exchange rate developments and strong ULC growth in the whole economy (8.7% year on year in 2007 against 6.8% in 2006 year on year) pushed up annual headline inflation to 8.2% year on year in the final quarter of 2007 and to 8.8% in the first quarter of 2008. Inflation remained well above the upper limit of the central bank's inflation target of 4% ±2 percentage points. The Turkish lira, which appreciated by around 1% year on year in 2007, started to weaken against the euro by more than 3% year on year in March 2008, which was partly due to increased political uncertainty (court case to ban the ruling AKP).

Fiscal deficit expected to widen in 2007

According to national sources, the budget deficit is expected to increase to –1.2% of GDP in 2007 after –0.1 % of GDP in 2006, which is largely the result of weak tax collection and election-related spending.

After the final review under the stand-by arrangement (backlog of social security reforms) had been postponed in February 2008, completion of the review is scheduled to take place in early May, enabling the country to draw about USD 3.7 billion. So far, Turkey has not requested a further stand-by arrangement with the IMF.

[17] *For example, the current account deficit for 2006 was revised down from 8.3% of GDP in 2006 (old data) to 6.1% of GDP (new data), public debt in 2006 from above 60% of GDP (old data) to 46.1% of GDP (new data).*

Table 14

Main Economic Indicators: Turkey

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	8.4	6.9	4.5	6.3	5.7	7.6	4.0	3.4	3.4
Private consumption	7.9	4.6	4.6	2.9	0.6	5.6	1.6	8.2	2.9
Public consumption	2.5	8.4	2.8	11.2	2.0	4.7	2.1	3.3	1.6
Gross fixed capital formation	17.4	13.3	..	12.5	8.2	3.6	2.7	2.6	..
Exports of goods and services	7.9	6.6	6.7	4.1	7.9	12.5	9.3	4.2	2.5
Imports of goods and services	12.2	6.9	11.1	3.3	1.6	8.6	5.6	14.4	15.7
	Contribution to GDP growth in percentage points								
Domestic demand	9.9	7.3	6.0	6.2	4.3	7.3	3.5	6.1	7.3
Net exports of goods and services	−1.5	−0.4	−1.6	0.1	1.4	0.2	0.4	−2.7	−3.8
Exports of goods and services	1.8	1.5	1.5	1.0	1.9	2.7	2.1	1.0	0.6
Imports of goods and services	3.3	1.9	3.1	0.9	0.5	2.5	1.7	3.7	4.4
	Year-on-year change of the period average in %								
Labor productivity in manufacturing (real)	6.0	6.7	2.6	6.5	5.2	5.1	0.5	1.1	4.0
Gross average wage in manufacturing (nominal)	12.2	11.5	9.4	11.1	12.1	8.0	8.9	10.9	9.9
Unit labor cost in manufacturing (nominal)	5.9	4.5	6.6	4.4	6.5	2.8	8.4	9.8	5.7
Producer price index (PPI) of industry	6.0	9.3	6.4	12.6	11.4	10.1	6.6	3.6	5.3
Consumer price index (here: HICP)	8.1	9.3	8.8	10.6	9.7	10.3	9.5	7.1	8.2
EUR per 1 TRY, + = TRY appreciation	5.9	−7.3	1.3	−14.4	−14.1	−13.3	2.5	8.1	8.8
	Period average levels								
Unemployment rate (ILO definition, %, 15−64 years)	10.2	9.9	9.5	9.1	9.6	11.4	8.9	8.9	8.9
Employment rate (15−64 years)	43.5	43.2	43.6	45.0	43.5	41.0	44.5	44.5	44.5
Key interest rate per annum (%)	14.8	15.6	17.2	17.4	17.5	17.5	17.5	17.5	16.5
TRY per 1 EUR	1.7	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.7
	Nominal year-on-year change of the period average stock in %								
Broad money (including foreign currency deposits)	21.1	41.3	18.7	42.2	35.6	23.3	17.0	18.3	16.7
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	6.1	10.0	9.1	9.3	10.8	10.7	11.6	9.8	4.5
Domestic credit of the banking system	21.6	39.3	15.5	40.2	32.5	17.3	11.0	15.2	18.7
of which: claims on the private sector	*19.3*	*31.7*	*16.7*	*33.5*	*29.0*	*19.8*	*15.2*	*15.2*	*16.7*
claims on households	*8.7*	*11.0*	*6.4*	*11.6*	*9.6*	*7.5*	*5.6*	*5.8*	*7.0*
claims on enterprises	*10.6*	*20.7*	*10.2*	*21.9*	*19.4*	*12.3*	*9.6*	*9.4*	*9.7*
claims on the public sector (net)	*2.2*	*7.6*	*−1.1*	*6.7*	*3.5*	*−2.5*	*−4.2*	*−0.1*	*1.9*
Other domestic assets (net) of the banking system	−6.7	−8.0	−5.9	−7.2	−7.7	−4.7	−5.6	−6.7	−6.5
	% of GDP, ESA 95								
General government revenues	..	..	..	..	..	..	..	..	..
General government expenditures	..	..	..	..	..	..	..	..	..
General government balance[1]	−0.6	−0.1	−1.2	..	..	..	..	..	..
Primary balance	..	..	..	..	..	..	..	..	..
Gross public debt[1]	52.3	46.1	38.8	..	..	..	..	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	15.0	17.8	12.8	19.2	14.4	14.6	15.4	10.3	11.1
Merchandise imports	21.9	18.9	10.4	16.1	8.2	8.7	5.7	11.7	15.3
	% of GDP (based on EUR), period total								
Trade balance	−7.0	−7.9	−7.2	−7.8	−6.6	−6.8	−7.5	−7.5	−7.0
Services balance	3.2	2.6	2.1	5.2	1.6	0.9	1.7	4.3	1.2
Income balance (factor services balance)	−1.2	−1.3	−1.0	−1.2	−1.3	−1.4	−1.0	−1.0	−0.9
Current transfers	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.4	0.3
Current account balance	−4.7	−6.1	−5.8	−3.3	−5.9	−7.0	−6.4	−3.7	−6.3
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)	1.9	3.6	3.0	2.5	4.5	6.1	1.7	2.3	2.5
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	36.8	37.3	35.0	37.0	37.3	38.0	37.8	36.0	35.0
Gross official reserves (excluding gold)	11.0	11.1	10.4	11.1	11.1	12.1	11.5	11.0	10.4
	Months of imports of goods and services								
Gross official reserves (excluding gold)	5.2	4.8	4.7	4.9	4.8	5.2	5.1	4.9	4.7
	EUR million, period total								
Gross domestic product in current prices	388,302	418,088	480,391	111,568	107,220	102,034	116,743	133,446	128,168

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

[1] *Preliminary data for 2007.*

11 Russia: Impressive Economic Expansion, but Deepening CBR Policy Dilemma

Buoyed by high oil prices and accelerating investment, annual economic growth exceeded 8% in 2007

With GDP growth of more than 8% year on year, the country has reached its highest growth rate since 2000. Economic performance was buoyed by the very high world market prices for oil and metals and pushed further by accelerating internal demand. Private consumption and particularly GFCF growth was supported by a continued boom of real credit, record-low joblessness and rising real wages. The contribution of net exports to GDP growth, in contrast, decelerated strongly due to surging import growth (above 25% year on year) that was not matched by higher export growth rates, causing the negative contribution of foreign trade to virtually double compared to 2006, namely to reach 7 percentage points in 2007. Thus, Russian growth has become increasingly unbalanced. On the positive side, one-half of Russian imports in 2007 consisted of machinery and equipment, whose value expanded even faster than total imports.

Combined current and capital account surplus declines amid accelerating ULC

The import surge has been fueled by strong domestic demand, the continuing real appreciation of the Russian ruble, and sharply rising ULC. On top of brisk rises in preceding years, nominal ULC in industry are estimated to have increased by about 20% in 2007,[18] which represents an increasingly serious challenge for Russia's competitiveness. Accelerating imports and only modestly expanding exports contributed to a sizeable reduction of the combined current and capital account surplus. However, this contraction was more than offset by a strong expansion of the financial account surplus. Driven by some large IPOs as well as by expectations of nominal exchange rate appreciation and rising investor confidence, total net private capital inflows into Russia rose to 6.4% of GDP (from 4.3% in 2006), with net capital inflows by banks making up around one-half of this amount. Net FDI inflows only accounted for about one-tenth of total net private capital inflows. However, capital inflows have become much more volatile (and have even reversed temporarily) since the summer of 2007 because of repercussions of the U.S. financial crisis, which tightened external refinancing conditions, pushed up interest rates on the interbank loan market, and curtailed access to finance for many smaller banks.

Swelling private foreign liabilities led to an increase of Russia's gross external debt to 34% of GDP as of end-2007. While their expansion has slowed down in recent months, foreign currency reserves reached a new record high as of end-March 2008. These funds provide a sizeable buffer cushioning external shocks.

Runaway inflation coupled with banks' recurrent liquidity bottlenecks have deepened the CBR's policy dilemma

Strong capital inflows and brisk money supply growth, sharp food and energy price increases, possible overheating pressures, some fiscal loosening, utility price adjustments, as well as recent liquidity infusions to assist cash-starved banks contributed to pushing up inflation to almost 12% at end-2007 and 13.3% in March 2008 (year on year), the highest level since 2005. The Central Bank of the Russian Federation (CBR) is confronted with an increasingly serious dilemma of conflicting goals of monetary policy and banking soundness. This is exemplified by the CBR's attempts to combat accelerating inflation by implementing so far unsuccessful administrative measures (October 2007), hiking interest rates and raising reserve requirements (February 2008) on the one hand, while on the other hand injecting additional liquidity to banks (February 2008).

[18] *Data on ULC growth rates for the whole economy are not available.*

Table 15

Main Economic Indicators: Russia

	2005	2006	2007	Q3 2006	Q4 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007
	Year-on-year change of the period total in %								
GDP in constant prices	6.4	7.3	8.1	7.5	8.0	7.4	8.0	7.3	9.5
Private consumption	11.2	11.0	12.6	11.3	12.2	12.2	12.6	12.7	13.0
Public consumption	1.3	2.5	5.0	2.5	1.1	5.7	5.4	4.0	5.0
Gross fixed capital formation	10.6	17.7	20.8	17.5	21.3	22.0	23.6	17.9	20.6
Exports of goods and services	6.5	7.3	6.4	6.1	7.7	3.7	5.3	4.3	11.3
Imports of goods and services	16.6	21.9	27.3	19.1	22.8	28.4	28.9	26.4	26.1
	Contribution to GDP growth in percentage points								
Domestic demand	8.2	10.6	13.6	10.9	11.8	12.4	13.9	13.0	14.7
Net exports of goods and services	−2.2	−3.9	−7.0	−3.6	−4.8	−7.5	−7.5	−7.2	−5.8
Exports of goods and services	2.4	2.7	2.4	2.0	3.0	1.4	2.0	1.4	4.4
Imports of goods and services	4.5	6.6	9.3	5.6	7.8	9.0	9.5	8.6	10.2
	Year-on-year change of the period average in %								
Labor productivity of industry (real)[1]	7.3	8.3	4.6	8.8	7.4	7.3	5.6	2.0	3.4
Gross average wage of industry (nominal)[1]	21.1	21.4	26.0	22.6	22.0	25.9	24.5	24.8	28.5
Unit labor cost of industry (nominal)[1]	12.8	12.0	20.5	12.6	13.6	17.3	17.9	22.4	24.2
Producer price index (PPI) of industry	20.7	12.4	14.1	13.8	8.7	8.6	13.1	13.6	20.7
Consumer price index (here: CPI)	12.5	9.8	9.1	9.6	9.2	7.9	8.1	9.0	11.5
EUR per 1 RUB, + = RUB appreciation	1.7	3.3	−2.7	1.8	0.0	−1.8	−2.0	−2.4	−4.4
	Period average levels								
Unemployment rate (ILO definition)	7.6	7.2	6.1	6.7	6.8	7.0	6.0	5.6	5.6
Employment rate	..	..	..	..	..	..	.	..	..
Key interest rate per annum (%)	13.0	11.6	10.3	11.5	11.1	10.6	10.4	10.0	10.0
RUB per 1 EUR	35.2	34.1	35.0	34.2	34.1	34.5	34.9	35.0	35.7
	Nominal year-on-year change of the period average stock in %								
Broad money (including foreign currency deposits)	33.9	37.0	44.6	37.4	39.1	42.3	48.5	43.9	43.8
	Contributions to the year-on-year change of broad money in percentage points								
Net foreign assets of the banking system	34.0	30.9	31.8	31.8	30.2	29.8	34.2	31.2	31.9
Domestic credit of the banking system	0.4	11.7	21.6	11.6	14.4	19.3	23.2	21.3	22.4
of which: claims on the private sector	*30.0*	*36.4*	*44.5*	*38.3*	*39.4*	*41.4*	*44.2*	*45.1*	*46.6*
claims on households	*8.8*	*12.0*	*12.7*	*12.4*	*12.8*	*12.8*	*12.9*	*12.7*	*12.5*
claims on enterprises	*21.2*	*24.4*	*31.8*	*25.9*	*26.6*	*28.6*	*31.3*	*32.4*	*34.1*
claims on the public sector (net)	*−29.6*	*−24.6*	*−22.9*	*−26.6*	*−25.0*	*−22.1*	*−21.0*	*−23.8*	*−24.2*
Other domestic assets (net) of the banking system	−0.2	−5.8	−8.8	−6.0	−5.5	−6.8	−8.9	−8.7	−10.5
	% of GDP								
General government revenues	39.7	39.7	40.2	..	..	..	.	..	..
General government expenditures	31.6	31.3	34.1	..	..	..	.	..	..
General government balance	8.2	8.4	6.1	..	..	..	.	..	..
Primary balance	9.1	9.2	..	..	..	..	.	..	..
Gross public debt, general government	14.9	9.0	..	..	..	..	.	..	..
	Year-on-year change of the period total (based on EUR) in %								
Merchandise exports	33.8	22.6	7.0	17.8	6.5	-2.3	2.2	4.2	22.8
Merchandise imports	29.7	28.5	24.5	25.7	26.7	27.1	26.8	26.9	19.1
	% of GDP (based on EUR), period total								
Trade balance	15.5	14.1	10.2	13.7	10.0	11.3	10.4	9.1	10.4
Services balance	−1.8	−1.4	−1.5	−1.6	−1.4	−1.3	−1.5	−1.8	−1.5
Income balance (factor services balance)	−2.5	−3.0	−2.3	−2.9	−2.6	−0.9	−3.8	−2.4	−2.1
Current transfers	−0.1	−0.2	−0.3	−0.3	−0.3	−0.2	−0.1	−0.3	−0.4
Current account balance	11.0	9.6	6.1	8.8	5.6	8.9	5.0	4.5	6.4
Capital account balance	−1.7	0.0	−0.8	−0.0	0.1	−0.3	0.1	0.0	−2.4
Foreign direct investment (net)	−0.0	1.0	0.5	0.7	−1.4	4.5	−4.0	0.1	1.8
	% of GDP (rolling four-quarter GDP, based on EUR), end of period								
Gross external debt	36.0	30.3	26.6	28.2	30.3	27.9	28.9	29.3	26.6
Gross official reserves (excluding gold)	24.0	31.0	33.7	27.1	31.0	30.5	34.9	33.1	33.7
	Months of imports of goods and services								
Gross official reserves (excluding gold)	13.4	17.7	18.5	15.6	17.7	17.1	19.2	18.0	18.5
	EUR million, period total								
Gross domestic product in current prices	616,304	788,520	940,840	213,058	216,541	195,837	222,298	251,980	270,725

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

[1] *Due to breaks in the time series data are indicative only.*

Box 2

Outlook for Central and Eastern European (CEE) Countries[1]

Robust Economic Performance Expected to Continue but Growth Peak Has Passed

Economic growth in CEE countries will stay robust in the years to come; so far, the region has been relatively resilient to headwinds from financial market turbulences. Yet some economic slowdown is expected in the region (e.g. in the Czech Republic and Poland), but largely on the back of country-specific internal factors. Hungary's economic performance – which was exceptionally weak in 2007 compared with other countries of the region – is likely to remain anemic, but real GDP growth will at least gain some momentum after the strongest effects of the far-reaching fiscal stabilization program have phased out.

Table 1

Real GDP Growth in the Three CEE EU Member States

			latest forecasts			previous forecasts	
	2006	2007	2008	2009		2008	2009
	annual change in %						
Czech Republic							
OeNB (March 2008)	6.4	6.5	5.2	5.4	OeNB (September 2007)	5.1	4.8
European Commission (April 2008)			4.7	5.0	European Commission (November 2007)	5.0	4.9
IMF (April 2008)			4.2	4.6	IMF (October 2007)	4.6	..
wiiw (March 2008)			4.5	5.0	wiiw (July 2007)	5.2	..
Consensus Forecasts (April 2008)			3.8–5.5	3.2–6.0	Consensus Forecasts (September 2007)	4.1–5.5	..
Hungary							
OeNB (March 2008)	3.9	1.3	1.8	2.8	OeNB (September 2007)	2.5	3.3
European Commission (April 2008)			1.9	3.2	European Commission (November 2007)	2.6	3.4
IMF (April 2008)			1.8	2.5	IMF (October 2007)	2.7	..
wiiw (March 2008)			2.5	4.1	wiiw (July 2007)	3.1	
Consensus Forecasts (April 2008)			1.5–2.7	2.5–3.6	Consensus Forecasts (September 2007)	2.5–3.5	..
Poland							
OeNB (March 2008)	6.2	6.5	5.6	4.9	OeNB (September 2007)	5.7	5.0
European Commission (April 2008)			5.3	5.0	European Commission (November 2007)	5.6	5.2
IMF (April 2008)			4.9	4.5	IMF (October 2007)	5.3	..
wiiw (March 2008)			5.5	5.3	wiiw (July 2007)	5.5	
Consensus Forecasts (April 2008)			4.7–5.8	4.1–5.5	Consensus Forecasts (September 2007)	4.8–5.8	..

Source: European Commission, Consensus Forecasts, IMF, OeNB, wiiw.

[1] *The OeNB compiles semiannual forecasts of economic developments in the Czech Republic, Hungary, Poland, and Russia. In the case of Russia, the forecast is established in collaboration with Suomen Pankki, Finland's central bank. The forecasts are based 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. Compared with 2007, import growth of the euro area is expected to moderate in 2008 but to accelerate thereafter. The price of oil will pick up in 2008 and is expected to stay at elevated levels in 2009. The EUR/USD exchange rate is assumed to remain unchanged at the average level recorded in the two-week period ending in mid-February 2008 over the entire projection horizon.*

The OeNB's projections are well in line with those of the other economic and financial institutions. Compared with the September 2007 projections, real GDP growth forecasts were slightly revised downward for Hungary and Poland, and upward for the Czech Republic, in line with the 2007 outcome and the less favorable euro area growth projections.

According to the ECB's projections of March 2008, economic growth in the euro area is expected to slow to 1.3% to 2.1% in 2008 and to accelerate only marginally in 2009, after real GDP growth of 2.6% year on year in 2007. The ECB's growth projections for the euro area were revised downward from December 2007, reflecting, among other things, the dampening impact of the financial market turmoil. Economic forecasts for the USA and for emerging economies other than the four countries under review in this contribution follow the same line: Compared with previous forecasts, real GDP growth projections were revised downward more or less strongly for 2008 and 2009, largely on the back of ongoing global financial turbulence.

Overall, the three CEE countries have been relatively resilient to the financial market turmoil, but are likely to be affected negatively by worsening financing conditions and monetary tightening in the medium term. Furthermore, the region will be impacted by the economic slowdown in industrialized countries because of declining goods and services exports. The extent to which the CEE EU Member States depend on exports to the U.S. economy, however, is very small: Exports to the U.S.A. account for around 4% of total exports, whereas those to the euro area account for more than 50%. However, even before the beginning of the financial turbulence on world markets, most CEE countries already showed some signs of growth fatigue in 2007 partly on the back of country-specific internal factors.

For the ***Czech Republic****, we expect real GDP growth to moderate in 2008 and 2009 compared with 2007. Private consumption growth will lose steam in both years due to the reform package that will likely entail an increase in VAT and excise taxes as well as lower social transfers. Furthermore, rising inflation and monetary tightening are anticipated to have a dampening effect on private consumption. On the external side, we expect export growth to slow down somewhat owing to weaker demand in the euro area in 2008, but to revive somewhat in 2009, largely in connection with the opening of the Hyundai plant and of economic growth picking up in the euro area. Import growth will moderate as well, as soon as Hyundai's investment has been completed. Net exports will contribute positively to real GDP growth in 2008 (0.5 percentage points) and in 2009 (1.1 percentage points). Compared with the September 2007 forecast, the projection was revised slightly upward, in particular in light of a higher-than-expected positive impact of employment growth and the release of a new car model by Škoda, which pushed up expectations on export growth. These positive effects even offset the slight downward revision of GFCF growth that reflects a deterioration of confidence in industry, trade and construction, and weaker import demand of the country's main trading partners.*

Following a slump in ***Hungary's*** *growth performance in 2007, there seems to be room for real GDP growth to accelerate somewhat in 2008 and particularly in 2009. Private consumption growth will still be restrained in 2008 owing to ongoing labor market adjustment and inflation-induced moderation of real wage developments, but will pick up in 2009 backed by stronger growth in real income (lower tax burden) and some strengthening of employment. In 2009, the public sector can be expected to stimulate private consumption growth, e.g. in the form of higher public sector wages or an increase in selected transfers, given the upcoming elections to the European Parliament in 2009 and the Hungarian parliament in 2010. For 2008 and 2009, the OeNB's outlook for GFCF growth is fairly positive, supported by high capacity utilization levels in industry and, more recently, some strengthening of corporate credit activity. Furthermore, in 2009, the planned tax reform is likely to reduce the tax burden on companies. In light of the unfavorable economic outlook for Hungary's major export markets, export growth will slow down in 2008, as will import growth (export-import link), resulting in a slightly positive contribution of net exports to GDP growth. For 2009, we expect export growth to accelerate again and import growth to pick up even more owing to higher domestic*

demand, so that the contribution of external trade to GDP growth will be almost nil. The OeNB's latest growth projections were adjusted downward compared with September 2007, mainly due to worse economic prospects in the country's major trading partners. This assessment is supported by signs of lowering employment levels, accelerating inflation and deteriorating consumer and industry sentiment.

According to our projections, ***Poland*** *will see further years of robust economic growth despite slowing down somewhat compared with 2007. Private consumption growth stands on a sound footing, supported by high employment growth and increasing disposable income (high nominal wage and credit growth, rising salaries for healthcare workers, changes in the tax benefit system) as well as by the envisaged tax reform scheduled to enter into force in 2009. However, higher inflation will prevent private consumption growth from accelerating strongly. After reaching a growth rate of around 20% year on year in 2007, GFCF growth will decline in 2008 and 2009, largely owing to lower profitability (reflecting rising ULC) and some tightening of monetary policy. However, GFCF growth will continue to expand dynamically, given sustained private consumption growth and increasing labor-substituting investments. On the back of lower import growth of the euro area, export growth is expected to slow down in 2008 but to regain some speed in 2009. The acceleration, however, will not be substantial as ULC will rise in the tradable sector. Overall, the contribution of net exports to GDP growth will be negative in 2008 and 2009 at around 2 percentage points. Compared with the previous forecast, the deceleration of export growth is expected to be more pronounced, given the current strong level of the currency and the expected slowdown of euro area import growth. At the same time, import growth is anticipated to turn out weaker (also reflecting a strong currency) compared with the previous forecast.*

The main ***risks to the projections*** *refer to deviations from the underlying assumptions for external factors, in particular import growth rates of the main trading partners as well as the actual impact of the financial market turmoil on the region. Another source of risks is country-specific factors. In Hungary, the government's defeat in the March 2008 referendum on selected structural reforms (doctor's fee, hospital fee, tuition fee) implies some risk regarding the implementation of fiscal reforms ahead of the elections in 2009 and 2010. In the Czech Republic and Poland, some uncertainty remains about bottlenecks on the labor market that might be even greater than assumed in the forecast, which could lead to higher wages and inflation. In Poland, some uncertainty remains about the implementation of fiscal reforms (e.g. the tax reform envisaged to enter into force in 2009).*

In ***Russia****, the economic situation and prospects for 2008 and 2009 remain quite favorable, despite the impact of the recent turbulences on financial markets, which have affected the country by constraining domestic banks' and enterprises' access to refinancing on international markets and thus tightening liquidity. The good prospects are mainly based on the high oil price. Annual real growth of private consumption has remained high in recent years and is forecast to continue at a slightly weaker but still robust rate, due to decelerating wage growth and a somewhat more modest expansion of lending.*

The pressure to boost federal spending has grown in tandem with sizeable and increasing fiscal oil revenues. According to Russian budgetary plans, fiscal policy is set to loosen somewhat in the coming years, which will translate into more robust government consumption up to 2009. GFCF is predicted to continue growing at a brisk pace in the coming years; investment will flow to various sectors, but is primarily driven by large energy projects and increased public infrastructure investments. Rapidly expanding domestic demand and a further real appreciation of the Russian ruble will sustain high import growth, which is, however, expected to moderate over the forecast period, as the rise of both income and the real external value of the ruble will decelerate. These developments are expected to set in once the strong increase in oil prices experienced in recent years has leveled off. Moderation notwithstanding, Russia's imports are predicted to continue expanding faster than exports, with the result that the still sizeable current account surplus will shrink swiftly.

Table 2

Real GDP Growth in Russia

	latest forecast					previous forecast	
	2006	2007	2008	2009		2008	2009
	annual change in %						
Russia							
OeNB (March 2008)	7.3	8.1	7.6	6.8	OeNB (September 2007)	6.2	5.6
European Commission (April 2008)	..		7.7	7.3	European Commission (November 2007)	7.0	6.9
IMF (April 2008)			6.8	6.3	IMF (October 2007)	6.5	..
wiiw (March 2008)			6.4	6.0	wiiw (July 2007)	5.2	
Consensus Forecasts (April 2008)			6.5–7.8	6.0–7.6	Consensus Forecasts (September 2007)	6.1–8.0	..

Source: European Commission, Consensus Forecasts, IMF, OeNB, wiiw.

Oil price developments remain not only a major driving force, but also a key ***risk to the projection*** *for Russian growth. If the oil price were to drop sharply, Russia's current account balance might run into the red already in 2009 and economic expansion could suffer. A deepening of the international financial crisis could also weaken the financial standing of some Russian banks, curb the current credit boom and dampen internal demand. Yet the authorities do have some generous fiscal buffers (Reserve Fund and National Wealth Fund) and monetary buffers (the third-largest international reserves of the world) at their disposal, which could cushion economic decline. Moreover, if inflows of energy proceeds and/or capital were to accelerate substantially, this would involve the risk of an excessively quick appreciation of the real exchange rate.*

Studies

Euroization in Central, Eastern and Southeastern Europe – First Results from the New OeNB Euro Survey

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Helmut Stix

This article presents the main results of a new OeNB survey on foreign currency holdings, which was conducted for the first time in late 2007 in four Central and Eastern European (CEE) as well as seven Southeastern European (SEE) countries. The most important questions asked in the survey pertain to the currency composition and the amounts of foreign currency cash holdings and foreign currency deposits as well as to the motives for holding foreign currency cash and deposits. The authors conclude that the euro plays a dominant role in foreign currency-denominated assets (both cash and deposits) throughout the region.

1 Introduction

In Central, Eastern and Southeastern Europe (CESEE), the use of foreign currencies in general and of the euro in particular is a widespread phenomenon that is also referred to as euroization[2] in the literature. There are several reasons for euroization, some of which relate to a country's past (e.g. the erosion of confidence in the national currency owing to political and economic turbulences), while others possibly relate to its present or future situation (e.g. close economic ties with the euro area, migration and expectations about a prospective introduction of the euro). For the countries concerned, euroization has implications on the conduct of monetary and fiscal policy. For the euro area, in turn, implications arise as a considerable amount of the euro cash in circulation is estimated to be held abroad.

Given the important role foreign currencies play in CESEE, we know relatively little about the various dimensions of euroization in the region. The first dimension concerns its extent: Little direct evidence is available for foreign currency cash (FCC) holdings, i.e. banknotes and coins.[3] For foreign currency deposits (FCDs), by contrast, aggregate data are available for most countries (see e.g. ECB, 2007). However, these data contain little information on how the respective deposits are distributed among the population. The second dimension concerns the reasons why people hold foreign currency-denominated assets. They may use them as a store of value and hence as a substitute for local currency-denominated assets ("asset substitution")[4] or they may use foreign currency as a unit of account and medium of exchange ("currency substitution") – an aspect

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[2] *In this paper, the term euroization refers to the de facto use of the euro. De iure euroization, by contrast, is defined as a country's (unilateral) adoption of the euro as legal tender.*

[3] *The majority of estimates are based on indirect sources like currency shipments or money demand estimations. In the former case, data often do not provide any information on banknote migration in connection with tourism, workers' remittances or grey economy activities (see ECB, 2007).*

[4] *For an overview of the literature and definitions of asset substitution and currency substitution, see e.g. Giovannini and Turtelboom (1992) or Feige (2000).*

judged to be unobservable in the earlier literature (Calvo and Végh, 1992). Yet another dimension concerns the origin of foreign currency-denominated assets: Do they originate from converted local currency-denominated income, remittances from abroad or foreign currency-denominated income?

To find out more about the various dimensions of euroization in CESEE, the Oesterreichische Nationalbank (OeNB) extended an existing survey, which had been conducted regularly since 1997 in 5 countries, to cover a total of 11 countries in the CESEE region. This new OeNB Euro Survey provides comprehensive data on the extent of and the reasons behind euroization. The harmonized design of the survey allows for comparisons not only across countries, but also across socio-demographic groups. Furthermore, the microdata obtained in the survey provide useful insights into possible determinants of the euroization phenomenon, thus feeding into the academic discussion.[5]

This contribution presents the main results of the first wave of this new survey and results of further waves will be reported regularly in the forthcoming issues of this publication. The remainder of the paper is structured as follows: Section 2 briefly describes the main features of the OeNB Euro Survey, sections 3 and 4 present results on FCC holdings and foreign currency-denominated savings, offering information on the respective currency composition and amounts. Section 5 discusses findings on the motives for holding foreign currency and on people's expectations regarding the prospective introduction of the euro in the countries surveyed. Section 6 concludes.

2 The New OeNB Euro Survey – A Brief Description

The first wave of the new OeNB Euro Survey was conducted by Gallup in October/November 2007. The survey waves will be repeated every half year. Compared to earlier OeNB surveys, the geographical scope of the new survey has been expanded to include 11 countries, comprising 6 EU Member States (Bulgaria, the Czech Republic, Hungary, Poland, Slovakia and Romania) as well as 5 EU candidate and potential candidate countries[6] (Albania, Bosnia and Herzegovina, Croatia, the FYR Macedonia[7] and Serbia). The current survey comprised face-to-face interviews with about 1,000 persons aged 15+. The sample was selected via a multi-stage stratified random sample procedure, with the exception of Bulgaria, where quota sampling was applied. Results are representative for the respective population structure in all countries but Poland, where only the population of the ten largest cities was sampled (for further details, see http://ceec.oenb.at).

The most important questions asked in the survey pertain to the currency composition and amounts of FCC holdings and FCDs as well as to the motives for holding FCC and FCDs. In some aspects, the new OeNB Euro Survey continues earlier surveys commissioned by the OeNB that were conducted in Croatia, the Czech Republic, Hungary, Slovakia and Slovenia (see e.g. Stix, 2002), and thus

[5] *As a case in point, Basso and Calvo-Gonzalez (2007) develop a model to explain the determinants of financial dollarization in a number of transition countries, including the 11 countries covered by the OeNB Euro Survey.*

[6] *The survey does not cover Montenegro and Kosovo, which have both introduced the euro unilaterally.*

[7] *The Former Yugoslav Republic of Macedonia will be referred to as "FYR Macedonia" hereinafter.*

produces data that are comparable with the previous results. Furthermore, a number of new questions have been included, e.g. regarding people's perception of the economic situation and their expectations, which provide interesting data for further research.

When interpreting the results of the new survey, one has to keep several caveats in mind. The first is underreporting. The OeNB Euro Survey focuses on private individuals – it does not cover foreign currency holdings of the corporate sector. Furthermore, underreporting is also likely to occur because of the sensitive nature of some questions, even if the survey does not refer to holdings obtained from grey economy activities or illegal sources (which are typically not disclosed by respondents). Altogether, underreporting will lead to a substantial underestimation of the amounts of foreign currency held by respondents. For example, Šošić (2007) provides estimates on the amount of foreign currency in circulation in Croatia, using data from currency in- and outflows from around the time of the euro cash changeover. The comparable results of the OeNB Euro Survey for Croatia are five times lower than Šošić's estimates. However, it is important to note that it is unclear to what extent this difference can be traced to the availability of data on corporate or private holdings. In any case, the amounts indicated in the survey results are likely to be subject to underreporting and should therefore be regarded as constituting the lower limit of actual figures.

The second caveat relates to the fact that the OeNB Euro Survey focuses on individuals as opposed to households. This means that the questionnaire addresses personal holdings, which might constitute a problem if the interviewees have no adequate knowledge of their household's financial situation. In several cases, moreover, it is difficult to distinguish between personal and household holdings (e.g. in the case of a couple with joint holdings). The questionnaire accounts for this problem by asking whether interviewees hold their foreign currency holdings personally or jointly (together with a partner).

Third, figures may be biased owing to item nonresponse. On average across all countries, 14% of the respondents that reported euro cash holdings refused to state the respective amount, and another 2% of respondents replied that they did not know the specific amount.[8] These nonresponse rates could bias results if item nonresponse is not random. In the following calculations, we did not impute missing values but assumed that nonresponse is random.

Furthermore, while some of the calculations presented below rest on very strong assumptions, some are based on a relatively low number of observations and hence can be expected to be subject to considerable random variation across survey waves (as experience from past surveys suggests).

Despite the above-mentioned caveats, the OeNB Euro Survey provides a unique source of information on several aspects of euroization in CESEE which was hardly or not at all available in the past. Furthermore, survey data from the first wave allow for rough cross-country comparisons and support analyses over time on certain issues addressed by earlier surveys. Finally, the higher number of

[8] *Nonresponse rates ("no answer" plus "don't know" entries) differed considerably across countries, with the highest nonresponse rates reported for some SEE countries (e.g. 36% for Serbia and 35% for Bulgaria) and relatively low rates for Slovakia (5%) and the Czech Republic (9%).*

observations available after the completion of several additional survey waves will provide a more reliable data base for in-depth research on selected issues.

3 Foreign Currency Cash Holdings in CESEE: Sizeable Amounts, Euro by Far the Most Popular Currency

As in previous surveys, the issue of FCC holdings, and in particular of euro cash holdings, is also at the core of the OeNB Euro Survey. Chart 1 shows the responses to the question whether interviewees held foreign currency cash, which can be summarized as follows.

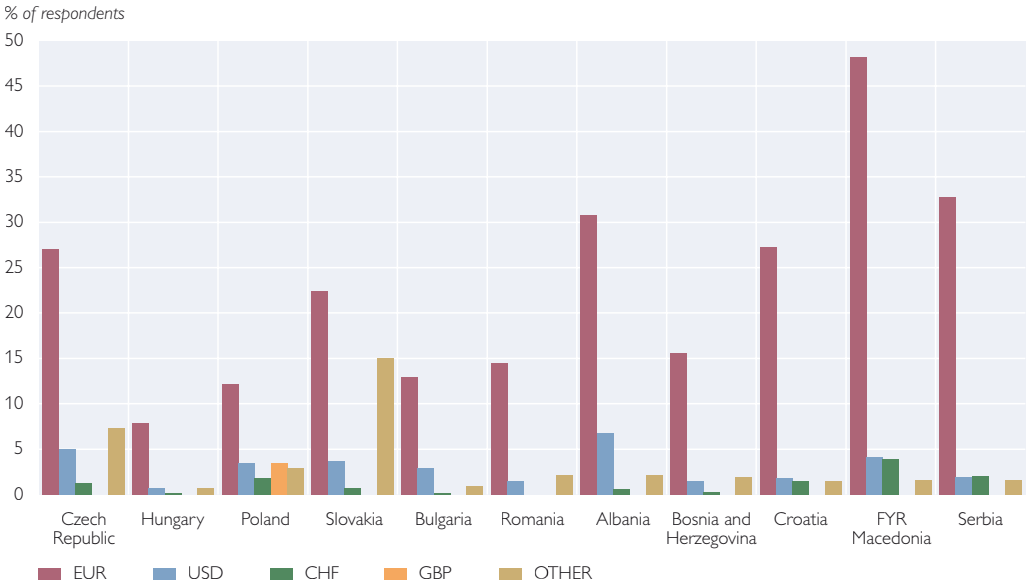
First, the share of respondents holding foreign cash is substantial in some countries and varies considerably across countries, ranging from 8% in Hungary to 49% in the FYR Macedonia.

Second, a currency breakdown reveals the predominant role of the euro in all countries analyzed, with the Southeastern European (SEE) countries showing the highest euro cash holding rates, (e.g. 48% in the FYR Macedonia). In Central and Eastern Europe (CEE), a significantly lower share of interviewees said that they held euro cash; here, the Czech Republic and Slovakia constitute an exception, as euro cash in these countries is used mainly for transactions abroad (see section 5).

Third, in all countries surveyed, the share of respondents reporting cash holdings denominated in U.S. dollar is substantially lower than that of euro cash holders. As earlier OeNB surveys have shown for the CEE countries, the importance of U.S. dollar cash started to decline at the time of the euro cash changeover. Most people in these countries exchanged their legacy currency cash holdings (e.g. Deutsche mark, Austrian schilling) for euro or the respective national currencies, whereas an exchange for U.S. dollar cash was relatively modest (see Stix, 2004, or

Chart 1

Share of Respondents Holding Foreign Cash

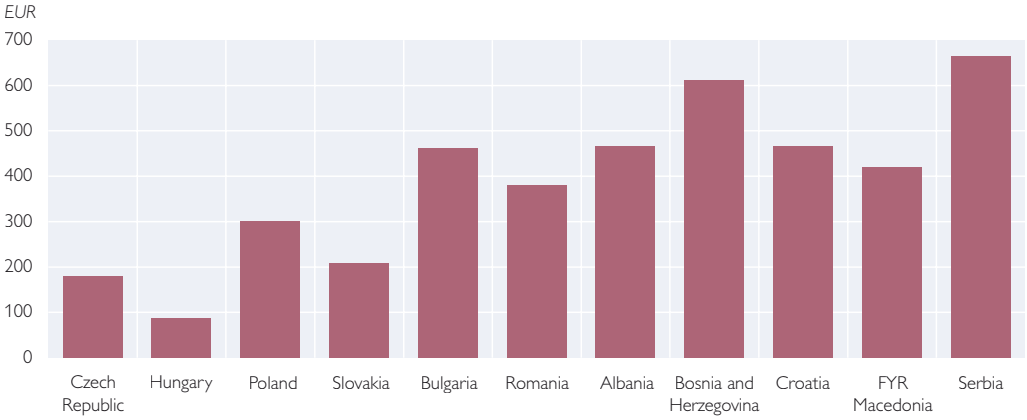


Source: OeNB Euro Survey 2007.

Note: Only the survey conducted in Poland contained questions regarding GBP holdings.

Chart 2

Respondents Holding Euro Cash: Median Amounts



Source: OeNB Euro Survey 2007.

Note: Values are based on categorical answers. The median is calculated by linearily interpolating between class boundaries.

Nauschnigg, 2003). It may well be assumed that a similar exchange behavior was also present in the SEE countries, which were not covered by earlier surveys.

Fourth, cash holdings denominated in foreign currencies other than the euro and the U.S. dollar play a very limited role. Exceptions are pound sterling (GBP) holdings in Poland, which may to a certain extent reflect recent migration flows between Poland and the U.K.,[9] as well as cash holdings of, presumably, the Czech koruna in Slovakia and the Slovak koruna in the Czech Republic.

In general, the overall picture confirms earlier survey data on FCC in Croatia, the Czech Republic, Hungary and Slovakia (see Ritzberger and Stix, 2007). However, the new data reveal that euro holdings are even more widespread in the SEE countries than in the CEE countries.

Chart 2 presents the median amounts of euro cash reported by those interviewees who said they held euro cash. It reveals marked differences between countries, with median amounts ranging from EUR 100 per person in the case of Hungary to more than EUR 650 in Serbia. In general, euro cash holdings are lower in the "older" EU Member States than they are in Bulgaria, Romania, and the other non-EU countries, where median holdings of around EUR 400 or more can be observed.

In principle, the combined answers on euro cash holdings and on the respective euro amounts allow for a projection of per capita euro cash holdings.[10] Keeping in mind the limitations mentioned in section 2 and considering that these projection methods rest on strong assumptions, we obtain the following results for per capita euro cash holdings in the countries under observation: about EUR 12 for Hungary, EUR 80 to EUR 110 for Poland, Slovakia, Bulgaria and

[9] *According to data from the U.K. Workers Registration Scheme, more than 420,000 Polish citizens have applied for the right to work in the U.K. The majority of U.K. immigrants from Poland intend to stay in the U.K. for no longer than six to eight months at the most (see Tanaka, 2007).*

[10] *Per capita figures refer to the population aged 14+.*

Romania, around EUR 170 for Bosnia and Herzegovina, EUR 260 for Croatia and about EUR 310 for Albania, the FYR Macedonia and Serbia.[11] Adjusting these figures for differences in purchasing power would show that the differences between the EU Member States and some SEE countries are even more sizeable than they are in nominal terms.

To sum up, a high proportion of respondents in SEE said they held euro cash, and the amounts they hold are comparatively large. While the share of respondents holding euro cash is also substantial in CEE, the amounts reported are considerably smaller. This leads us to the conclusion that the amount of euro cash in circulation is considerably higher in SEE than in CEE, which may be explained by differences in the motives for holding euro cash in CEE (mainly for shopping abroad) and in SEE (mainly as a store of value). This issue will be discussed in section 5.

4 Foreign Currency Deposits in CESEE: Even More Sizeable than Euro Cash Holdings

Another set of questions in the OeNB Euro Survey deals with foreign currency-denominated savings deposits. In principle, information on the extent of deposit euroization is available from aggregate statistics (e.g. data on the share of euro deposits in total deposits). Data from the OeNB Euro Survey provide valuable additional information. First, the survey data allow for drawing inferences about the distribution of foreign currency savings deposits among the population, also along socio-demographic lines. Second, they provide information on the motives for holding such deposits; thus, agents' decisions can be related to economic determinants (e.g. respondents' expectations regarding exchange rate or interest rate developments). Third, on the basis of the data from the OeNB Euro Survey, it is possible to assess how cash holdings are related to deposit holdings.

Table 1 provides an overview of the main findings concerning deposit euroization. However, caveats about the reliability of the survey results are even more pertinent in this context, as the number of observations for FCDs is very low in some countries (Poland, the Czech Republic and Hungary). First, the share of respondents who indicated that they have one or more savings deposits is generally low compared to EU standards,[12] ranging from only 7% in Bosnia and Herzegovina to 37% in Slovakia. Second, the responses reveal that the shares of FCDs are very heterogeneous across countries, with relatively low shares for CEE countries, intermediate levels for Bulgaria and Romania and very high shares for the other SEE countries. These survey results are broadly consistent with aggregate data on average FCDs as a share of total deposits for the period between 2000 and 2006 (see ECB, 2007).[13]

[11] *Some of these figures can be contrasted with figures from other sources. For Croatia, Kraft (2003) reports estimates of around EUR 800 per capita for the years around the euro cash changeover. As this figure is an estimate and dates back several years, we cannot assess the plausibility of our estimates relative to Kraft's figure.*

[12] *According to a household survey carried out in Austria, 93% of all Austrian households own savings deposits (see Beer et al., 2006).*

[13] *However, the statistical data presented by the ECB are only roughly comparable with the OeNB survey results as they cover both deposits of households and nonfinancial corporations.*

Table 1

Foreign Currency Deposits

	Share of respondents with …		
	…a savings deposit (% of respondents)	… an FCD (% of those who have a savings deposit)	… an FCD denominated in euro (% of those who hold an FCD)
Czech Republic	35	9	94
Hungary	21	8	97
Poland	11	18	76
Slovakia	37	13	87
Bulgaria	22	28	75
Romania	17	42	98
Albania	24	58	87
Bosnia and Herzegovina	7	78	89
Croatia	25	63	94
FYR Macedonia	21	72	96
Serbia	10	84	94

Source: OeNB Euro Survey.

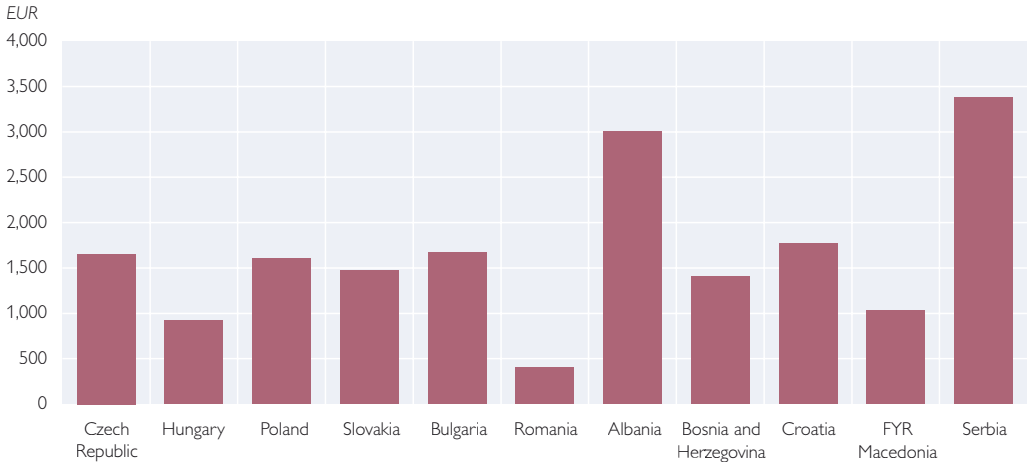
Note: For some countries the number of observations is low and hence computed shares may not be reliable. FCD stands for foreign currency deposit.

Third, the survey results indicate that in all countries under review, the bulk of foreign currency deposits is denominated in euro. This outcome is largely in line with aggregate data collected by the ECB (see ECB, 2007).

Chart 3 shows the size of euro-denominated savings deposits in the CESEE countries; it reveals that euro amounts held in savings deposits are significantly higher than those held in cash. At the same time, the number of respondents who said they held savings deposits was lower than that of interviewees reporting cash holdings. As a case in point, the amounts of euro-denominated deposits reported

Chart 3

Respondents Holding Euro Savings Deposits: Median Amounts



Source: OeNB Euro Survey 2007.

Note: For some countries (Bosnia and Herzegovina, Bulgaria, the Czech Republic, Hungary, Poland) the number of observations is low (less than 30) and hence medians may be unreliable.

from Albania are more than six times higher than those of euro cash holdings, but only 14% of Albanian respondents said they held FCDs.

Of course, it would be interesting to project deposit holdings to the entire population of CESEE and to relate cash to deposits holdings. However, at this stage we refrain from conducting this exercise, given the low number of observations available.

5 Motives for Holding Euro: Differences between CEE and SEE

When it comes to assessing the degree of a country's de facto euroization, the OeNB Euro Survey provides very useful insights into people's motives for holding FCC. If euro cash is held primarily as a store of value, this points to a certain degree of asset substitution, which is generally seen as a first step toward euroization. The use of a foreign currency for domestic transactions is regarded as the final step toward currency substitution. Another possible reason for people to hold FCC is that they use it in transactions abroad (e.g. during shopping trips or vacations to (neighboring) euro area countries).

Chart 4, which presents the classical set of motives for holding euro cash, shows clearly discernible differences between CEE and SEE countries.

In CEE, the prime motive for holding euro cash is to make payments abroad. Previous OeNB surveys have shown that in CEE countries, the store-of-value function of holding euro cash has decreased over the past few years, whereas the importance of holding euro cash for making payments abroad has increased. This development reflects the more advanced economic situation and the higher macroeconomic stability in the region.

In SEE, the store-of-value function is the key motive for holding euro cash. At first glance, it may seem striking that people virtually hoard euro cash under their mattresses, which means they forego interest earnings. One possible explanation for this behavior may be that a high percentage of respondents perceives the euro as a "very stable and trustworthy currency." Another explanation may be that respondents still remember previous periods of high inflation or hyperinflation and consequently lack confidence in their domestic currencies (Backé, Ritzberger and Stix, 2007). This explanation is to some extent underpinned by the survey results which, for some countries, show high rates of agreement to the following statement: "I remember periods of high inflation during which the value of the local currency dropped sharply."[14] These results might also be attributable to the poor availability of banking services and the low perceived safety of bank deposits, which might affect the choice between FCC and FCDs (Feige, 2003; Stix, 2008).[15]

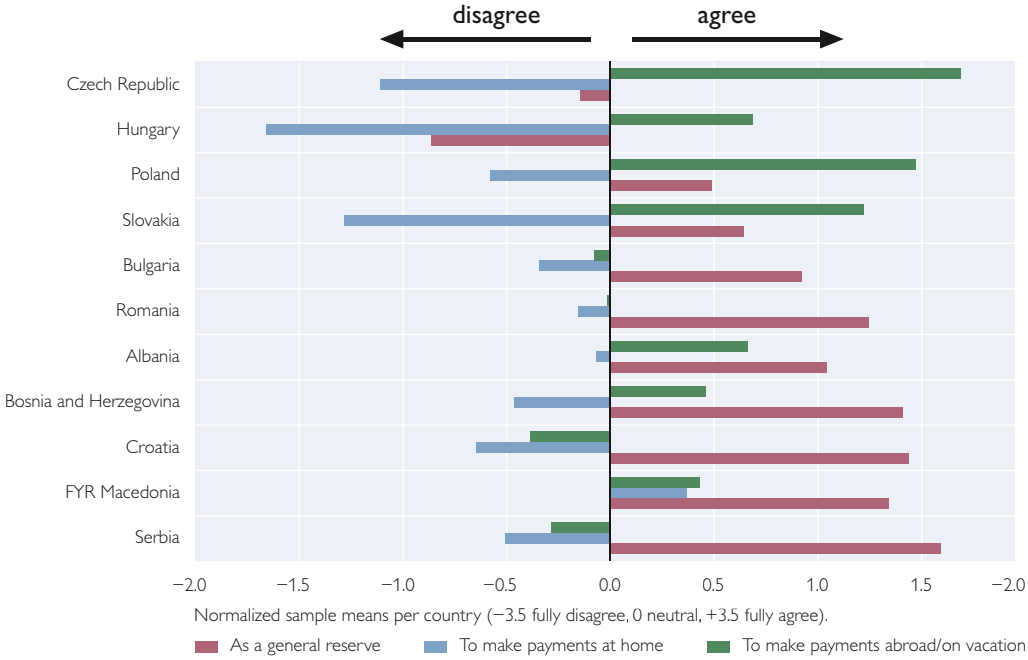
As regards the use of euro cash for domestic transactions, chart 4 indicates that this does not seem to be a major motive for keeping euro cash in any of the SEE or CEE countries surveyed, at least in relation to the other two motives.

[14] *Please note that the questions on the euro's reputation and on people's recollection of past periods of inflation were read out to all interviewed persons, irrespective of whether they had reported foreign currency holdings or not.*

[15] *Using data from Croatia, Slovakia and Slovenia, Stix (2008) shows that people's assessment of bank deposit safety significantly affects their choice of holding FCC or FCDs. His results also provide indirect support for the assumption that the provision of banking services has an impact in this context.*

Chart 4

Motives for Holding Euro Cash



Source: OeNB Euro Survey 2007.

Note: Respondents who said they held euro cash were asked whether they agreed or disagreed on a scale from 1 (fully agree) to 6 (fully disagree) to a list of motives for holding euro cash (see legend).

However, the survey also includes a direct question on the use of the euro for domestic payments. In Albania, Bosnia and Herzegovina, the FYR Macedonia and Serbia, between 20% and almost 50% of the respondents said that they had made payments in euro in their respective country within the past six months.

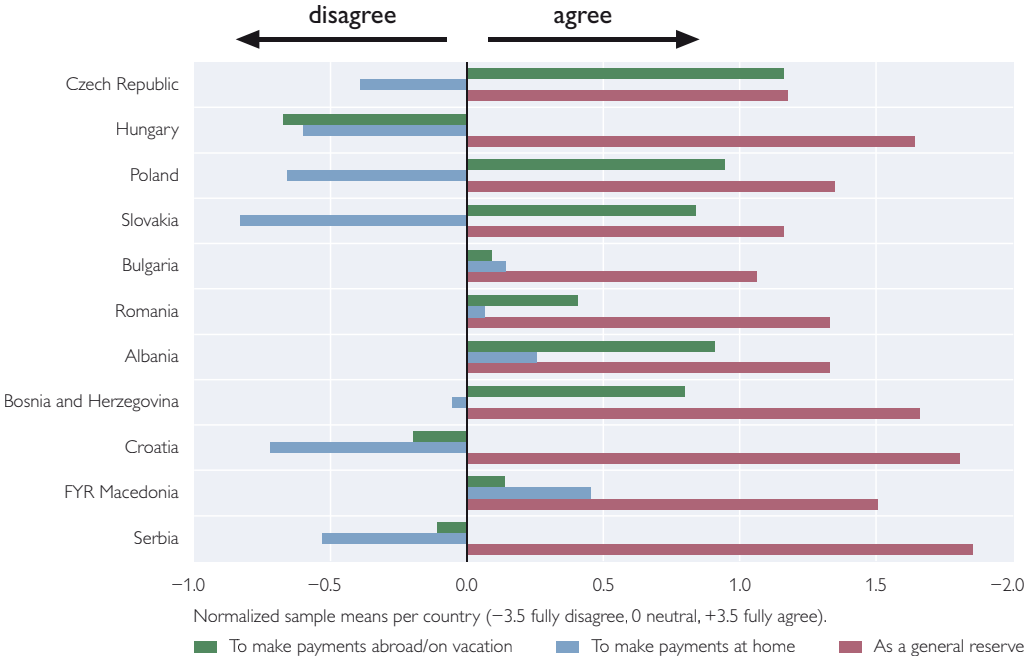
It is not surprising that the predominant motive for holding euro-denominated savings deposits is the store-of-value function – a fact which again points to asset substitution (see chart 5).

The good reputation of the euro as well as people's recollection of past periods of inflation may also have contributed to this development. Furthermore, as with the reasons for holding euro cash, respondents from some countries said that they hold euro-denominated savings deposits in order to make payments abroad. Interestingly, Hungarians did not regard this motive as important in connection with deposits, but as quite important in the case of cash holdings. Again, according to the respondents of all countries surveyed, making payments in euro in their own country was not a major reason for holding euro-denominated savings deposits.

Apart from the three classical motives for holding FCC or FCDs, the OeNB Euro Survey's questionnaire addresses a number of other possible reasons for euroization. Chart 6 presents a set of selected additional motives for holding euro cash. First, respondents were asked whether they held euro cash because the euro is better protected against counterfeiting than the respective local currency. This reason was found to be of some relevance in Albania, Bosnia and Herzegovina, and the FYR Macedonia. Second, people were asked if their euro cash holdings were ascribable to payments that they received in euro. In all countries surveyed,

Chart 5

Motives for Holding Euro Savings Deposits



Source: OeNB Euro Survey 2007.

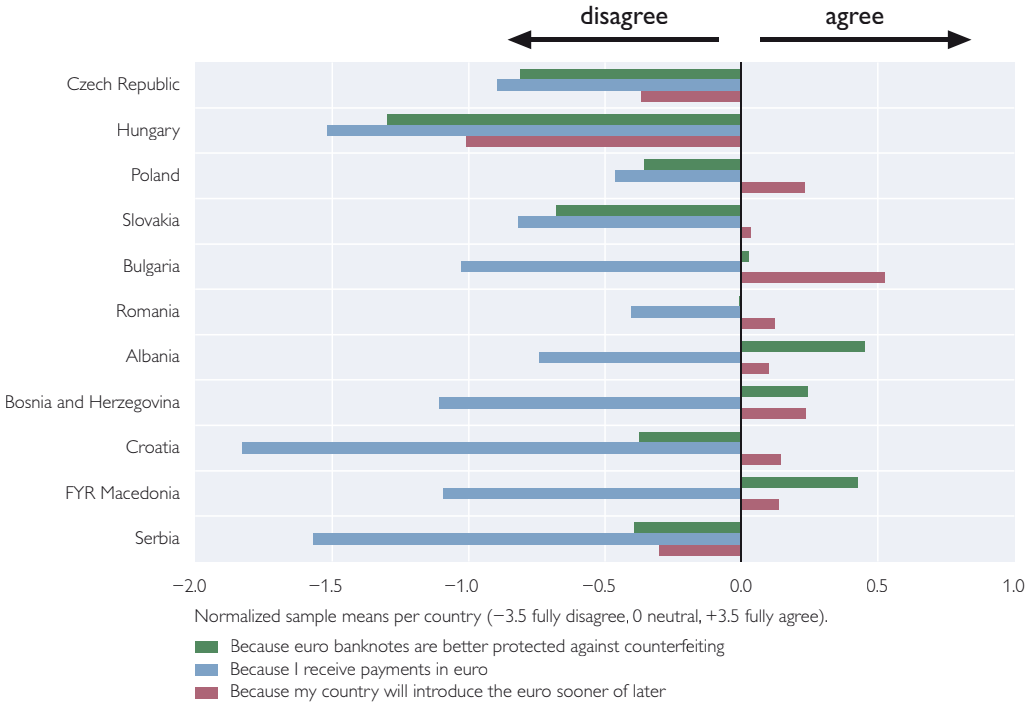
Note: Respondents who said they held euro savings deposits were asked whether they agreed or disagreed on a scale from 1 (fully agree) to 6 (fully disagree) to a list of motives for holding euro savings deposits. For some countries (the Czech Republic, Hungary and Poland) the number of observations is very low (less than 40).

respondents on average disagreed with this notion, which might be related to the fact that the question touches on a sensitive issue. Third, the increased use of the euro in the region may, at least partly, be attributed to the prospects of the respective country's monetary integration with the euro area (see Levy Yeyati, 2006). Thus, respondents were asked whether they held euro cash because they expected their country to introduce the euro at some stage. Of the EU Member States under investigation, this consideration reportedly played a role only in Bulgaria and, to a lesser extent, Poland. It is interesting to note that this expectation was also found to be of relevance in some SEE countries although they have not even joined the EU yet.

Chart 7 shows the results of the OeNB Euro Survey on people's expectations regarding the prospective introduction of the euro in their country. Not surprisingly, over 70% of respondents from Slovakia expect that the euro will be introduced by 2009 or 2010, as the country's official target date is January 2009. For the other EU Member States, results are quite mixed: The share of respondents who expect the euro to be introduced by 2012 at the latest is relatively high in Bulgaria and substantially lower in Poland, Romania, Hungary and the Czech Republic. The results for the six EU Member States analyzed are broadly consistent with survey data obtained by the Flash Eurobarometer, in particular as regards cross-country differences (see European Commission, 2007). In this context, particular attention should be paid to the share of nonresponses and of people who said they thought their country would never introduce the euro. To a certain extent, these (non)responses can be seen as a reflection of the respective

Chart 6

Additional Motives for Holding Euro Cash



Source: OeNB Euro Survey 2007.

Note: Respondents who said they held euro cash were asked whether they agreed or disagreed on a scale from 1 (fully agree) to 6 (fully disagree) to a list of motives for holding euro cash.

government's communication policy on this issue: Some EU Member States currently do not have an official target date for the introduction of the euro or have abandoned their previously envisaged target dates.[16] Turning to those SEE countries that have not yet joined the EU, the respondents from all countries except Croatia clearly believe that introducing the euro is a more distant perspective for their countries. In this region, too, the nonresponse item may be related to government policies with respect to EU relations.

6 Conclusions

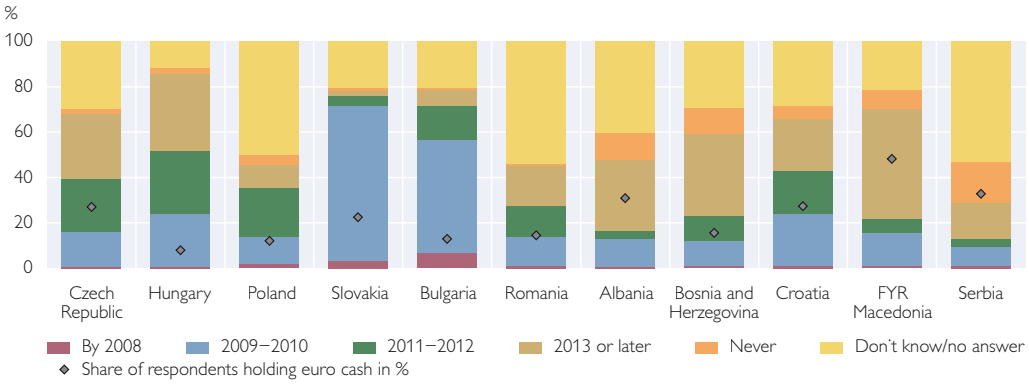
First results of the OeNB Euro Survey, which was conducted in 11 CESEE countries, show that the euro dominates foreign currency-denominated assets (both cash and deposits). This might be related to the fact that among the population in the region the euro enjoys a good reputation as a stable and trustworthy currency.

The survey reveals considerable differences across countries with respect to both the distribution and the amount of euro cash holdings. In general, euro cash appears to be more important in the SEE than in the CEE countries: While in SEE

[16] *The Czech Republic, Hungary, Poland and Romania currently do not have an official target date for the introduction of the euro. The Czech Republic even dropped its originally envisaged target date of 2010. Bulgaria, by contrast, has officially announced it will introduce the euro "as soon as possible."*

Chart 7

Expected Date of Euro Adoption



Source: OeNB Euro Survey 2007.

about 26% of respondents hold a median amount of about EUR 470 in cash, in CEE some 17% hold around EUR 190. Among those respondents who have savings deposits, we find that in SEE countries a higher share makes savings in foreign currency than in CEE countries.

Taken together, the results on foreign currency cash holdings and deposits suggest that the euro plays a more substantial role in SEE than in CEE. This corresponds well to the results regarding the motives why people hold foreign currency-denominated assets. In the SEE countries, people tend to agree to the statement that they hold euro as a general reserve or a means of precaution. By contrast, in CEE the most important reason to hold euro cash is to pay for shopping abroad. This suggests that in SEE euroization mainly takes place in the form of asset substitution, while in CEE countries this is the case only to a lesser extent.

Overall, the OeNB Euro Survey provides a unique source of information on the role of the euro in CESEE and it is expected to deliver interesting time series over the medium term, leaving ample room for further research in this area.

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Croatia: Coping with Rapid Financial Deepening[1]

Sándor Gardó[2]

The Croatian banking sector underwent sweeping structural changes in the late 1990s and has remained relatively stable and profitable since then. Driven by brisk credit growth, financial deepening has continued rapidly in recent years, with the level of bank intermediation now being among the highest in Central, Eastern and Southeastern Europe. With regard to financial stability, relatively high credit and foreign exchange risks would appear to constitute the main challenges. However, the most recent slowdown in domestic credit growth and the sector's relatively high shock-absorbing capacities, as indicated by quite high profitability and capitalization levels and the strategically oriented presence of foreign banks, help mitigate risk concerns. Yet, the increasing debt burden of both households and corporates requires careful monitoring.

1 Introduction

The main aim of the study is to give a thorough overview of most recent financial sector developments in Croatia, notably with regard to banking sector stability, and to highlight possible macrofinancial challenges. The study also provides updated evidence and information on the financial sector in Croatia, following up on earlier OeNB studies on these issues (especially Reininger and Walko, 2005).

An introductory overview of macroeconomic conditions in section 2 puts financial developments in perspective and points out some factors of external vulnerability. Section 3 provides empirical insights into recent banking market developments – inter alia – by analyzing the structure, balance sheet structure and profitability of the banking market, followed by an examination of the underlying risk factors and the sector's shock-absorbing capacity. Section 4 focuses on nonbank financial intermediaries as well as on stock and bond markets. Section 5 concludes.

2 Macroeconomic Developments

In recent years the Croatian economy has maintained the strong momentum observed since the beginning of the new millennium, with the year 2007 even bringing a substantial boost to economic activity (see table 1). Domestic demand remained the main pillar of economic growth, with private consumption replacing investment as the key driver of growth against the background of brisk credit expansion, rising income growth and considerably improving labor market conditions. Similarly, public consumption accelerated markedly ahead of parliamentary elections in autumn 2007, thereby contributing to a less balanced composition of economic growth. The contribution of net exports to growth improved slightly in 2007, but remained modestly negative.

Despite booming domestic demand and its limited room for maneuver, Hrvatska narodna banka (HNB, Croatia's central bank) has been successful in maintaining low inflation in 2006 and the first three quarters of 2007. Consumer price inflation fell gradually from a temporary peak in 2005 to below 3% on aver-

[1] *Cutoff date for data: May 5, 2008.*

[2] *Oesterreichische Nationalbank (Foreign Research Division); sandor.gardo@oenb.at.* *The author would like to thank Evan Kraft (Hrvatska narodna banka), Peter Backé and Zoltan Walko (both OeNB) for their valuable comments. An earlier version of the study was also discussed with and commented on by experts from the ESCB.*

Table 1

GDP Growth and Growth Contributions

	2002	2003	2004	2005	2006	2007
Real GDP growth (annual change in %)	5.6	5.3	4.3	4.3	4.8	5.6
	Contribution to growth (percentage points)					
Total consumption	5.8	3.1	2.9	2.3	2.5	4.4
of which: private consumption	*4.6*	*2.8*	*2.9*	*2.1*	*2.1*	*3.7*
public consumption	*1.1*	*0.3*	*−0.1*	*0.2*	*0.4*	*0.7*
Gross fixed capital formation	3.1	6.0	1.4	1.4	3.2	2.0
Inventories[1]	3.4	−1.9	0.1	0.6	0.2	0.0
Balance of goods and services	−6.7	−1.8	−0.1	0.1	−1.1	−0.8

Source: Crostat; OeNB calculations.

[1] *Including statistical discrepancy.*

Table 2

Nominal and Financial Indicators

	2002	2003	2004	2005	2006	2007
Inflation (CPI, annual average)	1.7	1.8	2.1	3.4	3.2	2.8
Money market overnight interest rate (annual average)	1.8	3.0	4.6	2.3	1.6	4.1
Real short-term interest rate (contemporaneous)	0.1	1.2	2.5	−1.1	−1.6	1.2
Domestic credit (annual change in %)	33.6	16.8	13.1	20.3	22.7	13.3
Exchange rate (euro, annual average)	7.4	7.6	7.5	7.4	7.3	7.3
Nominal effective exchange rate (2001 = 100)[1, 2]	97.8	95.0	91.7	90.4	89.3	87.3
Real effective exchange rate (2001 = 100)[1, 3, 4]	98.2	95.7	92.6	90.6	88.9	86.5

Source: HNB.

[1] *Period averages.*
[2] *Decreasing index denotes nominal appreciation of the kuna.*
[3] *CPI-deflated.*
[4] *Decreasing index denotes real appreciation of the kuna.*

age in 2007 (see table 2). However, given adverse global food and energy price developments, inflation accelerated in the final quarter of the year and reached a seven-year high of nearly 6% in year-on-year terms by end-2007. This, coupled with strong demand for liquidity in light of several public offerings of shares in major companies and bond issues, caused the falling trend of nominal interest rates to reverse as of early 2007 and real short-term interest rates to move into positive territory in 2007 (in annual average terms).[3]

Against the background of booming domestic demand and reaccelerating credit growth in 2005 and 2006 (in both the corporate and retail sectors) monetary policy remained challenging also in 2006 and 2007. Given the HNB's determination to curtail bank lending and to rein in banks' foreign borrowing in order to mitigate external imbalances (and also considering the limited maneuvering room for interest rate policy under the tightly managed float), the HNB continued to curb lending growth on several occasions in the last two years by introducing and fine-tuning new administrative measures (e.g. credit ceilings) and tightening

[3] *As of end-2007, the real interest rate was again mildly negative, as inflation increased faster than nominal interest rates.*

Table 3

Fiscal Indicators

	2002	2003	2004	2005	2006	2007
General government balance (% of GDP)[1]	−4.1	−5.5	−4.3	−4.0	−2.5	−1.6
General government debt (% of GDP)[1]	40.1	41.0	43.2	43.7	40.8	37.7

Source: Eurostat.

[1] *According to ESA 95 methodology.*

reserve requirement regulations. As a consequence, domestic credit growth moderated in 2007 (see section 3.4.1 for a more detailed discussion).

On the back of buoyant GDP growth, Croatia's headline fiscal balances continued to improve in 2006 and 2007 (see table 3). Fiscal developments were, however, to a large extent underpinned by revenue overperformance, with the lion's share of extra revenues being spent in the areas of health care, education and agriculture. In this context, the HNB's limited room for maneuver and the country's high external imbalances would warrant a more prudent fiscal course. Public finances are still burdened with subsidies for various industries (e.g. shipping), high health and pension commitments (e.g. pensioner's debt)[4] as well as other quasi-fiscal commitments, which are in many cases not included in the general budget and which amounted to more than 1% of GDP in 2006 and 2007, respectively. Thus, ensuring lasting fiscal consolidation through spending restraint remains an important challenge.

The acceleration of domestic demand as well as the sharp rise in oil and commodity prices triggered a further deterioration in Croatia's external position in 2006 and 2007 (see table 4). The current account deficit reached nearly 8% of GDP in 2006, and increased further to over 8.5% of GDP in 2007. However, thanks to sizeable capital increases in the banking sector and progress made in the privatization of state-owned enterprises (with strong foreign participation), gross FDI inflows accelerated substantially as well and provided full coverage of the current account gap both in 2006 and 2007. Croatia's gross external indebtedness increased further in recent years, although at a somewhat slower pace than at the beginning of the decade and against the background of a marked change in the country's external debt structure. On this note, the debt share of "other sectors" (primarily nonfinancial corporations) in total external debt rose markedly, while the banking sector's share decreased at about the same rate, given the HNB's determination to curb credit growth based on banks' foreign liabilities, which broadly indicates corporations' rising preference to borrow directly abroad rather than through domestic banks. The foreign exchange reserves of the HNB have continued to grow in euro terms on the back of capital inflows and central bank interventions and corresponded to an import cover of over five months as of end-2007.

[4] *This debt accumulated because, between 1993 and 1998, pensions were not indexed to rises in wage levels, but to price level changes. As a result, the real value of the pensions declined considerably. According to a 1998 Constitutional Court ruling, the state had to assume liability for these unpaid pensions (amounting to some 6% of GDP in 2006). Pensioners were given the option to receive 50% of the money in four instalments in 2006 and 2007 or the full amount over a longer period (2008 to 2013).*

Table 4

External Position of the Economy

	2002	2003	2004	2005	2006	2007
Current account balance (% of GDP)	−8.6	−7.2	−5.1	−6.3	−7.9	−8.6
Gross FDI inflows (% of GDP)	4.7	6.7	3.3	4.7	8.0	9.7
External liabilities of the public sector (% of GDP)[1]	29.5	31.7	29.9	27.2	24.1	24.7
Gross external debt (total economy, % of GDP)	61.9	75.8	80.0	82.3	85.6	87.8
International reserves (no. of months of import)	4.9	5.2	4.8	5.1	5.3	5.2

Source: HNB.

[1] *The public sector comprises the general government (including the Republic of Croatia, central government funds and local governments), the HNB, public enterprises and mixed-ownership companies.*

Higher revenues from tourism, increased privatization-related capital inflows, capital increases in several foreign banks' subsidiaries, a number of domestic government bond issues and stepped-up foreign borrowing of corporations created substantial appreciation pressures on the Croatian kuna in the course of 2006 and 2007. However, in accordance with its exchange rate policy objectives, the HNB kept the exchange rate largely stable (in nominal terms) by means of foreign exchange market interventions, thereby also trying to prevent a deterioration of the country's external competitiveness.

3 The Croatian Banking Sector

3.1 Banking Sector Structure

Following major structural transformation at the end of the 1990s and the beginning of the new millennium, the Croatian banking sector has not seen further fundamental change in most recent years. Owing to slowing merger and acquisition activity, the number of banks has fallen only marginally in the last few years to 33 as of end-2007, a figure which seems still high in a regional context (see table 6).

The Croatian banking industry continues to be dominated by foreign ownership (see table 5). Although the number of majority foreign-owned banks increased from 14 to 16 in the last two years, their share in total assets has remained stable at around 90% of total banking sector assets. Foreign ownership is fairly concentrated, with investors from Austria, Italy and France taking the lead. In this context, especially the strong presence of Austrian banks is noticeable, with all major Austrian banking groups being present in Croatia. According to HNB data, Austrian groups (including Bank Austria, which is a member of the UniCredit Group) accounted for some 60% of Croatia's banking sector assets in 2007, corresponding to roughly two-thirds of total foreign involvement (in terms of total assets). Vice versa, the total assets of Austrian banks' subsidiaries in Croatia accounted for roughly 6% of Austrian banks' total foreign exposure and for some 13% of their total exposure in Central and Eastern Europe (CEE) in 2007; this means that Croatia is Austria's third-highest foreign-country exposure after the Czech Republic and Romania.

Despite the large number of banks, the banking sector is fairly concentrated. The four largest banks claimed a market share of some 64% of total assets as of year-end 2007. On this note, the large number of small banks (23 in total), all having a strong regional focus and a market share of less than 1% (8.1% in total),

Table 5

Ranking of Croatian Banks in Terms of Total Assets as at December 31, 2007[1]

	Bank name	Main shareholders[2]	Total assets (EUR million)	Share in total assets (%)
1.	Zagrebacka Banka d.d.	Bank Austria Creditanstalt AG (84.2%), Allianz SE (11.7%)	10,926.2	23.2
2.	Privredna Banka Zagreb d.d.	Intesa Bci Holding International S.A. (76.6%), EBRD (20.9%)	8,362.8	17.8
3.	Erste & Steiermärkische Bank d.d.	Erste Bank der Österreichischen Sparkassen AG (54.8%), Steiermärkische Bank und Sparkassen AG (41%)	5,532.6	11.8
4.	Raiffeisenbank Austria d.d.	Raiffeisen International Bank-Holding AG (75%), Raiffeisenbank-Zagreb Beteiligungs GmbH (25%)	5,235.8	11.1
5.	Hypo Alpe-Adria-Bank d.d.	Hypo Alpe-Adria-Bank International AG (100%)	3,602.5	7.7
6.	Société Générale-Splitska Banka d.d.	Société Générale (99.8%)	3,523.0	7.5
7.	Hrvatska Poštanska Banka d.d.	Croatian Privatisation Fund (37%), Hrvatska pošta (33.6%), Croatian Pension Insurance Administration (28%)	1,976.3	4.2
8.	OTP Banka Hrvatska d.d.	OTP Bank RT (100%)	1,633.3	3.5
9.	Slavonska Banka d.d.	Hypo Alpe-Adria-Bank International AG (99.9%)	1,439.3	3.1
10.	Volksbank d.d.	VB International AG (99.2%)	994.4	2.1

Source: HNB.

[1] *Preliminary unaudited data.*
[2] *As of June 2007.*

may suggest potential for further market consolidation in the years ahead. This will most likely bring about higher concentration levels and possibly further foreign involvement.

Market penetration with banking services has increased considerably in recent years. The number of operating units rose from 1,037 in 2004 to 1,151 as of June 2007, while at the same time the number of automated teller machines (ATMs) grew by 1,155 to 2,766. Despite considerable network expansion there was only one operating unit for every 3,850 inhabitants, which is still more than twice the EU average of around 1,750. Network expansion went hand in hand with a considerable rise in bank staffing levels. As of June 2007 the banking sector comprised 20,172 employees, up by some 2,750 over 2004. Banking infrastructure signals a considerable geographical concentration of banking activities, with around 52% of all operating units and 57% of all ATMs registered in just four counties (out of a total of 20), i.e. Zagreb, Split-Dalmatia, Istria and Primorje-Gorski Kotar.[5] This seems to indicate some susceptibility to regional shocks.

The banking sector's institutional framework seems to be well developed (see table 6). The EBRD's Banking Sector Reform Index (inter alia accounting for the quality of bank regulation and supervision, banking competition and the level of financial deepening) attests Croatia a good standing with a view to the state of banking reform – the country has even made more progress in this field than many other CESEE economies. Among the CESEE EU Member States, only Hungary, the Czech Republic, Estonia and Latvia had a similarly high ranking in 2007.

[5] *It should be noted, however, that the high degree of regional concentration might be explained to a large extent by the overall economic strength of these regions, with the four counties mentioned above accounting for over 60% of Croatia's GDP. An additional explanation might be the strong role of tourism in these counties.*

Table 6

Structure of the Croatian Banking Sector

	2002	2003	2004	2005	2006	2007
EBRD Index of Banking Sector Reform	3.7	3.7	4.0	4.0	4.0	4.0
Number of banks (foreign owned)	46 (23)	41 (19)	37 (15)	34 (14)	33 (15)	33 (16)
Number of banks per 100,000 inhabitants	1.04	0.92	0.83	0.77	0.74	0.74
Asset share of private banks (%)	96.0	96.6	96.9	96.6	95.8	95.3
Asset share of foreign banks (%)	90.2	91.0	91.3	91.3	90.8	90.4
Market share of the four largest banks in total assets (%)	58.6	61.6	64.9	64.9	64.0	63.9
Herfindahl-Hirschmann index[1]	1,237	1,270	1,363	1,358	1,297	1,279

Source: HNB, EBRD; OeNB calculations.

[1] *Sum of the squared asset shares of individual banks. The index ranges between 0 and 10,000. A figure below 1,000 suggests a nonconcentrated sector, whereas a figure above 1,800 indicates high concentration.*

3.2 Asset and Liability Structure

Croatia has seen continuing financial deepening in recent years. Total banking sector assets reached 122% of GDP as of end-2007, which is among the highest in CESEE, but still well below the euro area average of some 300%.

Claims on nonbank residents represent the bulk of total banking sector assets (see table 7), with their share in total assets increasing to some 86% by 2007 thanks to the sustained strong momentum of the domestic credit market. At the same time, the need to finance domestic credit growth also caused banks' foreign assets to decrease to around 14% as a share of total assets in 2007. For similar reasons, banks' foreign liabilities kept growing strongly in absolute terms in recent years, while maintaining a fairly stable share of around 26% in total liabilities since 2003. Consequently, banks' net foreign asset (NFA) position turned strongly negative, reaching –12.2% of total assets as of end-2006. In 2007, however, banks' NFA position improved considerably, to –5,8% of total assets, following additional HNB measures to contain bank lending based on foreign borrowing and massive capital increases at foreign banks' subsidiaries (most likely enabling them to repay foreign liabilities), which led to a decrease of the share of foreign in total liabilities to below 20% as of end-2007.

Banks' claims on the private sector[6] account for the lion's share of domestic claims (71.4%), with their share in total assets at 61.5% as of end-2007 being somewhat lower. In fact, despite the continuing tight monetary policy of the HNB, lending to the private sector accelerated considerably in 2005 and 2006, mainly on the back of a substantial revival in corporate lending and sustained strong growth of the retail segment. Placement growth was especially strong in the final quarter of 2006 given banks' intention to increase the calculation base ahead of the introduction of credit ceilings (the violation of which triggers the compulsory purchase of low-yielding HNB bills) as of the beginning of 2007. Partly as a result of the restrictive measures, lending to the private sector slowed considerably in the course of 2007. However, with banks' strategies still favoring the more profitable retail business (possibly also mirroring corporations' better access to foreign

[6] *The private sector comprises households and enterprises (including public sector enterprises).*

Table 7

Asset Structure of the Croatian Banking Sector

	2002	2003	2004	2005	2006	2007
Commercial bank assets (% of GDP)	91.4	98.4	104.9	110.4	119.4	122.3
	% of total assets					
Total domestic claims	84.3	81.9	80.7	86.1	86.8	86.2
Claims on domestic MFIs	12.4	13.9	15.2	16.6	16.5	15.4
Claims on domestic nonbanks	71.9	67.9	65.5	69.5	70.2	70.8
of which:						
general government	*14.1*	*11.8*	*10.1*	*12.0*	*10.0*	*9.2*
domestic households and enterprises	*57.8*	*56.1*	*55.3*	*57.5*	*60.3*	*61.5*
domestic enterprises	*31.8*	*27.9*	*26.4*	*26.7*	*28.3*	*28.0*
domestic households	*26.0*	*28.2*	*28.9*	*30.8*	*32.0*	*33.6*
Foreign assets	15.7	18.1	19.3	13.9	13.2	13.8
Claims on domestic households (% of total claims on households and enterprises)	45.0	50.2	52.3	53.5	53.0	54.6
	%					
Loans-to-claims ratio for domestic nonbanks	81.8	85.6	87.1	87.3	90.3	90.4
of which:						
general government	*29.1*	*37.6*	*39.9*	*42.8*	*48.9*	*46.3*
domestic households and enterprises	*94.7*	*95.7*	*95.7*	*96.6*	*97.1*	*97.0*

Source: HNB; OeNB calculations.

financing), the slowdown in lending to corporations (which increasingly switched to direct external borrowing) was much more pronounced. Consequently, the share of household claims in total assets continued to increase also in 2007, as did their share in total private sector claims.[7] A recent study shows that nonbank private sector credit levels in Croatia in 2006 were within an equilibrium range that underlying fundamentals would suggest. At the same time, credit levels have inched up in recent years relative to the estimated equilibrium ranges and by 2006 have moved above the midpoints of these ranges.[8]

Banks' claims on the general government are at relatively low levels, even though central and local governments have been borrowing more heavily domestically for the purpose of servicing maturing foreign debt by taking out loans or by issuing government bonds and T-bills issued by the finance ministry. On this note, as reflected by the fact that the loans-to-claims ratio has increased substantially since 2002, governments have come to increasingly rely on bank loans rather than securities issuance.

Concurrently, strict reserve requirements have kept banks' claims on domestic monetary financial institutions (MFIs; mostly deposits with the HNB and HNB bills) at relatively high levels since 2005, although falling somewhat in 2007, most likely as a result of moderating credit growth and banks' decreasing foreign liabilities.

Banks' liabilities are dominated by deposits of domestic nonbanks, mainly private sector deposits (see table 8). Robust economic growth, good corporate finances, improving labor market conditions, banks' efforts to mobilize domestic

[7] *For more details on household lending in Croatia see Kraft (2007).*

[8] *See Backé, Égert and Walko (2007).*

Table 8

Liability Structure of the Croatian Banking Sector

	2002	2003	2004	2005	2006	2007
	% of total liabilities					
Deposits of MFIs	0.1	0.6	0.4	2.3	2.6	3.7
Deposits of domestic nonbanks	68.7	63.7	60.4	59.2	59.0	61.3
of which:						
general government	*5.1*	*4.0*	*4.2*	*4.5*	*4.4*	*5.0*
households and enterprises	*63.6*	*59.7*	*56.2*	*54.7*	*54.6*	*56.3*
Money market fund shares	0.0	0.0	0.0	0.0	0.0	0.0
Debt securities issued	0.1	0.3	0.5	0.4	0.3	0.4
Capital and reserves	15.9	14.0	12.7	12.8	13.6	15.8
Foreign liabilities	21.1	25.6	27.1	26.3	25.4	19.4
Remaining liabilities	−6.0	−4.3	−1.1	−1.0	−0.9	−0.5
	memorandum items: %					
Domestic nonbanks' claim-to-deposit ratio	104.6	106.6	108.4	117.4	119.2	115.5
General government's claim-to-deposit ratio	273.8	293.5	242.6	266.4	227.2	185.2
Households' and enterprises' claim-to-deposit ratio	90.9	94.0	98.4	105.1	110.5	109.3

Source: HNB; OeNB calculations.

savings in order to substitute cheaper domestic sources of finance for relatively expensive and administratively penalized foreign funding, as well as the wealth effects of the 2006/2007 stock market boom have underpinned solid private sector deposit growth in recent years. Consequently, after several years of a falling trend, the share of domestic nonbank deposits in total liabilities increased markedly in 2007. By the same token, the share of capital and reserves grew vigorously to some 16% of total liabilities by year-end 2007 following large-scale capital increases in the banking sector in 2006 and 2007. At the same time, banks' increased capitalization, additional HNB action to safeguard banking sector stability and strong deposit growth led to a sharp drop of banks' foreign liabilities in 2007.

Household deposits accounted for 62.7% of total deposits (excluding deposits of nonresidents) as of end-2007, while the private sector (comprising households and nonfinancial corporations) made up around 90% of total deposits. The term structure of deposits reveals the predominance of time deposits, the share of which increased gradually from 65.2% of total deposits in 2003 to 69% by end-2007. This went fully to the detriment of savings deposits: Their share fell from 17.2% to 11.5% over the same period, while that of giro and current account deposits increased slightly to 19.5%. Foreign currency-denominated positions (mainly in euro) continue dominating the liability side of the banking sector,[9] also owing to the fact that tourism revenues and workers' remittances are largely earned in foreign currency. Some 60% of time deposits[10] are denominated directly in foreign currency. If foreign currency-indexed deposits are taken into account as well, the share of foreign currency deposits rises to 67%. Around 90% of residents' foreign

[9] *For more evidence on the role of foreign currencies in household savings in Croatia (and other CESEE countries) see Stix (2008) as well as Dvorsky, Scheiber and Stix (2008).*

[10] *No currency breakdown is available for total deposits. Time deposits account for some 70% of total deposits.*

currency deposits were denominated in euro as of end-2007. Despite recent years' strong deposit growth, claim-to-deposit ratios in excess of 100% still imply the continuing need for refinancing from abroad (or from other types of domestically issued/incurred liabilities, such as issued securities, capital increases etc.).

The most recent IMF balance sheet analysis for Croatia[11] reveals no major balance sheet imbalances for the financial sector. However, banks' sizeable net foreign liabilities toward nonresidents and the credit risk associated with the domestic private nonfinancial sector are identified as potential factors of vulnerability.

3.3 Banking Sector Profitability

Against the background of growing operational efficiency, the banking sector maintained relatively high levels of profitability in recent years (see table 9). In fact, return on average assets (ROAA) at around 1.3% has remained at high levels for several years now. After having peaked in 2004, return on average equity (ROAE), however, declined gradually to 11.1% by year-end 2007 mainly on the back of voluminous capital increases of foreign bank subsidiaries. Following a pickup in interest rates in recent years, net interest income as a share of total operating income increased to slightly over 70% by 2006, but decreased at the same time relative to average assets due to faster asset growth. In 2007, however, the share of net interest income in total income fell considerably against the background of declining interest rate spreads[12] (a result of a favorable inflationary environment, increasing operational efficiency and keener competition[13]), a falling claim-to-deposit ratio that was partly ascribable to new HNB measures to rein in credit growth and the related change in banks' strategies to aim for other sources of income. Despite rapid network expansion and increasing bank headcounts, the share of general operating expenses (including depreciation) in total income was

Table 9

Profitability of the Croatian Banking Sector

	2002	2003	2004	2005	2006	2007
Total operating income	100.0	100.0	100.0	100.0	100.0	100.0
of which: net interest income (% of total income)	*70.8*	*74.3*	*69.2*	*70.1*	*70.5*	*67.4*
net noninterest income (% of total income)	*29.2*	*25.7*	*30.8*	*29.9*	*29.5*	*32.6*
General administrative expenses (% of total income)	59.3	56.7	54.3	54.4	54.9	52.1
Loan loss provision expenses (% of total income)	6.6	7.7	6.6	5.3	6.2	7.4
Income tax (% of total income)	6.3	5.9	6.4	7.8	7.7	8.0
After-tax profit/loss (% of total income)	27.8	29.4	32.6	32.5	31.1	32.5
Net interest income (% of average assets)	3.3	3.4	3.0	2.9	2.7	2.6
Net noninterest income (% of average assets)	1.3	1.2	1.3	1.2	1.1	1.3
Interest rate spread (total loans - total deposits)	7.7	8.0	7.6	7.0	6.5	6.0
Return on average assets (%)[1]	1.3	1.3	1.4	1.3	1.2	1.3
Return on average equity (%)[1]	13.7	14.5	16.1	15.1	12.4	11.1

Source: HNB; OeNB calculations.

[1] *After tax.*

[11] *See Hilaire and Ilyina (2007).*

[12] *Average interest rate on loans minus average interest rate on deposits.*

[13] *For a detailed analysis of the competitiveness of the Croatian banking system see Kraft (2006).*

fairly stable at some 55% in the period from 2004 to 2006, with improvements in cost efficiency starting to yield first results in 2007 and the cost-income ratio falling to 52.1% in 2007. Provisioning requirements (mainly collectively assessed impairment provisions) have increased gradually since 2005, boosted by strong placement growth.

3.4 Risks and Shock-Absorbing Capacities

3.4.1 Credit Risk

Credit risk continues to be the main risk to financial stability in Croatia. Given a booming economy and despite HNB action to put a brake on bank lending (see table 10), growth of credit to the private sector accelerated again considerably in 2005 and 2006. As the rapid credit expansion continued to be largely funded by external borrowing (mainly from parent banks), in the course of 2006 the HNB further tightened the marginal reserve requirement and introduced a special reserve requirement of 55%, thereby extending reserve requirements also on debt securities issued by banks. As of the beginning of 2007, the HNB additionally tightened monetary policy by introducing credit ceilings (12% p.a.) and thus penalizing excessive bank lending by obliging banks to purchase low-yielding HNB bills on lending in excess of the credit limits. Specifically, banks must purchase the equivalent of 50% of loans exceeding the credit ceiling (75% as of January 2008). However, given signs of ongoing circumvention by banks (e.g. activities shifted to their nonbank financial subsidiaries), a fine-tuning of the measures became necessary later on in 2007. First, as of June 2007, the calculation base for purchasing compulsory HNB bills was divided into two separate parts, i.e. household and corporate placements on the one hand, as well as off balance sheet items on the other hand. In July 2007, the HNB subsequently reduced banks' maximum allowable placement growth (i.e. without triggering the compulsory purchase of HNB bills) to a monthly rate of 0.5% for the second half of the year. Finally, as of October 2007, the calculation base for the subscription of compulsory HNB bills was broadened to include lending by legal persons controlled by Croatian banks. All measures combined finally led to a deceleration of domestic credit growth to the private sector in the course of 2007. This was driven mainly by a marked slowdown in domestic corporate lending, as banks started to redirect their corporate clients to borrow directly from their parent banks abroad, enabling them to continue to focus on the more profitable retail sector.

Banks' exposure to the household sector has increased rapidly in recent years, as has the credit risk associated with the retail segment. In fact, household debt levels grew considerably not only as a share of GDP, but also relative to gross disposable income (see table 11). The estimated overall household debt-to-GDP ratio climbed to over 42% as of June 2007 (most recent figure available). Although this is still well below euro area levels (e.g. Germany 67%), it is much higher than in many other countries in the region (e.g. Poland 21%, Hungary 29%). Household debt levels even surpassed the level of annual gross disposable income by June 2007, which is indeed high in CEE comparison (e.g. Czech Republic 41%). Implicit interest payments relative to gross disposable income increased to over 7% by end-June 2007, driven by both strong volume growth and rising interest rates. Household debt is predominantly made up of bank loans, with mortgage lending registering the highest growth rates. Given a strong demand for property and ris-

Table 10

Overview of Selected HNB Measures to Rein in Lending Growth

Monetary Policy Instrument		Date	Measure
Interest rates		April 2000	Discount rate cut by 200 basis points (bp) to 5.9%.
		October 2002	Discount rate cut by 140 bp to 4.5%.
		January 2008	Discount rate increased by 450 bp to 9.0%
Reserve requirements	General reserve requirement	December 2000	Foreign currency reserve requirement lowered from 55% to 23.5%, i.e. the prevailing ratio for the kuna reserve requirement.
		July 2001	Reserve requirement reduced to 22%; uniform calculation base introduced for kuna and foreign currency reserve requirements.
		September 2001	10% of the accrued foreign currency reserve requirement have to be allocated in kuna.
		October 2001	20% of the accrued foreign currency reserve requirement have to be allocated in kuna.
		November 2001	Reserve requirement reduced to 19%. Of the accrued foreign currency reserve requirement, 25% have to be allocated in kuna.
		August 2003	35% of the accrued foreign currency reserve requirement have to be allocated in kuna.
		November 2003	40% of the accrued foreign currency reserve requirement have to be allocated in kuna.
		December 2003	60% of the accrued foreign currency reserve requirement have to be allocated in kuna.
		October 2004	Reserve requirement reduced to 18%.
		January 2006	Reserve requirement reduced to 17%.
	Marginal reserve requirement (MRR)	August 2004	MRR introduced at 24% on borrowing beyond the base of June 2004.
		February 2005	MRR increased to 30%.
		May 2005	MRR increased to 40%.
		January 2006	MRR increased to 55%. Alternatively, a rate of 40% applies to increases in foreign debt over initial debt balance in June 2004, and a rate of 15% of increases after November 2005. Minimum reserve base broadened to include bank guarantees for corporate external borrowing and bank borrowing from domestic leasing companies. Off balance sheet items carry a rate of 55% (reference period November 2005).
		July 2006	Scope of marginal reserve requirement extended to include increases in funds received from nonresidents and legal persons in a special relationship with a bank which are used to finance domestic legal and natural persons in the form of syndicated loans, or domestic banks' placements to domestic legal and natural persons in the name and for the account of the mandator (mandated operations).
	Special reserve requirement	March 2006	Special reserve requirement (55%) introduced on banks' liabilities arising from issued securities (calculation period January 2006). Minimum reserve base is calculated separately for securities issued in kuna and securities issued in foreign currency.
Administrative measures		January 2003	Banks whose loan growth was above 16% (or 4% in a given quarter) in 2003 relative to loans outstanding on December 31, 2002, are required to buy low-yield HNB bills equivalent to 200% of excess growth. Not extended beyond 2003.
		December 2006	To restrict the annual growth of bank placements in 2007 to 12%, the HNB introduces the mandatory purchase of HNB bills (decision issued toward the end of 2006).
		February 2007	Decision on the compulsory purchase of HNB bills amended to make it to easier for banks to distribute the permissible rate throughout the financial year: Banks may define, in their business and credit policy, for which part of the year the permissible 12% growth rate of placements shall apply.
		June 2007	Calculation base for the compulsory purchase of HNB bills divided into two separate parts, i.e. household and corporate placements as well as off balance sheet items; the annual 12% growth ceiling is retained for both components.
		July 2007	Banks' permissible placement growth is reduced to a monthly ratio of 0.5% for the second half of the year (reference period end-June 2006).
		October 2007	Calculation base for the compulsory purchase of HNB bills broadened to include loans granted by legal persons, controlled by a bank or an owner of a qualifying holding (who is a financial institution) (reference period September 30, 2007).
		January 2008	While the annual 12% credit growth ceiling is retained, the rate for compulsory purchases of HNB bills is increased from 50% to 75% of loans granted in excess of the credit ceiling. At the same time, the remuneration rate is decreased from 0.75% pa. to 0.25% pa.

Source: HNB, IMF and OeNB compilation.

Table 10 continued

Overview of Selected HNB Measures to Rein in Lending Growth

Monetary Policy Instrument	Date	Measure
Loan loss classification/provisioning/ risk weights	January 2004	Loan classification and provisioning requirements tightened; the new categories applicable from 2004 are recoverable (A), partly recoverable (B1, B2, B3) and irrecoverable (C), replacing the following framework: fully recoverable placements (A, B), partly recoverable placements (C, D), irrecoverable placements (E).
	December 2005	Capital adequacy risk weights increased by 25 basis points on foreign currency or foreign currency-indexed loans to unhedged borrowers in the nongovernment sector.
	June 2006	Specific reserve rates tightened (amendments to the Decision on the classification of placements and contingent liabilities of banks)
	January 2008	Introduction of higher capital requirements on banks whose growth rate of placements exceeds the maximum permissible growth rate of placements and introduction of increased risk weights (100%) to placements with a currency clause extended to clients with no own foreign currency income.
Liquidity ratios	February 2003	Minimum ratio of foreign currency liquid assets to foreign currency liabilities of 35%.
	February 2005	Liquid asset ratio cut to 32%.
	March 2006	From March 1 to October 31, 2006, banks are required to include under liquid assets their participation in a EUR 400 million loan to the government.
	October 2006	32% of foreign exchange liabilities must be covered by short-term foreign exchange assets with a maturity of less than 3 months. Forex liabilities expanded in order to include liabilities in kuna with a currency clause.
	March 2008	From March 10 to May 31, 2008, banks are required to include under foreign currency claims their shares in the short-term foreign currency loan granted in March 2008 to Croatia's Ministry of Finance, totaling EUR 200 million.

Source: HNB, IMF and author's compilation.

ing real estate prices[14] since 2003 (mainly in Zagreb and the coastal areas) loans for housing purposes have grown much faster than other types of household loans (see table 12), with their share in total household loans increasing from 28% in 2002 to over 40% as of end-2007.

Robust growth in corporate indebtedness in recent years has contributed to increased credit risks also in the corporate sector. Indeed, as a result of buoyant investment activity in a favorable economic environment, the corporate sector's domestic debt growth (mainly bank loans) has accelerated significantly in recent years. Consequently, total corporate sector domestic debt reached over 62% of GDP in June 2007, and interest payable has climbed to 3.4% of GDP since 2004.

The Croatian banking sector continued to be highly exposed to foreign currency-related (indirect) credit risk, which can be associated with both potential exchange rate fluctuations and foreign interest rate risk borne by clients. This has to be seen as a consequence of the large portion of banking activity being conducted in foreign currency (mainly euro), even though a great deal of loans is actually not denominated in euro, but granted in kuna and indexed to the euro. Even though the share of foreign currency loans in total loans (including loans with a foreign currency clause) fell substantially in 2006 and 2007 (see table 12), it still amounted to 61% as of end-2007 (2005: 77.4%). This development can be attributed to stricter capital adequacy and liquidity requirements imposed by the HNB in 2006, which introduced higher risk weights on foreign currency and foreign currency-indexed claims on unhedged borrowers and broadened the base for cal-

[14] *For a more detailed analysis of the determinants of house price dynamics in Croatia and in CEE, see HNB Bulletin 135, p. 18–19, and Égert and Mihaljek (2007).*

Table 11

Selected Macroprudential Indicators – Domestic Debt

	2002	2003	2004	2005	2006	2007[1]
Households						
% of GDP	24.8	28.9	31.8	35.6	40.3	42.2
% of gross disposable income	49.3	63.5	68.5	81.7	96.2	103.5
Annual rate of change	42.5	27.9	19.2	20.2	22.6	22.4
Implicit interest payments (% of gross disposable income)	4.5	5.7	5.9	6.5	7.0	7.4
Nonfinancial enterprises						
% of GDP	45.2	45.4	47.2	51.4	58.7	62.2
% of corporate bank deposits	308.5	290.7	302.4	347.6	340.5	366.9
Annual rate of change	15.2	10.0	12.6	17.2	23.5	24.5
Implicit interest payments (% of GDP)	3.2	3.0	2.8	2.9	3.1	3.4
Total nonfinancial private sector						
% of GDP	70.0	74.4	79.1	87.0	98.9	104.4
Annual rate of change	23.6	16.4	15.2	18.4	23.2	23.6
General government						
% of GDP	42.1	43.3	45.9	46.9	44.0	43.2
Annual rate of change	8.5	12.6	15.0	9.9	1.5	3.5
Interest paid (% of GDP)	2.0	2.0	2.0	2.2	2.2	2.0
Total nonfinancial sector						
% of GDP	112.0	117.6	125.0	133.9	142.9	147.6
Annual rate of change	17.4	15.0	15.1	15.3	15.6	17.0

Source: HNB.

[1] *June 2007.*

culating the prescribed 32% foreign currency liquidity ratio[15] (by including kuna liabilities with a currency clause). Over 85% of total foreign currency loans are indexed to foreign currencies, in the case of households even 99%. Given the above, domestic borrowers carry the lion's share of the currency risk,[16] even though this risk is to some extent alleviated by the fact that also banks' liabilities are largely denominated in foreign currencies (mainly euro), as workers' remittances and tourism revenues (both denominated largely in euro) are a major source of private sector deposits (at least at the aggregate level). Foreign currency lending is predominantly carried out in euro. Domestic sectors' borrowing in currencies other than euro is, however, increasing strongly, with the Swiss franc having rapidly gained in importance in recent years due to lower interest rates. On this note, the share of Swiss franc-denominated or -indexed loans in total foreign currency loans more than doubled from 12% in 2005 to some 27% by year-end 2007. The higher volatility of the kuna against the Swiss franc (as compared to the euro) further increases borrowers' exposure to currency risk.

[15] *According to the HNB Decision on Minimum Required Amount of Foreign Currency Claims (Official Gazette 104/2006 and 71/2007), banks shall maintain a minimum of 32% of their foreign currency liabilities in foreign currency claims.*

[16] *Therefore, it is of utmost importance to raise borrowers' awareness of a residual exchange rate risk, as within the tightly managed float they might tend to underestimate the risks associated with borrowing in the anchor currency.*

Table 12

Selected Banking Sector Stability Indicators

	2002	2003	2004	2005	2006	2007
Credit risk						
Credit growth (annual change in %)	33.6	16.8	13.1	20.3	22.7	13.3
Growth of credit to the private sector (annual change in %)	31.6	15.9	13.6	18.5	23.7	14.5
Real growth of credit to the private sector (annual change in %)	29.1	14.0	10.6	14.4	20.3	10.2
Credit growth to households (annual change in %)	43.0	27.7	18.7	20.3	21.8	18.0
Mortgage credit (housing loans) growth (annual change in %)	30.8	36.7	26.6	28.8	33.9	22.5
Nonperforming placements (% of total placements)	5.9	5.1	4.6	4.0	3.2	3.1
Share of foreign currency credit in total credit	79.8	74.2	75.7	77.4	70.9	61.0
Share of foreign currency deposits in total deposits[1]	88.4	87.5	87.3	86.4	76.3	66.8
Market risk						
Foreign exchange risk						
Open FX position (% of total balance sheet assets)[2]	1.2	1.3	1.1	0.7	0.5	0.7
Stock market risk						
Ratio of shares and participations to total assets (equity holdings)	1.8	1.4	0.9	0.8	0.7	0.7
Liquidity risk						
Ratio of liquid assets[3] to total assets	29.4	32.8	31.2	28.0	27.5	27.6
Ratio of total loans to total deposits	74.2	76.7	80.7	88.5	92.5	92.8
Ratio of liquid assets[3] to short-term liabilities	97.1	117.2	120.4	103.1	102.6	107.6
Shock-absorbing factors						
Impairment provisions[4] (% of nonperforming placements)	85.1	79.4	80.2	81.5	81.8	80.5
Capital adequacy ratio	17.2	16.2	15.3	14.7	14.0	15.4
Memorandum item						
Number of banks (foreign owned)	46 (23)	41 (19)	37 (15)	34 (14)	33 (15)	33 (16)
Asset share of foreign-owned banks (%)	90.2	91.0	91.3	91.3	90.8	90.4

Source: HNB; OeNB calculations.

[1] *Time deposits.*
[2] *June 2007.*
[3] *Liquid assets = cash in vaults + deposits with the HNB + deposits with other banks + treasury bills.*
[4] *Including collectively assessed impairment provisions.*

Loan quality (measured by the nonperforming loan ratio) continued to improve. In fact, the share of nonperforming placements[17] in total placements declined further in recent years (although primarily due to strong placement growth), reaching 3.2% as of end-2006. Slower credit growth, however, seems to have slowed the recent strong downward trend, with the nonperforming placement ratio falling only marginally to 3.1% by year-end 2007. With a view to better managing credit risk, a Central Credit Register (HROK) was established in Croatia in 2005. HROK was founded by 20 Croatian banks under the auspices of the Croatian Bank Association, became fully operational in May 2007 (when banks started to use reports issued by HROK) and covers around 90% of the total retail

[17] *According to the HNB Decision on the Classification of Placements and Contingent Liabilities of Banks, placements encompass all financial instruments which give rise to a bank's exposure to credit risk, i.e. loans, financial instruments held to maturity and debt instruments classified into the available-for-sale portfolio.*

market in Croatia. It collects, processes and exchanges information on the credit record of potential borrowers.

3.4.2 Market and Liquidity Risks

Banks' interest rate risk seems to be moderate. With a view to banks' assets, the interest rate risk of banks is limited, as most loan contracts (including fixed interest rate loans) carry a restrictive clause, allowing interest rates to be customized. At the same time, on the liability side, the lion's share of bank deposits is short term. In this context, some 62% of time deposits (accounting for approximately 70% of total deposits) have a maturity of less than one year, allowing for some flexibility in times of high interest rate volatility. Consequently, most of the interest rate risk has been shifted to bank clients, and will thus rather materialize through the credit risk channel in the event of adverse developments.

Given the low and declining fraction of shares and participations in total assets, the Croatian banking sectors' exposure to stock market risk is negligible. The recent falling trend has, however, come to an end in 2007, with the ratio of equity holdings to total assets prevailing at 0.7%, most likely given banks' keen interest in the initial public offering of major Croatian corporations in 2007.

Direct foreign exchange risk of banks appears to be manageable. According to HNB regulations, banks' open foreign currency positions may not exceed 20% of their regulatory capital. The ratio of long foreign exchange position to regulatory capital stood at 6.7% in June 2007 (2006: 5.2%), while the short position was at 2.8% (2006: 1.8%). These figures are an indication for a relatively low direct foreign exchange risk, with the higher long position implying that banks are more exposed to foreign exchange risks resulting from a kuna appreciation. Moreover, as mentioned above, according to the rules in place, banks' liquid foreign currency claims must correspond to at least 32% of their short-term foreign currency liabilities.

Overall, banks' exposure to market risks seems to be subdued, but by shifting foreign exchange and interest rate risks to clients, banks have broadly transformed market risk into credit risk.

Liquidity risks have increased somewhat in recent years, as is mirrored by slightly worsening liquidity indicators (see table 12). Over the past few years, the ratio of liquid assets to total assets declined gradually to 27.6% by end-2007, while the loan-to-deposit ratio rose to over 90%. Nevertheless, liquidity levels can still be considered high, inter alia given the large amounts of free reserves held with the HNB (denominated mainly in foreign currency). However, the concentration of liquid assets on a few asset classes (e.g. treasury bills) seems to indicate some risk in case of liquidity shocks. At the same time, given the high share of liabilities toward nonresidents, risks associated with international financing have been growing in recent years. Despite the fact that parent banks appear to be the main external financing source for foreign bank subsidiaries in Croatia[18] and that the year 2007 seems to have heralded a declining trend in foreign liabilities, the still high share of foreign liabilities requires cautious monitoring.

[18] *It should be noted, however, that liquidity problems of parent banks in times of financial market turbulence could negatively impact the refinancing channels of foreign bank subsidiaries, thereby increasing external refinancing risks.*

3.4.3 Shock-Absorbing Factors

Banking sector profitability is relatively high, as evidenced by a fairly stable return on average assets of some 1.3% in recent years. This should provide banks with a comfortable buffer to weather unexpected regional or sectoral shocks. Moreover, although return on average equity has declined in recent years, this can be mainly attributed to the strengthening of banks' capital base, which should likewise underpin the shock resistance of the Croatian banking market.

Croatia's banking sector is well capitalized according to standard capital ratios. Notwithstanding substantial capital increases, the capital adequacy ratio has fallen considerably since 2001 on tighter capital adequacy regulations, reaching 14% of risk-weighted assets by end-2006 (see table 12), which is, however, still well above the 10% required by Croatian law. Following large-scale capital increases, the capital adequacy ratio increased again to 15.4% in 2007. Thus, as banks' capital ratios are far in excess of regulatory requirements, the banking sector has a substantial buffer in the event of shocks. However, according to the latest IMF sensitivity analysis,[19] adverse economic developments (mirrored by slowing real GDP growth and a pickup in the unemployment rate) could have a large and negative impact on the capitalization of Croatian banks (via the need for higher loan loss reserves).

Finally, also widespread foreign ownership bolsters banking system stability. On this note, foreign bank presence in Croatia not only increases banks' operational efficiency by means of transfer of capital, know-how and modern technologies, but also mitigates the likelihood of distress and sudden stop given foreign banks' strategic, long-term objectives in Croatia. Indeed, given high reputational risks (i.e. the potential negative impact that a deteriorating image might have on the respective banking group as a whole), foreign bank subsidiaries in Croatia may be able to rely on their parent banks' backing in the event of unexpected shocks.[20]

4 Financial Markets and Nonbank Financial Institutions

Despite relatively high financial intermediation levels in CEE comparison, Croatia's financial markets are still having substantial potential for further development, considering the EU as a convergence benchmark in the longer run. This would seem to imply dynamic financial market developments also in the years ahead. Croatia's financial system is dominated by banks, which still represent the main channel for financial intermediation. In recent years, however, nonbank financial intermediation – albeit still small in size – has expanded rapidly (even though starting from a very low base), thereby increasingly gaining in relative importance. This development is not only underpinned by growing macroeconomic stability, rising income levels of the population and improving corporate finances, but also by increasing interest of foreign investors in the wake of Croatia's EU integration process.[21]

[19] *See Mitra (2007).*

[20] *However, it should be noted that it was actually in Croatia that a foreign bank followed a hands-off approach with regard to its troubled subsidiary in 2002.*

[21] *On February 21, 2003, Croatia applied officially for EU membership. Accession negotiations have started formally on October 4, 2005. By the end of April 2008, 18 negotiation chapters were opened out of a total of 35, with 2 chapters being already provisionally closed.*

Table 13

Financial Sector Structure

Share in total financial sector assets	2002	2003	2004	2005	2006	2007[1]
Banks (gross assets, consolidated)	85.8	83.4	81.5	78.8	76.3	73.5
Open-end investment funds (net assets)	1.3	1.3	1.6	2.7	4.1	6.2
Close-end investment funds (net assets)	0.6	0.4	0.4	1.1	1.4	1.7
Insurance companies	5.7	5.4	5.2	5.1	5.0	5.1
Housing savings banks (gross assets, consolidated)	1.1	1.5	1.8	1.8	1.6	1.4
Compulsory pension funds (net assets)	1.1	2.0	2.9	3.6	4.1	4.3
Voluntary pension funds (net assets)	0.0	0.0	0.0	0.1	0.1	0.1
Savings and loan cooperatives	0.6	0.6	0.5	0.5	0.5	0.5
Leasing companies	3.8	5.4	6.0	6.3	6.9	7.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: HNB, HANFA, Ministry of Finance.

[1] *June 2007.*

4.1 Nonbank Financial Institutions

Croatia's nonbank financial sector exhibited a rapid development in recent years. Consequently, as of June 2007, the nonbank financial sector already accounted for around 26.5% of total financial sector assets, corresponding to roughly 40% of GDP. This considerable increase in the market share of nonbank financial institutions at the expense of banks is particularly remarkable in light of the likewise brisk expansion of the banking sector. Nonetheless, some nonbank financial intermediaries, mainly leasing companies, may have benefited to a tangible extent from the HNB's restrictive approach to monetary policy in recent years. In light of last years' stock market boom, open-end investment funds recorded, however, the most dynamic development among all nonbank financial institutions: Their market share in total financial sector assets has roughly quadrupled since 2004. Similarly, favorable stock market developments coupled with the easing of investment restrictions allowed compulsory pension funds' assets to grow buoyantly as well. Insurance companies' assets also increased significantly, albeit at a somewhat slower pace, with growth rates in the life segment, however, outperforming the nonlife segment.

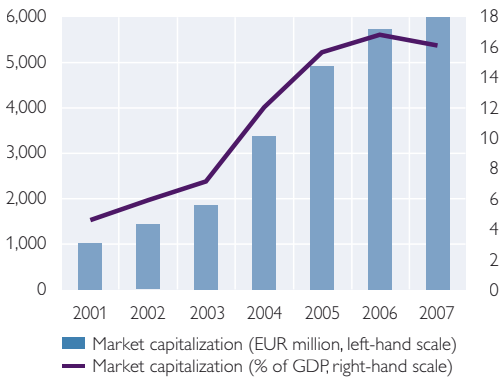
The risks associated with the nonbank financial sector seem limited at present and are thus unlikely to undermine financial system stability in Croatia, given the still relatively small size of the sector and its proper regulation by the Croatian Financial Services Supervisory Agency HANFA. Nevertheless, the sector's strong momentum, its strong dependency on stock market developments (implying risks in case of an adverse shock) and the signs of regulatory arbitrage on the part of banks warrant a cautious policy stance and an intensive cooperation between the HNB, which is in charge of supervising the banking sector, and HANFA, which supervises nonbank financial intermediaries.

4.2 Bond Market Developments

Croatia's domestic bond market showed a dynamic development in recent years, with the total market capitalization of bonds listed on the Zagreb Stock Exchange tripling in absolute terms in the period from 2004 to 2006 (see chart 1) and reaching around 16% of GDP in relative terms by end-2006, which is, however, still low compared with other CESEE countries. This relatively strong momen-

Chart 1

Bond Market Developments

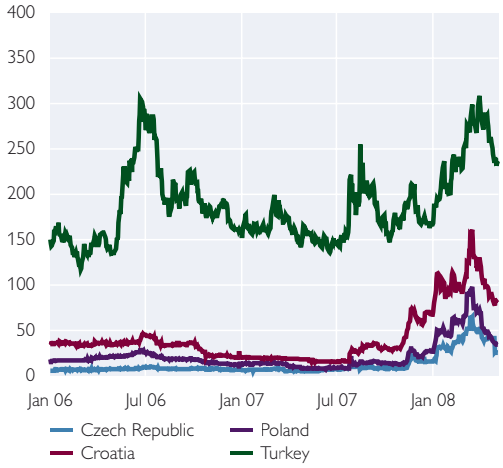


Source: Zagreb Stock Exchange.

Chart 2

Credit Default Swap Developments

(5-year government bonds, EUR)



Source: Datastream.

tum cannot be explained only by the government's objective to focus on domestic borrowing in order to reduce the country's foreign indebtedness, and stepped-up capital market activity of municipalities in need of financing for infrastructure projects, but also by the increasing interest of large corporations to obtain financing via the capital market in light of the HNB's regulatory requirements. Nevertheless, the share of corporate bonds in total bond market capitalization is still fairly low (around 15%). In 2007 the domestic bond market developed more moderately, though, with one reason being the favorable development of the country's budgetary situation and the government's lower financing needs as well as banks' limited interest in bond issues (subject to special reserve requirement) and corporate bond underwritings (also subject to credit ceilings). Nevertheless, the EU integration process, the sustained interest of foreign investors and the increasing role of institutional investors (e.g. mutual and pension funds) are expected to underpin the growth potential of the domestic bond market into the future, at least on the demand side.

The long-term government bond yield spreads versus the euro area were largely stable throughout 2006 and the first half of 2007 and were even much lower than those of many of Croatia's CEE peers. Yet as a result of global financial market turbulences, the second half of 2007 saw some widening of long-term government bond yield spreads vis-à-vis the euro area, similarly to developments in other countries in the region. Likewise, risk insurance premia increased markedly in the second half of 2007 and up to March 2008 before starting to reside again, as is mirrored by credit default swap developments (see chart 2). Croatia's ongoing EU integration process and the prospect of upcoming rating upgrades on the back of improving fundamentals are, however, expected to bring about lower spreads and risk premia in the future.

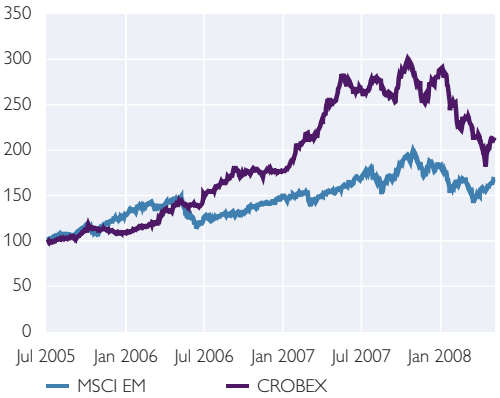
4.3 Stock Market Developments

In 2006 and 2007, Croatia's stock market was among the best performers worldwide. The CROBEX stock index grew by over 60% per annum in the last two years, by far outperforming the MSCI global emerging market index (see chart 3).

Chart 3

Stock Market Developments

(June 30, 2005 = 100, in EUR terms)



Source: Zagreb Stock Exchange, Datastream.

This development can be attributed largely to a favorable macroeconomic environment, progress made in structural reforms (privatization), increased foreign (equity) capital inflows encouraged by the country's ongoing EU integration process and improvements in the regulatory framework and institutional streamlining (including the merger of the Zagreb Stock Exchange and Varaždin Stock Exchange in early 2007). Price developments, numerous large-scale IPOs and the one-off effect of the merger of the two stock exchanges combined resulted in a stock market capitalization of some 125% of GDP by end-2007, which is one the highest ratios in CESEE and, incidentally, roughly on a par with Croatia's bank intermediation levels.

Despite the rapid increase in market capitalization, the stock market is still characterized by relatively low trading volumes and liquidity levels. Although regular equity turnover has grown briskly in recent years, reaching around 8% of GDP by end-2007, it is still much lower than in some other CESEE EU Member States (e.g. Hungary 34%, Poland 41%) or candidate and potential candidate countries. On this note, the increasing role of alternative ways of financing (e.g. bank finance, public offering of corporate bonds, FDI inflows and direct external financing by corporates) seem to constrain the attractiveness of the capital market.

Table 14

Stock Market Indicators[1]

	2001	2002	2003	2004	2005	2006	2007
CROBEX stock market index	1,035	1,173	1,185	1,566	1,998	3,210	5,239
Number of listed shares	66	73	175	183	194	202	383
Market capitalization (EUR million)[2]	3,503	3,805	4,856	8,048	10,945	22,014	48,086
Market capitalization (% of GDP)[2]	15.6	15.6	18.7	28.7	34.9	64.5	129.3
Regular turnover (EUR million)[2]	130	158	198	350	639	1,428	3,006
Regular turnover (% of GDP)[2]	0.6	0.6	0.8	1.2	2.0	4.2	8.1

Source: Zagreb Stock Exchange (ZSE).

[1] *2001–2006 ZSE only. Following a merger, 2007 figures include Varaždin Stock Exchange.*

[2] *Equities.*

5 Conclusions

Croatia's financial sector has continued to develop dynamically in recent years. The financial system is still dominated by the banking sector, although its relative importance has declined somewhat recently. This can be mainly attributed to the strong momentum of the nonbank financial sector, which in turn was largely driven by buoyant asset (mainly stock) prices.

Croatia's banking sector has continued to converge toward more advanced systems and can now be considered rather well-developed compared with other CESEE countries from both the financial and institutional perspective. The strong presence of foreign banks has contributed to increasing operational efficiency. Despite the relatively large number of banks, the banking sector is characterized by high concentration levels. Considering the large number of small banks, further market consolidation seems inevitable and will add to market concentration and presumably also to even higher foreign presence. Sustained keen competition among banks should, however, prevent the abuse of dominant market positions.

Risk exposure has increased further as a result of sustained rapid credit expansion in recent years. Strong credit growth coupled with a shift of market risk to bank clients calls first and foremost for a careful monitoring of credit risk. Despite the restrictive measures undertaken by the HNB, especially the growth of credit to the household sector has remained high, leading to rapidly increasing debt and debt service levels. At the same time, the still high degree of currency substitution in the financial sector highlights substantial (indirect) foreign currency-related risks. It is, however, important to underscore the Croatian banking system's relatively high shock absorbing capacity. On this note, the banking sector is characterized by high capitalization ratios, high profitability, increasing cost efficiency and improving loan portfolio quality (as measured by the nonperforming placement ratio).

Rapid credit expansion has contributed to macroeconomic imbalances, in particular with regard to Croatia's current account and external debt position. Thus, the main challenge for the HNB now is to allow for a further development of the banking sector while, at the same time, safeguarding macroeconomic and financial stability. Thus, it is crucial to keep Croatia's external debt position in check, so as to contain the country's vulnerability to changes in investor sentiment. Against this background, the HNB has continued to take restrictive administrative and prudential measures to curtail credit growth based on banks' foreign borrowing. However, looking forward, it remains to be seen how viable this strategy will be over the medium and longer term, given Croatia's advancing preparations for EU membership.[22] Moreover, since the HNB's maneuvering room in a quasi-fixed exchange rate regime is limited, fiscal policy needs to play a more decisive role in macroeconomic stabilization.

[22] *According to Croatia's Stabilization and Association Agreement (SAA) with the EU, from the fourth year after the entry into force of the SAA (February 1, 2005) Croatia has to ensure free movement of capital relating to portfolio investment and financial loans and credits with maturity shorter than one year.*

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Labor Markets in Central, Eastern and Southeastern European EU Member States: General Trends and Migration Effects

Josef Schreiner[1]

This study gives an overview of labor market developments in Central, Eastern and Southeastern European (CESEE) EU Member States since their accession to the EU. By using data on net migration rates, the study also sheds light on the question whether migration in the aftermath of the EU enlargement has caused labor shortages and rising wage pressure in the region. The study finds virtually no evidence for this proposition. Net migration has been rather contained since 2004, with most of the countries actually showing higher immigration than emigration.

1 Introduction

Eight Central and Eastern European (CEE[2]) countries joined the EU in May, 2004, and two more countries entered the EU in January, 2007. Since their accession, almost all of these countries have recorded a pickup in economic growth and per capita income convergence with Western European EU countries. The period since the enlargement has also been characterized by a remarkable improvement of labor market conditions in almost all new EU Member States. Brisk economic activity has caused employment to increase substantially and unemployment rates have fallen to historically low levels. This development was so far reaching that by now labor shortages are beginning to emerge in several economies. In this context, the argument is often brought forward that these labor shortages can at least be partly ascribed to rising emigration of especially young and well-educated people to Western European EU Member States (EU-15), in particular since EU accession. This short study investigates this proposition.

This paper is structured as follows. Sections 2 and 3 outline the evolution of the labor markets of the CESEE EU Member States (EU-10), while section 4 focuses on the legal foundations guiding labor movements in the enlarged union. The magnitude of migration movements in the new EU Member States and their effects on the size and composition of the labor force in these countries will be discussed in section 5. These findings shall be put into context with general economic developments, and we will examine to what extent they are capable of explaining labor market developments in general and labor shortages in particular. The main observation period extends from 2004 to 2006/07, thus covering the time since the CEE EU Member States joined the EU. Bulgaria and Romania only entered the EU in 2007, but in light of the fact that migration ranks high on the policy agenda of those two countries as well, they are also included in the country sample. In evaluating migration and labor market developments, the study uses

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[2] *In this contribution, CEE refers to the Central and Eastern European EU Member States (i.e. the Czech Republic, Hungary, Poland, Slovakia, Slovenia, Estonia, Latvia and Lithuania). CE refers to the Central European EU Member States (i.e. the Czech Republic, Hungary, Poland, Slovakia and Slovenia). CESEE refers to the Central, Eastern and Southeastern EU Member States (i.e. Czech Republic, Hungary, Poland, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Bulgaria and Romania).*

data provided by Eurostat, where labor market figures are generally based on labor force surveys.

2 Labor Markets Have Improved Substantially since EU Accession

In the period after EU accession, the labor markets of the new Member States changed dynamically, which can be attributed mainly to solid general economic development. Weighted average real growth amounted to 5.6% per year in the countries under observation from 2004 to 2006. This figure is more than 2 percentage points higher than in the three-year period preceding enlargement and more than 3.5 percentage points higher than in the euro area. In addition, after years of labor shedding induced by large-scale enterprise restructuring and the associated phenomenon of jobless growth, the input of labor to economic growth has increased quite substantially. Those mutually reinforcing factors led to a strong improvement in almost all labor market indicators in the region. The labor market performance in most countries was also more favorable than in the euro area.

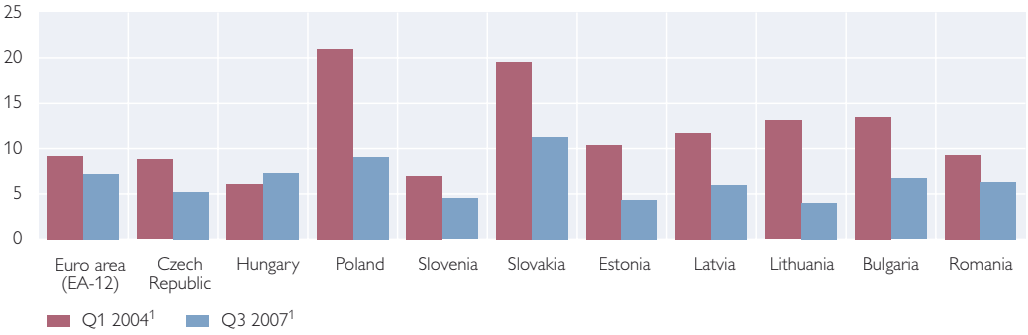
Above all, unemployment rates in nearly all countries have decreased significantly, with the reductions ranging from 2.5 percentage points to 11.9 percentage points (see chart 1). The development was most pronounced in Poland and the Baltic States, but also in Bulgaria and Slovakia the number of unemployed people decreased substantially. By the third quarter of 2007, unemployment was lower than in the euro area in the majority of countries, reaching particularly low levels (below 5%) in Estonia, Lithuania and Slovenia. This generally favorable picture is only blurred by the development in Hungary, where unemployment rates have increased in recent years. This, however, seems to be attributable to the fact that economic growth performance in this country has been more subdued than on average in the region, with far-reaching budgetary consolidation measures weighing on GDP dynamics since mid-2006.

The decrease in unemployment that most EU-10 countries recorded was broad based and included all age cohorts and levels of educational attainment. Unemployment dropped not only among the working age population at large (people aged 15–64) but also among the young (15–25 years; see chart 2) and older workers (55–64 years; see chart 3). Furthermore, unemployment rates also declined among people with low educational attainment (i.e. pre-primary, primary and lower secondary education; see chart 4). Only the figures for long-term unemployment show a somewhat more mixed picture (see chart 5). While the share in total unemployment of people seeking employment for more than 12 months decreased in some countries (Latvia, Lithuania, Romania, Slovenia), it increased in the Czech Republic, Hungary, Estonia, Bulgaria, and above all Slovakia. Even in these countries, however, with the exception of Hungary, the absolute number of the long-term unemployed shows a clear downward trend. In Slovakia, the high incidence of long-term unemployment can be partly explained by the problematic labor market situation of ethnic minorities, especially the Roma (see Havlik and Holzner, 2008). Overall, however, the evidence points to a clear improvement of the labor market situation in CESEE EU Member States.

Chart 1

Unemployment Rates among Total Working Age Population

%, age cohort 15–64



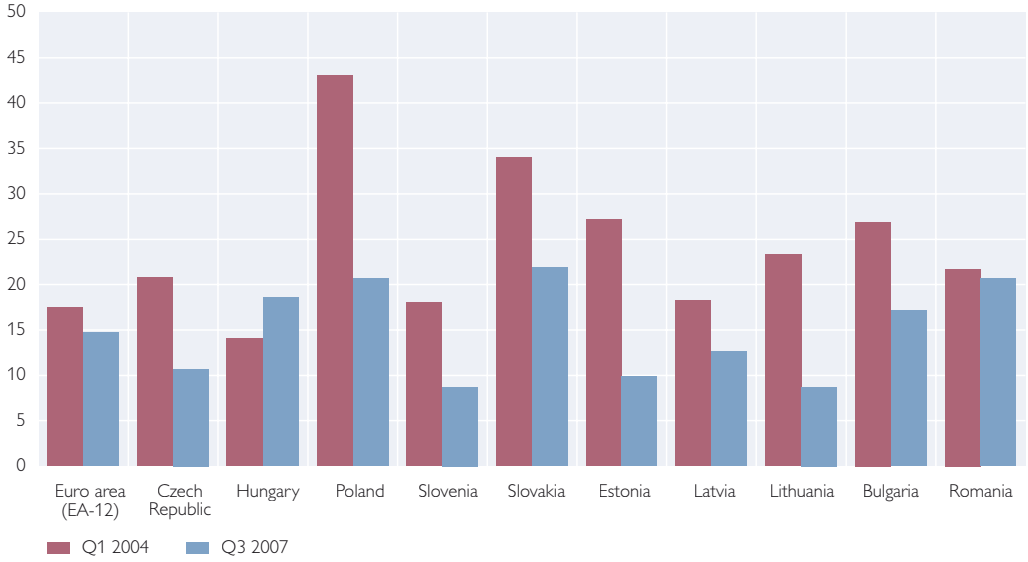
Source: Eurostat.

[1] *Seasonality patterns only marginally blurred the general picture.*

Chart 2

Unemployment Rates among Younger People

%, age cohort 15–25

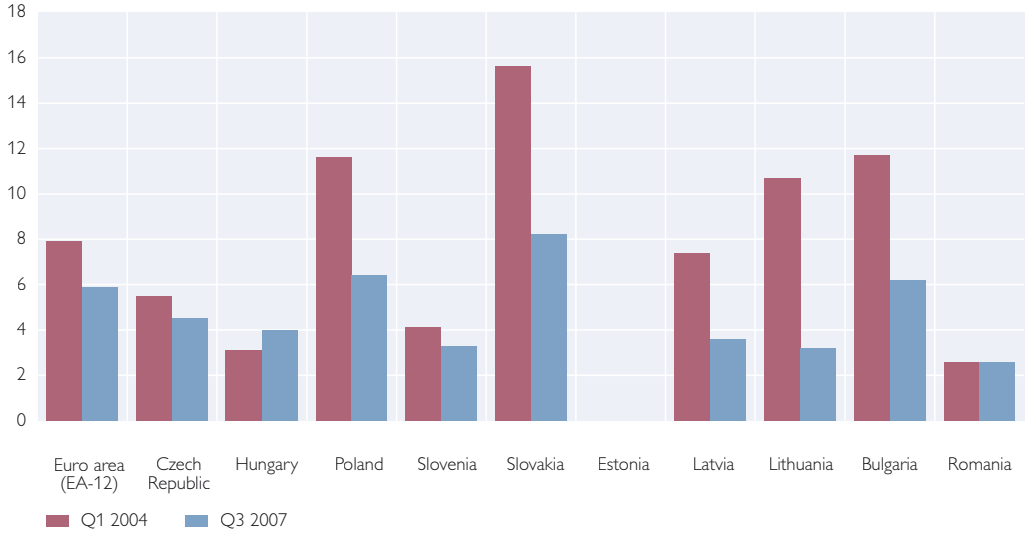


Source: Eurostat.

Chart 3

Unemployment Rates among Older People

%, age cohort 50–64

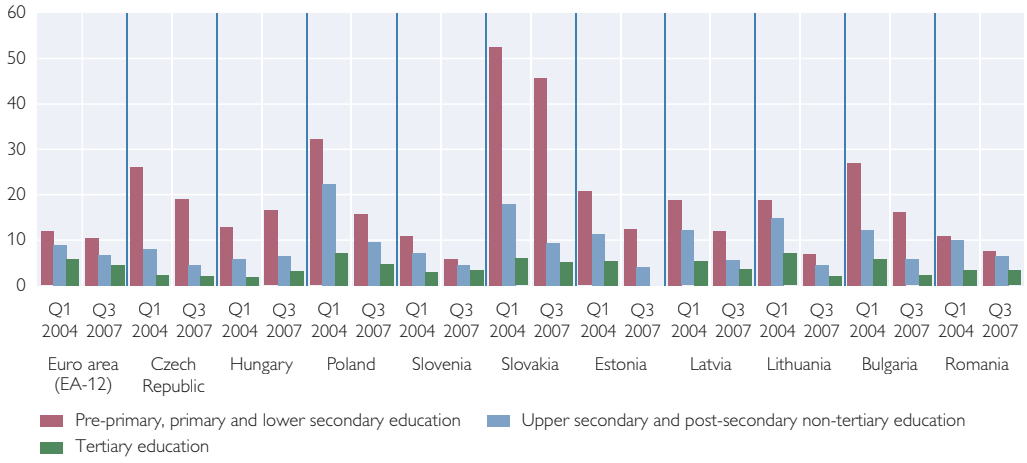


Source: Eurostat.

Chart 4

Unemployment Rates by Educational Attainment

%, age cohort 15–64

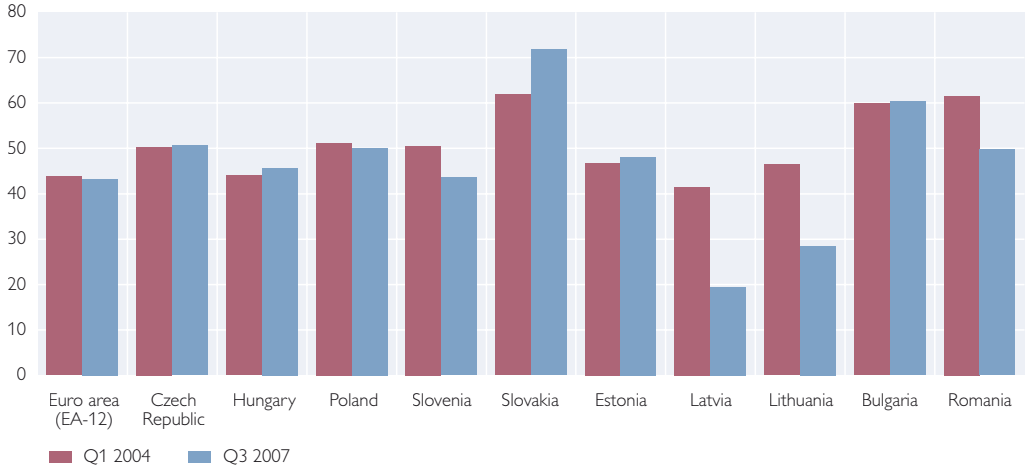


Source: Eurostat.

Chart 5

Long-Term Unemployment

% of total unemployment

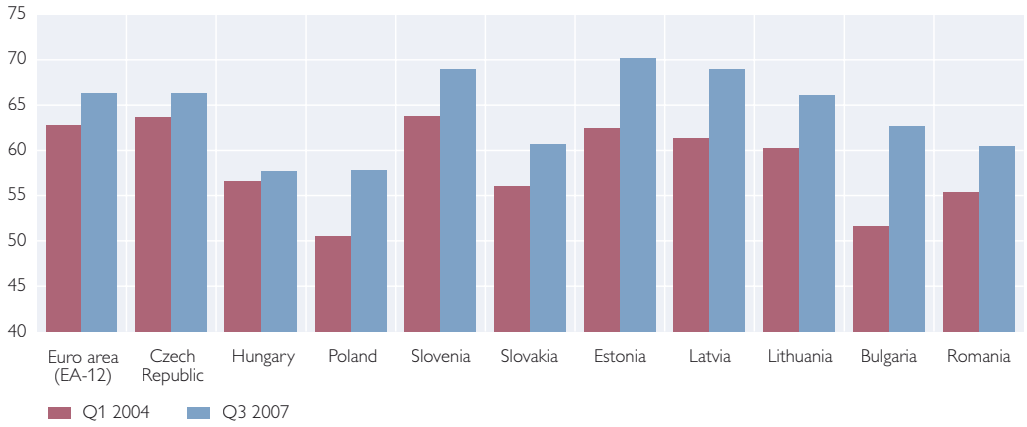


Source: Eurostat.

Chart 6

Employment Rates

%, age cohort 15–64

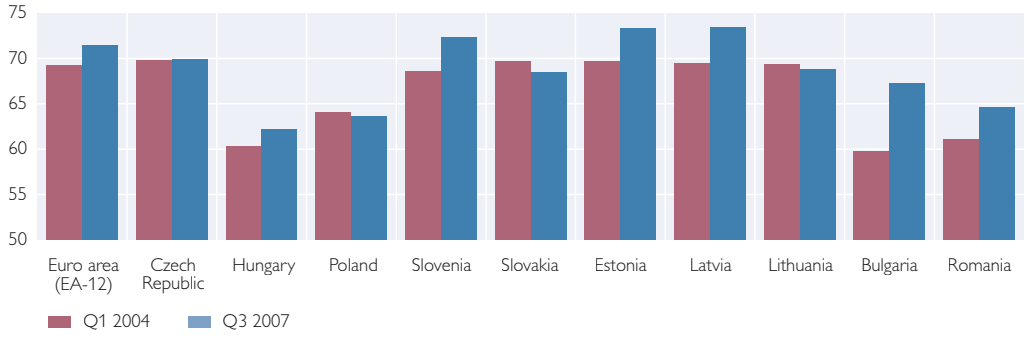


Source: Eurostat.

Chart 7

Participation Rates

%, age cohort 15–64

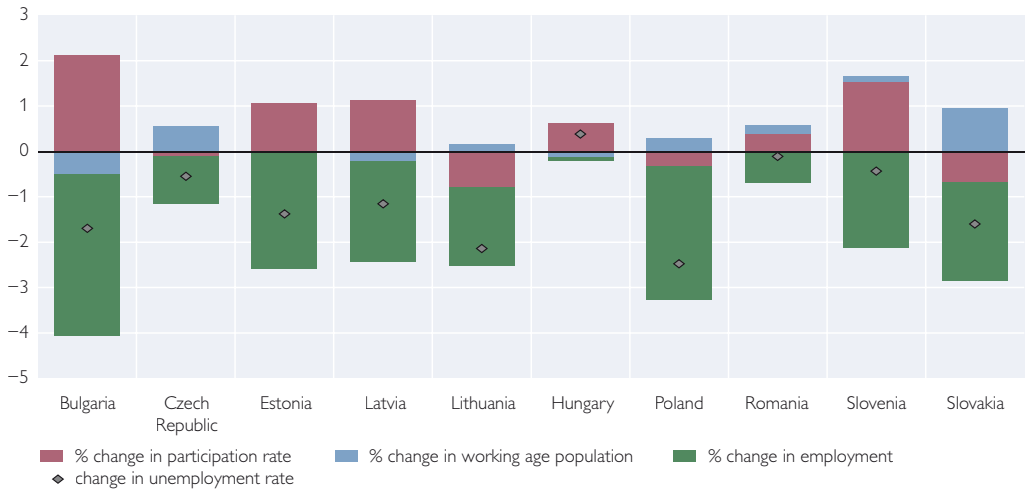


Source: Eurostat.

Chart 8

Decomposition of Change in Unemployment Rate

percentage points, average Q1 2004 to Q3 2007



Source: Eurostat, author's calculations.

Changes in unemployment are a function of changes in employment and/or changes in the labor force (which can be defined as total population times participation rate). An increase in employment lowers the unemployment rate (ceteris paribus) as more people find jobs, while an increase in the labor force increases unemployment (ceteris paribus) as the supply of people willing to work rises. A decomposition of unemployment dynamics along these lines reveals that the reduction in unemployment was to a considerable extent driven by rising employment (see chart 8). In fact, employment increased throughout the region and in most cases strongly, albeit starting from low levels in many countries (see chart 6). By 2007, Estonia already reached the goal of the EU's Lisbon Strategy of an employment rate of over 70%, while Latvia and Slovenia came close to it. Developments in participation rates were somewhat more heterogeneous across the EU-10 countries: They rose in the Czech Republic, Slovenia, Estonia, Latvia, Bulgaria, and Romania, while they declined in Lithuania, Poland, and Slovakia, thus helping

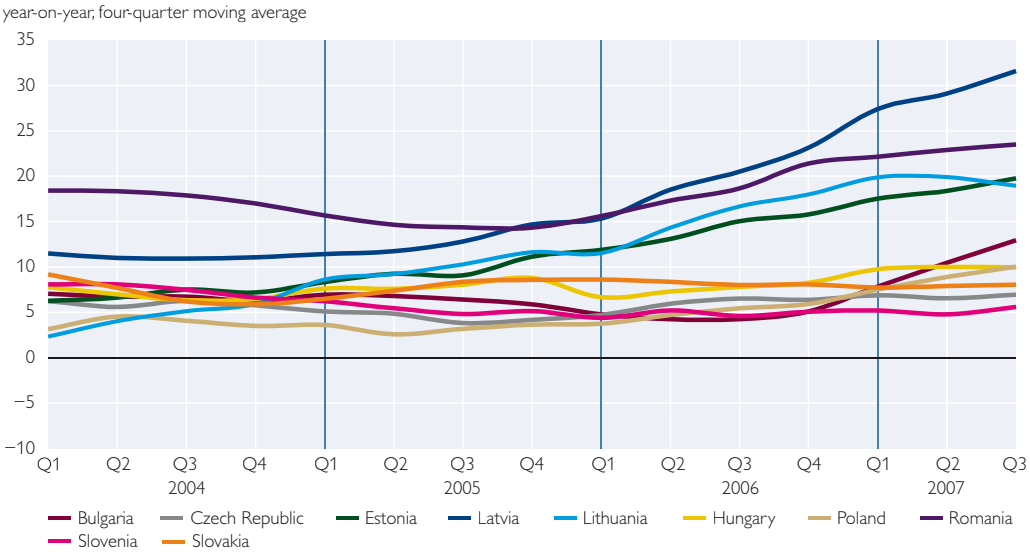
cut unemployment in the latter countries (see chart 7). The impact of changes in working age population on unemployment dynamics was generally only marginal, the exception being Slovakia where the working age population grew by around 4% during the observation period.

3 Productivity Developments Offset High Wage Growth only in Some Countries

The broad-based improvement in labor market indicators was accompanied by rising wage pressure (see chart 9). This development was especially pronounced in Latvia. Labor costs (including wages and salaries as well as bonuses), however, also developed dynamically in Estonia, Lithuania, Romania, and more recently also in Bulgaria. It can be noted that in these countries, nominal labor cost growth started to accelerate soon after EU accession (in Romania already in anticipation of EU accession) and came to between 13% in Bulgaria and as much as 32% in Latvia in the third quarter of 2007, with Lithuania (19%), Estonia (20%), and Romania (23%) in between. The CE countries did not experience comparable developments. However, in Poland and also in Hungary, labor cost growth has accelerated somewhat in recent quarters. In these five countries, labor cost climbed by between 5% and 10% in the third quarter of 2007. The difference between the two country groups can be related to the differences in growth rates. Especially the Baltic economies have experienced an economic boom in recent years. Average real growth in that region has amounted to more than 9% since EU accession, and high wage growth appears to be one of the signs of overheating that have become visible in these countries. To a lesser extent, this is also true for Bulgaria and Romania. Per capita income levels in the Baltic countries and the Southeastern European countries were still lower (at the time of EU accession) than in most Central European countries, which according to standard growth theory explains

Chart 9

Development of Labor Costs in Whole Economy

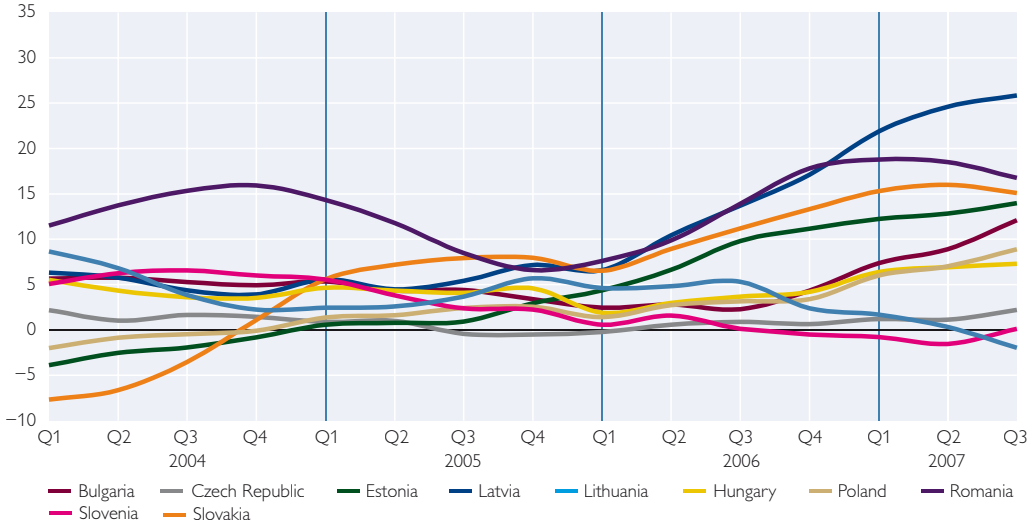


Source: Eurostat, author's calculations.

Chart 10

Development of Unit Labor Costs in Whole Economy

year-on-year, four-quarter moving average



Source: Eurostat, author's calculations.

the high growth rates recorded and also implies more dynamic wage and price convergence toward Western European standards.

Solid productivity dynamics (measured as gross value added in total economy (excluding agriculture) per person employed) helped to dampen the cost impact of wage pressure in almost all countries under review. Productivity growth was especially pronounced in Slovakia, where it reached 10% in the third quarter of 2007 (based on four-quarter moving averages), but it was also dynamic in Romania, Estonia, Slovenia, Latvia, the Czech Republic, and to a lesser extent in Lithuania and Hungary. In Bulgaria and Poland, however, productivity advances were subdued, with annual average values of only around 1% to 2% over the last three years. In both countries, this went hand in hand with accelerating labor cost growth (as measured by the labor cost index for the whole economy (excluding agriculture) provided by Eurostat). Those two factors translated into rising unit labor costs, which put downward pressures on margins and/or upward pressures on domestic prices (see chart 10). Strong increases in unit labor costs can also be observed in Estonia, Latvia, Lithuania, and Romania. In those countries, unit labor cost developments were mainly driven by rising wages, with quite solid productivity growth exerting a somewhat dampening effect. The Central European countries generally show lower growth rates of unit labor costs or, in some cases, no growth at all in recent years. Especially in the Czech Republic, Slovakia, and Slovenia, productivity developments fully offset wage increases. Unit labor costs dropped in Slovenia for most of 2007, while they recently started to decline in Slovakia, as well. In the Czech Republic they have been essentially flat since mid-2005.[3]

[3] *Unit labor cost developments have important implications for competitiveness. A discussion of this issue is, however, beyond the scope of this paper.*

The argument has frequently been put forward that migration in the aftermath of enlargement contributed to tightening labor markets, and thereby speeded up wage and unit labor cost convergence (see EBRD, 2007, or IMF, 2007). The assumption behind this proposition is that emigration boomed after the labor markets of (at least some of) the EU-15 had been opened for workers from Eastern Europe. This line of argument will be examined in the next section, which presents a synopsis of the EU rulebook in this area.

4 Legal Framework Guiding Migration in the EU

The issue of migration within the European Union is closely related to one of the four freedoms of the EU's internal market, namely the freedom of movement for persons. Free movement entails the right to reside and work in another EU Member State as well as the right to equal treatment in respect of access to employment, working conditions and all other advantages that help facilitate the worker's integration in the host Member State. However, there are several limitations to this basic freedom – it can be restricted on grounds of public security, public policy, and public health, and there are some limitations regarding employment in the public services of the host Member State. Furthermore, it was agreed in the Accession Treaties governing the 2004 and 2007 EU enlargements that free movement can be restricted from, to, and between the new Member States for a transitional period of up to seven years (see European Commission, 2004 and 2006a).

The transitional arrangements provide that for the first two years following accession, access to the labor markets of the "old" EU members will depend on these countries' national law and policy. In practical terms, this usually meant that workers from EU-10 Member States needed a work permit. National measures may be extended for a further period of three years. Only in case of serious disturbances of the labor market, EU Member States may continue to apply national restrictions for another two years after notifying the European Commission. The transitional arrangements cannot be extended beyond an absolute maximum of seven years. The "new" Member States are allowed to impose reciprocal restrictions on nationals of those countries that restrict access to their labor markets.

During the first phase (i.e. from May 2004 to April 2006), three EU-15 Member States (Ireland, Sweden and the United Kingdom) granted liberalized access to their labor markets under national law. The United Kingdom, however, adopted a Worker's Registration Scheme. Under this scheme, workers from the EU-8 (i.e. the CEE Member States that joined the EU in 2004) must register with the U.K. Home Office within 30 days of starting their employment in the country. The remaining EU-15 countries maintained their work permit systems, albeit with some modifications that were sometimes combined with a quota system. While three EU-8 countries (Poland, Slovenia and Hungary) applied reciprocity to nationals of those EU-15 Member States that apply restrictions, none of the EU-8 countries restricted access by workers from other EU-8 Member States.

Since May 2006, seven more countries have opened their labor markets completely to workers from the EU-8 countries – Spain, Finland, Greece and Portugal (as of May 2006), Italy (as of July 2006), the Netherlands (as of May 2007) and Luxembourg (as of November 2007). The United Kingdom has continued its man-

datory registration scheme, and also in Finland employment must be registered for monitoring purposes.

Several of the EU-15 Member States that maintained restrictions have simplified existing national regimes or procedures of labor market access to varying degrees (Belgium, France, Luxembourg and Denmark). Germany and Austria notified the Commission that they would maintain national measures throughout the second phase. Finally, Hungary still applies reciprocal measures, while Slovenia and Poland ceased to do so in May 2006 and January 2007, respectively.

After the EU accession of Bulgaria and Romania, ten EU-25 Member States (Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Poland, Slovenia, Slovakia, Finland and Sweden) liberalized labor market access for Bulgarian and Romanian workers under national law. In Finland, Cyprus and Slovenia, employment must be registered subsequently for monitoring purposes. The remaining EU-25 Member States have maintained work permit systems, albeit sometimes applying modifications and simplified procedures.

Bulgaria and Romania have decided not to restrict access to their labor markets for EU nationals from those countries that apply restrictions for Bulgarian and Romanian workers.

5 Overview of Migration Flows

Originally, the transitional arrangements were put in place to prevent sizeable migration waves from the "new" EU Member States to Western European countries, which could have had severe impacts on the host countries' national labor markets. The underlying motivation was to restrict free movement for a period of up to seven years in which Western European labor markets could prepare for the inflow of workers, where perceived necessary, and in which per capita income convergence of the "new" Member States could progress further, thus reducing the incentives to migrate. Generally, it seems that the transitional arrangements were effective in keeping inward migration from the EU-10 in check. Those EU-15 labor markets that opened up fast have not experienced major upheavals. So far, migration from the "new" to most of the "old" EU Member States has been by no means excessive since the enlargement. At the same time, one has to concede that (apart from Sweden, which forms somewhat of an exception) the countries that opened their labor markets from the beginning were geographically fairly distant from the CESEE countries.

The evidence available suggests that since EU accession, some 200,000 to 250,000 people per year have emigrated from the CEECs (see Brücker, 2007a). This figure is about 30% to 40% lower than projected ex ante and represents around 1½% cumulatively of the countries' total population since 2004 (with Latvia, Lithuania and Poland showing somewhat higher emigration rates). However, the statistical migration data available are often of poor quality, and comparability across countries is not always guaranteed (see Nowok and Kupiszewska, 2005). In this context, it should be noted that the forecasts were usually based on the assumption that all countries would immediately open their labor markets for CEE workers. In reality, the introduction of the transitional arrangements probably led to a reduction in total migration streams, and definitely caused a redirection of migration flows to countries that opened their labor markets, especially to the U.K. and Ireland (less so to Sweden, owing at least partly to language barriers;

see Doyle, Hughes and Wadensjö, 2006). These countries received a much larger fraction of total migration than originally expected, while traditional migration destinations for CEE citizens like Germany and Austria received comparatively little (see Iara, 2008). Due to the higher inflow of migrants to the U.K. and Ireland after the 2004 enlargement, both countries opted to restrict access to their labor markets for Bulgarian and Romanian citizens for the first two years after accession. So far, the most attractive destination countries for people from Bulgaria and Romania are Spain and Italy (see Iara, 2008).

It remains to be seen how migration will develop after the complete abolition of the transitional arrangements. A few factors point to a possible increase in migration to countries like Germany and Austria, which share long borders with the "new" EU Member States in Central Europe. This makes commuting for work on a daily or weekly basis an attractive option.[4] However, the literature on migration (Mincer, 1978; Carrington, Detragiache and Vishwanath, 1996) also shows that existing migrant networks may play a decisive role when it comes to taking migration decisions. As such networks are now already established in the U.K. and Ireland, one can expect those countries to remain attractive migration destinations (see Brücker, 2005). However, given the restrictions imposed on Bulgarian and Romanian workers, the immigration from these countries will probably remain contained. Furthermore, the favorable labor market and wage developments in the EU-10 countries, as depicted above, may well lower incentives to migrate.

In order to arrive at a comprehensive overview of the labor market implications of migration, we need to look at the changes to the labor force brought about by both emigration and immigration. Net migration figures can be calculated from population data as the difference between population changes and the natural increase or decrease of the population (net $\text{migration}_{t-1} = \text{population}_t - \text{population}_{t-1} + \text{births}_{t-1} - \text{deaths}_{t-1}$). Such figures represent the difference between immigration to and emigration from a given country. Therefore, net migration figures do not tell us about the absolute levels of emigration and immigration streams. In contrast to more detailed data on emigration and immigration movements, these figures are readily available for large country samples and longer time periods and are comparable across countries (the latter is not always possible with more detailed data because definitions of migration may differ).

The migration figures derived on the basis of population data, however, do not allow any conclusions on short-term migration, i.e. migration for a time span of less than a year, which may be an important factor for some countries (see Budnik, 2007). A further disadvantage is that population data is usually derived from official registration records. It appears that people frequently migrate (also for shorter time spans on a cyclical basis) without deregistering at the relevant administrative offices. These people therefore do not show up in the net migration figures derived

[4] *Existing estimates of the commuting potential between Austria and its Central European neighbors, for example, put the numbers at between 40,000 to 110,000 people over the first five years, with some estimates as high as 200,000 people or more over a ten year period. However, such estimates are subject to considerable uncertainty. See European Commission (2006b).*

from population data.[5] These shortcomings somewhat narrow the conclusions that can be drawn on the basis of the data material used. To remedy this problem we would have to rely either on proper population censuses that are only conducted at long intervals or on survey data from other sources. Such data, however, are not available for all countries and, due to different data collection methodologies, comparability cannot be guaranteed. Against this background, the use of data derived from population statistics provided by Eurostat seems to be the most reasonable choice as they are somewhat harmonized and quality controlled.

Bearing the above caveats in mind, the data on net migration among the working age population presents a very mixed picture of developments in CESEE countries (see table 1). Out of the ten nations under observation only three (Latvia, Poland and Romania) showed negative net migration rates among the working age population since 2004. Six countries (the Czech Republic, Estonia, Lithuania, Hungary, Slovenia, and Slovakia) showed positive net migration, meaning that more people immigrated into than emigrated from those countries. Available data suggest that emigration to Western Europe was accompanied by increasing immigration from countries like Russia, Ukraine, Belarus, and Moldova, as well as from Asian countries like China or Vietnam. Also, a comparison between the periods from 2001 to 2003 and from 2004 to 2006 (i.e. pre- and post-EU accession) shows no genuine decrease in net migration rates in the time series. Generally, one would have expected net migration to decrease once the people from Eastern Europe gained easier access to Western European labor markets after enlargement, but this happened only in Romania, a country that was not an EU member in 2006. In the other countries net migration actually increased. This general picture is also largely confirmed by net migration rates of total population.[6]

Longer time series show that net outward migration reached a peak at the beginning of transition in the early 1990s (see United Nations, 2002). Since then, net migration rates have generally increased and even become positive in some CE nations. According to World Bank data on migration stocks for the CEESE EU Member States for 2005 (World Bank, 2008), the Czech Republic, Slovenia and Latvia showed a positive net migration stock. This means that the stock of immigrants in e.g. Slovenia was higher than the stock of Slovenian emigrants in foreign countries. However, such figures are not strictly comparable with net migration flows, as they do not record the year in which the migration movement took place. So these figures may predominantly reflect migration streams from the early years of transition.

A look at the development of the working age population since EU accession reveals that migration did not lead to quantitative labor shortages in the EU-10

[5] *A method of gaining an impression of cross-border mobility for short time periods (i.e. commuting) is to compare the Eurostat employment figures according to the national concept and the domestic concept. While the national concept measures employment of residents (e.g. of all persons residing in Hungary, irrespective of whether they actually work in Hungary or not), the domestic concept measures employment within a given nation (e.g. employment in Hungary, irrespective of whether the person in question is actually a resident of Hungary or not). Comparing the two figures reveals the difference between the number of people residing in a given country and of people working there. If this difference is positive, people commute to other countries for work. As this data is only available for very few countries, however, the calculations have not been conducted.*

[6] *The only major exception is Lithuania though this seems mainly ascribable to data problems.*

Table 1

Net Migration Rates[1] (Working Age Population, 15–64)

	2001 to 2003, average	2004 to 2006, average
Bulgaria	−10.4	0.0
Czech Republic	−0.7	3.3
Estonia	0.1	0.1
Latvia	−2.4	−0.2
Lithuania	−3.3	2.8
Hungary	0.9	1.9
Poland	−5.6	−0.4
Romania	−0.0	−0.5
Slovenia	1.7	2.1
Slovakia	−1.3	0.5

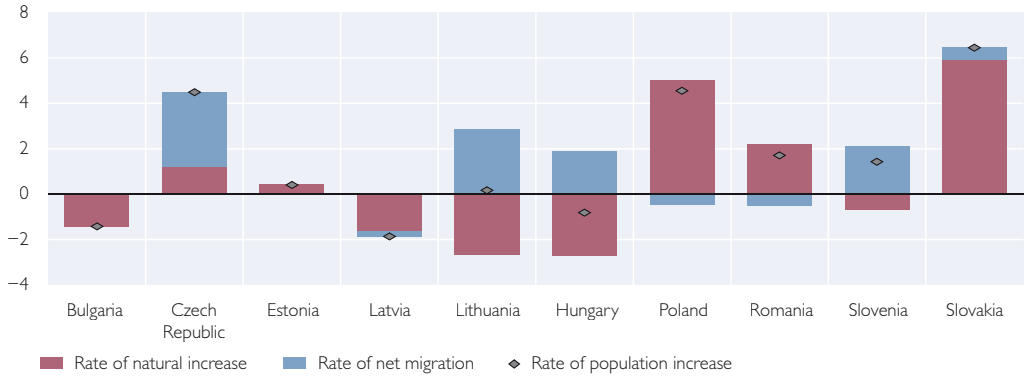
Source: Eurostat, author's calculations.

[1] Migration per 1,000 inhabitants.

Chart 11

Decomposition of Working Age Population Growth

Persons per 1,000 inhabitants, average 2004 to 2006



Source: Eurostat, author's calculations.

but, quite to the contrary, in Lithuania, Hungary and Slovenia, it mitigated the – far more significant – negative effects of demographic trends on the working age population, while in the Czech Republic it reinforced short term positive demographic trends (see chart 11).[7] In Latvia, Poland and Romania, net migration made no more than a slightly negative contribution to working age population growth.

In addition to size, the composition of the labor force in terms of age and skills is important for labor market and wage developments. It is often suggested that predominately the young and well educated tend to migrate, an idea supported by, for instance, labor force survey data from the UK Statistics Authority and the Central Statistics Office Ireland which show that younger people were indeed more strongly represented among CEE immigrants. Net migration figures for the country group under observation, however, show that the outflow of young peo-

[7] *It should be noted, however, that longer-term demographic trends in the Czech Republic point to considerable population ageing.*

Table 2

Net Migration Rates[1] by Population Cohorts, Average 2004 to 2006

	15–24 years	25–39 years	40–54 years	55–64 years	15–64 years
Bulgaria	0.0	0.0	0.0	0.0	0.0
Czech Republic	5.0	4.7	2.3	0.4	3.3
Estonia	−0.0	−0.0	0.2	−0.1	−0.0
Latvia	−0.7	0.1	−0.2	−0.3	−0.2
Lithuania	0.4	−10.6	13.1	12.8	2.8
Hungary	2.8	2.4	1.1	1.4	1.9
Poland	−0.7	−0.4	−0.4	−0.1	−0.4
Romania	−0.3	−1.0	−0.2	−0.1	−0.5
Slovenia	4.1	2.5	1.3	0.5	2.1
Slovakia	0.3	0.6	0.6	0.5	0.5

Source: Eurostat, author's calculations.

[1] migration per 1,000 inhabitants

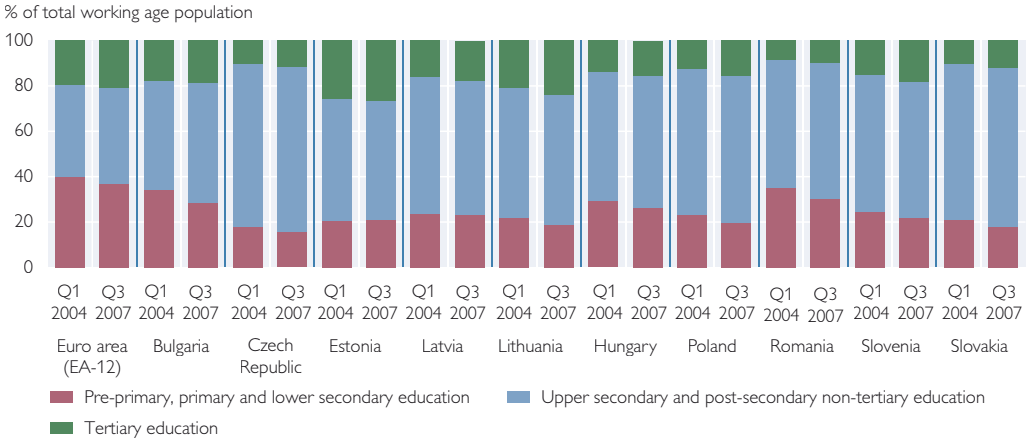
ple did not substantially exceed the inflow. Net migration was rather broad based across age groups, with only Lithuania and, to a lesser extent, Latvia, Poland and Romania experiencing larger outflows of younger people (see table 2). This finding is not surprising given that young people in all countries, not just the EU-10, are more likely to migrate and so also account for a greater share of the inflow. On balance (i.e. in net migration rates), absolute levels of migration streams should not matter. Migration, therefore, did not substantially alter the age composition of the workforce in the sending countries.

Unfortunately, data on the skill levels of emigrants and immigrants are scarce. One recent survey by Eesti Pank shows that, in Estonia, less educated population strata are more likely to migrate (see Rõõm, 2008). A similar pattern could be confirmed for Poland (see Budnik, 2007, and Iara, 2008). Brücker (2007b) reports that migrants are concentrated at medium skill levels. However, we cannot generalize these findings to the EU-10 countries as a whole. Still, the composition of the working age population according to educational attainment and its development over time shows a clear trend toward higher education levels (see chart 12). In all countries, the share of people with tertiary education in the total working age population increased over the last few years, whereas the share of people with only pre-primary, primary and lower secondary education decreased in almost all countries. So even if most migrants were well educated, their departure has apparently not seriously impacted on the aggregate skill picture of the working age population. Of course, the shift to higher education levels might have progressed more swiftly were it not for migration, but data constraints prevent us from backing up this argument.

The general skill upgrading in the EU-10 countries can be traced back to a rising overall education level, as shown by increasing enrolment rates in upper-secondary, post-secondary and above all tertiary education, which was even more pronounced than in the euro area. It should be borne in mind, however, that education systems in CEE countries do not always deliver the skills that labor markets require. The shift to a higher education level has allowed the CEE countries to increasingly manufacture higher-quality and technologically more advanced

Chart 12

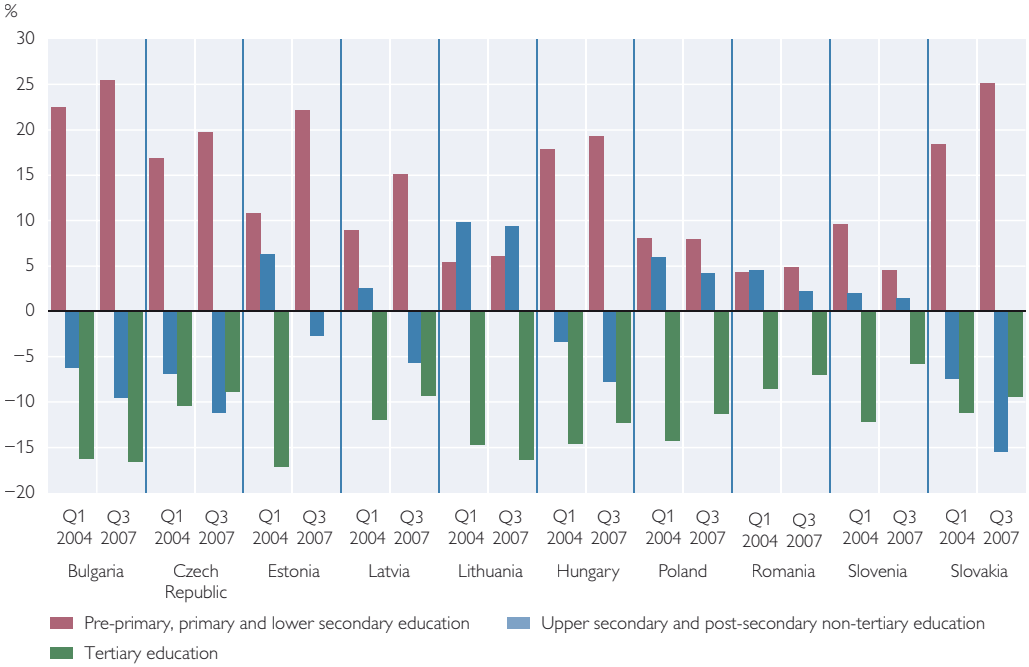
Educational Attainment among Working Population



Source: Eurostat.

Chart 13

Excess Supply of Labor by Educational Attainment



Source: Eurostat, author's calculations.

products. In order to sustain this move toward higher value added products, it is crucial to ensure a sufficient supply of well-trained labor.

Despite rising enrolment rates and increasing shares of people with higher education, the rising demand for skilled workers cannot be fully met in a number of EU-10 countries. Excess supply, measured by the difference between the percentage share of workers with a given educational attainment in unemployment and in employment (World Bank definition[8]), provides a proxy of the magnitude of the educational mismatch. It is clearly visible that in all EU-10 countries workers with tertiary education are in short supply (see chart 13). In most countries, this is also true for people with upper secondary and post-secondary non-tertiary education. In contrast, people with low educational attainment clearly make up a greater share of the unemployed than of the employed. In most countries, this mismatch has even been increasing over time, with only Poland, Romania and Slovenia showing better outcomes now than three years ago.

This educational mismatch seems to be a main driver behind high labor cost growth. Simulations of the macroeconomic effects of migration on the labor markets of sending countries generally find that migration has little impact on income (see e.g. Brücker, 2007b, who finds that the aggregate income of natives in sending countries is only marginally affected by migration.) The primary cause for the educational mismatch is an abrupt shift in labor demand accompanied by a gradual adjustment in labor supply. Whether emigration has played some second-order role in adding to this mismatch cannot be stated with certainty (apart from Estonia and Poland, where it has not) owing to missing data. With ongoing structural change and further upgrading in production, this educational mismatch could become an obstacle to economic development. Measures to raise educational attainment are hence of paramount importance. As regards migration, policy measures to promote inward migration (including remigration) of skilled workers, especially those with upper secondary and post-secondary non-tertiary education, could also alleviate this mismatch.

6 Conclusions

Labor market conditions in most new EU Member States have improved markedly since EU accession in 2004. A broad-based decrease in unemployment rates and strongly rising employment have led to increasing wage pressures and emerging labor market shortages in some economies. Many observers subsequently attributed this labor market tightening in part to the increasing migration of especially young and well-educated people in the aftermath of EU enlargement.

However, net migration figures derived from population data do not seem to support this assumption. In fact, in the period from 2004 to 2006, net migration was only slightly negative in three of the ten CESEE EU Member States, while it was positive in the remaining seven. This finding seems to conflict with anecdotal evidence and some recent studies (see Brücker, 2007a, and Iara, 2008). However, it should be borne in mind that work in this area often focuses on emigration only

[8] *"A positive (negative) value means that the unemployed more (less) frequently have given educational attainment than the employed. The educational structure of employment proxies that of labor demand. The education structure of unemployment proxies that of excess labor supply." (World Bank, 2007).*

(especially to the United Kingdom and Ireland, as data for these countries is readily available) and does not take account of immigration and return migration. Another factor explaining this gap is temporary migration, which only partly shows up in annual net migration figures but may well play an important role in several countries. The data material in this area, however, is especially limited and comparability across countries is often difficult. Moreover, available data suggest that the age structure of the EU-10 population has not been affected by migration.

For most countries, available data do not allow for a breakdown of migration by educational attainment. We thus cannot directly examine whether those leaving the country are primarily well educated. The overall picture of the composition of the working age population according to skill levels, however, indicates that the educational structure has continued moving toward higher education levels since 2004. This may be interpreted as indirect evidence that the emigration of well-educated people has remained contained so far. Thus, this finding does at least not corroborate the claim that skilled people have a higher propensity to emigrate from EU-10 countries.

This is reassuring given that labor market data show that people with a high educational attainment are in high demand but low supply in all the countries of the region. The lack of skilled labor also seems to be a key factor driving wage and unit labor cost developments, whereas there is little evidence that migration has contributed substantially. As further income convergence will require continued upgrading toward the manufacture of higher-quality and technologically more advanced products, coping with shortages of highly skilled labor – both by added efforts in skilling the domestic population and by attracting skilled inward migrants – poses an increasingly urgent challenge for the future economic development and catching-up of the EU-10 countries.

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Factors Driving Import Demand in Selected Central, Eastern and Southeastern European Countries

Thomas Reininger[1]

This study presents estimates of both country-specific and panel long-run import elasticities for EU Member States from Central, Eastern and Southeastern Europe and for Croatia and Turkey. The results confirm (1) the existence of a strong export-import link in most of the countries, (2) the prominent role of fixed investment in determining imports in nearly all countries, and (3) with some exceptions, the relatively smaller role of private consumption for imports. Furthermore, we use import elasticities to test for economic interlinkages within the EU-27 and find that economic integration is advanced.

1 Introduction

Research on factors that influence import demand has always been an active area of both theoretical and empirical economic study. This interest has often been motivated by issues associated with external imbalances and their culmination into external debt problems. Against this background, appropriate estimates of import demand functions are generally of great interest for considering adequate policy responses.

This study focuses on the EU Member States of Central, Eastern and Southeastern Europe, here abbreviated as CESEE-MS (i.e. the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia, which entered the EU on May 1, 2004, as well as Bulgaria and Romania, which became EU Member States on January 1, 2007). To the extent that it is possible, this paper also includes Croatia and Turkey, the candidate countries negotiating accession to the EU.

Most of the countries under review had non-negligible levels of current account deficits in recent years. However, looking e.g. at the most recent three-year averages reveals quite important differences between them (see table 1). In most countries, the deficit in the goods and services balance, i.e. the main component of the current account, contributed substantially to the current account deficit (Slovakia, Estonia) or even exceeded it and was only to a minor extent offset by a surplus in the other sub-balances (Lithuania, Latvia, Bulgaria, Romania, Croatia). By contrast, in the Czech Republic, Hungary, Poland and Slovenia, a negative income balance was the main source of the current account deficit, while the goods and services balance posted a relatively small deficit (Hungary, Poland, Slovenia) or even a surplus, which was, however, not (yet) sufficiently high to finance the deficit in the income balance (Czech Republic).

In the study of import demand of these countries, which are all catching-up economies, it is of particular interest to examine the extent to which it is demand effects or price and exchange rate effects that drive import demand. Moreover, when we look at total demand effects, the relative importance of domestic demand versus that of foreign demand (exports) is another relevant aspect. This includes also the question of how strong is the export-import link. With respect

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Table 1

Development of the Current Account and the Goods and Services Balance in CESEE-MS as well as Croatia and Turkey

	Three-Year Averages			EU Commission Forecast	
	1998 to 2000	2001 to 2003	2004 to 2006	2007e	2008e
	Current account balance as a percentage of GDP				
Czech Republic	−3.1	−5.7	−4.1	−2.5	−2.1
Hungary	−7.5	−6.7	−6.6	−3.9	−1.5
Poland	−5.7	−2.5	−2.2	−3.3	−2.9
Slovenia	−2.2	−0.3	−2.8	−3.3	−2.6
Slovakia	−5.1	−7.0	−8.2	−4.2	−2.7
Estonia	−6.0	−8.6	−11.3	−13.6	−11.2
Lithuania	−9.5	−5.3	−7.3	−12.5	−12.9
Latvia	−7.4	−7.0	−14.4	−22.2	−18.9
Bulgaria	−3.5	−4.5	−10.6	−17.0	−16.0
Romania	−4.8	−4.6	−8.6	−12.8	−14.5
Croatia	−10.4	−4.3	−6.7	−8.5	−8.1
Turkey	−1.2	−0.5	−4.9	n.a.	n.a.
	Goods and services balance as a percentage of GDP				
Czech Republic	−1.8	−2.2	1.1	..	..
Hungary	−2.6	−2.5	−0.9	..	..
Poland	−6.5	−3.1	−1.0	..	..
Slovenia	−3.0	0.3	−0.9	..	..
Slovakia	−5.4	−5.3	−4.0	..	..
Estonia	−5.9	−5.5	−8.6	..	..
Lithuania	−9.3	−5.5	−8.2	..	..
Latvia	−9.7	−10.9	−17.3	..	..
Bulgaria	−3.6	−9.4	−15.5	..	..
Romania	−5.9	−7.0	−10.5	..	..
Croatia	−12.4	−7.1	−7.4	..	..
Turkey	−1.8	0.6	−3.9	..	..

Source: European Commission Forecast Autumn 2007, Eurostat, national central banks, author's calculations.

Note: The current account balances include the small surpluses on the capital account that stem primarily from EU transfers, except for the forecast values given for Croatia. Data for Turkey are based on the GDP figures as revised in 2008; thus, no consistent forecast values by the European Commission were available.

to total domestic demand, we can also distinguish between (private) consumption and investment. Finally, another question arises regarding foreign demand: To what extent is import demand driven by foreign demand that stems from a country's main trading partner – the EU-15 states, i.e. the EU Member States before the 2004 and 2007 enlargements, or those EU Member States that joined the euro area before 2007 (EA-12). In other words, how strong is the interlinkage between imports within the EU-27?

A more profound insight into the factors that drive import demand in the CESEE-MS may be helpful for understanding the ongoing process of European economic integration. It may also provide some hints for possible policy responses to address large external imbalances.

This study is structured as follows: Section 2 provides a brief survey of papers published on import demand functions and presents the main variables used to estimate import demand equations in practical terms. In section 3, the study gives some stylized facts on total final demand in the CESEE countries as background information for interpreting the ensuing estimation results. Section 4 highlights

the econometric issues involved in estimating import demand functions and outlines the econometric framework. Section 5 presents the estimation results, while section 6 briefly summarizes and concludes. The data used for the CESEE import equations, data availability and limitations as well as possible structural breaks in the time series are outlined in the appendix.

2 Literature Survey

Given the quite comprehensive literature dealing with import demand functions, we will only mention a few papers that are often considered milestones in the analysis of import demand. While there are many country-specific papers in which import demand functions are estimated for one particular country, this paper focuses on those that cover several countries, often grouped into developing versus developed countries.

Hoetthaker and Magee (1969) provided an early paper on income and price elasticities in world trade, in which they conclude that the import elasticity with respect to income is lower in developing countries than in developed economies.

Several years later, Goldstein and Khan (1985) of the IMF published a comprehensive overview on income and price effects in foreign trade, including estimates of price and income elasticities and related policy issues. Their overview includes both theoretical aspects and estimation methodologies. However, the approaches they describe for estimating import demand functions are rather traditional, which is in particular attributable to the fact that the paper was written before cointegration analysis was introduced.

Among the studies that were published after the development of cointegration analysis and thus apply an error correction model, the earliest papers were by Deyak et al. (1993) for Canada, and Clarida (1994) for the U.S.A. (covering the period from 1968 to 1990, based on seasonally adjusted quarterly data), followed by Carone (1996) for the U.S.A., and Amano and Wirjanto (1997) for Canada and the U.S.A. (covering the period from 1960 to 1993, based on quarterly data).

Reinhart (1995) and Senhadji (1997), both of the IMF, applied a similar approach to a larger number of countries. Reinhart used data on 12 developing countries for the period from 1970 to 1991, pooled into regional blocks (3 African, 4 Asian and 5 Latin American countries). In addition to estimating import demand functions, she estimated also the elasticity of these countries' exports with respect to income in developed countries. Comparing such specific import elasticity with respect to income of developed countries (specific in that it is confined to imports from these developing countries) with her estimates of import elasticity with respect to the income in developing countries, she confirmed the results obtained by Hoetthaker and Magee (1969), according to which this elasticity is higher in developed economies than in developing countries. Senhadji (1997) came to the same conclusion on the basis of a sample comprising 77 countries.

More recently, Harb (2005) estimated a heterogeneous panel of 40 countries with 28 annual observations for each country. The data series start in different years and range from the mid-1960s to the late 1990s. Splitting his panel into developed economies and developing countries, he could only partially confirm the results obtained by Hoetthaker and Magee (1969).

In a narrower country focus, Tsionas and Christopoulos (2004) applied cointegration analysis to four EU countries (UK, FR, IT, NL) and the U.S.A. for the period from 1960 to 1999.

With respect to the CESEE-MS, there are some advanced estimations of import demand functions for individual countries, e.g. by Benacek et al. (2003) who performed a detailed study on the factors determining the Czech foreign trade balance by looking at both import and export functions at a disaggregated (two-digit NACE) level. In both functions they included several explanatory variables, e.g. the stock of inward FDI, in addition to the main activity variable and relative prices. Moreover, they investigated these functions separately for trade with the EU and for trade with non-EU countries, highlighting the strong interdependence of imports from and exports to the EU.

Mroczek and Rubaszek (2004) estimated the volume of Poland's imports from the EU in the period from 1992 to 2002, taking weighted total final demand as the activity variable, while imposing a unity restriction on the income elasticity for the long-run relationship. Fic et al. (2005) present a multi-equation macroeconomic model of the Polish economy (ECMOD), which incorporates a module on the import volumes that includes a trend variable, potential GDP as activity variable (combined with a unity elasticity restriction) and relative import prices adjusted for oil price fluctuations and enhanced by the rate of customs duties in the cointegrating relationship. This model was estimated on the basis of quarterly data for the period from 1995 to 2004.

Benk et al. (2006) present the Hungarian Quarterly Projection Model (NEM), which incorporates an equation for import volumes that includes weighted total final demand (combined with a unity elasticity restriction) and the real effective exchange rate based on relative import prices in the cointegrating relationship.

The British National Institute of Economic and Social Research (NIESR, 2007) estimated import demand functions for CESEE-MS on the basis of quarterly data in the period from 1993 to 2003 by using a panel that included the Czech Republic, Estonia, Hungary, Poland and Slovenia, in order to build the respective country modules within the institute's General Equilibrium Model (NiGEM).

However, to the best of our knowledge, no systematic estimates of import demand functions have been made for individual CESEE-MS (as well as Croatia and Turkey) that follow the same methodological approach.

Usually, the import demand equation used for empirical estimation purposes takes the following general log-linear form:

$$\ln(m_t) = c + \alpha \ln(a_t) - \beta \ln\left(\frac{p_m}{p}\right)_t \tag{1}$$

where a represents the real economic activity variable, m stands for imported goods, and p_m/p denotes the relative import price level.

Many authors, e.g. Reinhart (1995) or Tsionas and Christopoulos (2004), use GDP as the main activity variable when estimating import demand functions. By contrast, Senhadji (1997) takes GDP minus exports, while Amano and Wirjanto (1997) construct the sum of private real consumption and aggregate real investment as their activity variable, arguing in favor of excluding public consumption as

"aggregate private [domestic] demand is an appropriate index of market demand for imported goods" (Amano and Wirjanto, 1997, p. 467).

In his empirical estimates for the U.S.A., Clarida (1994) calculates a proxy for the consumption of domestically produced (nondurable) consumer goods as the explanatory variable. However, he estimates an import demand equation that he derived within a utility-maximizing framework which includes final consumption goods only. Consequently, he aims at explaining the consumption of imported nondurable goods, for which he uses imports of nondurable consumer goods as a proxy.

Harb (2005) uses both Senhadji's and Reinhart's specifications for the activity variable and concludes that GDP (as opposed to GDP minus exports) yields a superior performance. In building the CESEE country modules in NiGEM, NIESR used total final demand for performing its panel estimate of import demand functions.

In this study, too, we use real total final demand as the main activity variable. However, for the testing equation, we split real total final demand into its main components: real private consumption (C), real gross fixed capital formation (fixed investment, I), and real exports of goods and services (X). In doing so, we aim at gaining a deeper insight into the driving forces of imports of goods and services. In effect, we thus exclude public consumption from the estimation, following the line of Amano and Wirjanto (1997).

It has to be noted that quite often, import demand functions show imports as having (by assumption) unitary elasticities with respect to the activity variable and the relative price level (i.e. 1 and –1, respectively). However, according to Reinhart (1995) and Harb (2005), there are good reasons why these elasticities may deviate from unity, in particular when taking into account that imports do not consist of final goods only.

3 Structure of Total Final Demand in CESEE-MS as well as Croatia and Turkey: Some Stylized Facts

Table 2 shows the share of the main components of total final demand[2] in full-year 2006.

Exports have the largest weight in total final demand in most of the CESEE-MS that acceded to the EU on May 1, 2004, with the exception of Lithuania and Poland, where private consumption is the largest component. In Bulgaria, Romania, Croatia and Turkey, private consumption has the largest weight, too. The structure of total final demand is quite similar in Lithuania, Bulgaria and Croatia. Poland's structure resembles that of the EA-12, while Romania and Turkey show a particularly low weight of exports combined with a particularly high weight of private consumption in total final demand.

The share of fixed investment in total final demand is considerably lower than that of exports and private consumption, but it is larger than that of public consumption in all countries, with the notable exception of Hungary (where both are about equal in size).

[2] *Here, total final demand excludes the statistical discrepancy in all countries and the change of inventories in all countries except for Estonia and Croatia.*

Table 2

Total Final Demand of CESEE-MS as well as Croatia and Turkey in 2006

	Private Consumption	Public Consumption	Fixed Investment	Exports
	Shares in % (excluding change of inventories and statistical discrepancy)			
Czech Republic	28.2	12.5	14.7	44.6
Estonia[1]	28.8	8.7	20.3	42.2
Lithuania	39.7	10.5	13.9	35.9
Hungary	30.7	12.7	12.5	44.1
Poland	44.4	12.8	14.0	28.8
Slovenia	32.0	11.4	15.3	41.3
Slovakia	30.6	9.7	14.1	45.6
Latvia	27.7	10.4	21.3	40.6
Bulgaria	39.1	9.8	14.8	36.2
Romania	48.2	12.4	17.0	22.4
Croatia[1]	36.4	13.1	19.4	31.1
Turkey	51.6	10.2	16.3	21.9
EA 12	41.1	14.7	15.3	28.9

Source: Eurostat, author's calculations.

[1] *Fixed investment includes changes in inventories in the case of Estonia and Croatia.*

The lower share of exports in the EA-12 as well as in Poland, Romania and Turkey (partly) reflects the smaller degree of openness inherent in the larger size of the respective economic area (in terms of population and the economy). Conversely, comparatively smaller economies could be expected to have larger shares of exports in total final demand. However, the largest export shares are found not in the Baltic countries, but in the Czech Republic, Slovakia and Hungary. In case of the former two countries, this may be partly explained by the still remaining strong economic integration between the two. Moreover, in all three countries the sizeable stock of inward FDI has probably particularly enhanced the role of exports.

From another perspective, a relatively higher share of exports in total final demand can be expected for catching-up countries, as exports tend to be valued at world market prices (at least when assuming that the law of one price holds for tradables), while non-tradables are usually still valued lower in these economies than tradables that are integrated in the world market.

4 Econometric Approaches for Estimating Import Demand Functions

Since we are interested primarily in long-run import elasticities, we build an error correction model (ECM) which includes the long-run cointegration relationship (error correction term, ECT) between the dependent variable and the explanatory variables as non-stationary time series in levels. The estimations in this study are based on seasonally and working day-adjusted data. For more information on data sources and data availability, the interested reader is referred to the appendix.

4.1 Single-Country Time Series

In a first step, we use a single time series approach to estimate country-specific import demand functions. Under this approach, we first perform unit root tests

for all the variables chosen so as to determine which variables to include in the long-run relationship as nonstationary in levels.

In performing the unit root tests, we follow the testing strategy outlined by Mosconi (1998). This is a three-step strategy that starts with an augmented Dickey-Fuller (ADF) test on the basis of an autoregressive model that includes both a trend and a constant. If the null hypothesis of a unit root can be rejected at the MacKinnon 5%-level at this stage and the trend variable is significant, the time series is regarded as trend stationary. If the null hypothesis of a unit root cannot be rejected at the MacKinnon 5%-level, a Fischer test is conducted for the joint hypothesis that both a unit root and no trend exist. If this joint hypothesis can be rejected, the time series is regarded as nonstationary (usually as integrated of order one, I(1)) with a trend (and a constant).

In case that no significant trend can be established, the second step of this strategy consists in an ADF test on the basis of an autoregressive model that includes only a constant. Following the similar decision tree as before, the time series is considered to be stationary (I(0)) with a constant or nonstationary (usually I(1)) with a constant. Alternatively, in case that no significant constant has been found, the third step – an ADF test on the autoregressive model without a constant – leads to the time series regarded as stationary (I(0)) without a constant or nonstationary (usually I(1)) without a constant.

Basically, only variables that are found to be nonstationary in levels (usually integrated of order one, I(1)) are then included in the testable cointegration relationship. However, if the null of the ADF test can be rejected at the MacKinnon 5%-level, but not at the MacKinnon 10%-level, we also examine the cointegration relationship including this variable. Moreover, given the economically ambiguous character of statistical trend stationarity, we also examine the cointegration relationship including the variable that was found to be trend stationary.

In designing the test for cointegration, we took account of the possible endogeneity among the variables in the form of a simultaneity bias. Therefore, we employ the dynamic ordinary least squares (DOLS) method (Stock and Watson, 1993) for estimating the cointegrating vector itself, by including lags and leads of the first differences of the explanatory variables. To the extent possible in view of the short country-specific time series, the optimal number of lags and leads is determined on the basis of the Schwarz criterion.

Thus, the employed econometric framework consists of the following DOLS model:

$$m_t = \beta_0 + \beta_1 a_t + \beta_2 (p_m / p)_t + \sum_{i=0}^{iopt} \eta_{1,i} da_{t+i} + \sum_{j=1}^{jopt} \theta_{1,j} da_{t-j} + \sum_{i=0}^{iopt} \eta_{2,i} d(p_m / p)_{t+i} + \\ + \sum_{j=1}^{jopt} \theta_{2,j} d(p_m / p)_{t-j} + e_t \qquad (2)$$

The residuals (i.e. the residuals proper plus the differenced terms in leads and lags) that result from estimating this model for the variables that have been found to be nonstationary are then tested for stationarity by means of an ADF test. For evaluating the t-statistic of this unit root test (with the null hypothesis of a unit root being equivalent to no cointegration), we take not only the asymptotical MacKinnon critical values, but also the critical values corrected for the small sam-

ple size according to MacKinnon (1991), which turns out to have a considerable upward effect on these thresholds.

Having established cointegration, we rebuild the DOLS regression in first differences by lagging the explanatory terms and by including the (lagged) error correction term (ECT) that was derived from the first DOLS regression. This leads to the following error correction representation of the DOLS regression:

$$dm_t = c_0 + \gamma ECT_{t-1} + \delta_1 da_{t-1} + \delta_2 d(p_m / p)_{t-1} + e_t \qquad (3)$$

In this way, we estimate γ, i.e. the adjustment coefficient in the case of a disequilibrium in levels (as compared with the long-run relationship).

4.2 Panel Estimates

In a second step, we build three different types of panels to estimate import demand. From a methodological point of view, this constitutes an additional strategy to tackle the problem of short country-specific time series and to increase the reliability of results. Econometrically, more degrees of freedom and less collinearity among explanatory variables improve the efficiency of the estimates. Moreover, utilizing information on both the intertemporal dynamics and the individuality of the investigated countries allows controlling for the effects of missing or unobserved variables (Hsiao, 2003). From an economic viewpoint, we are also interested in the regional perspective. Therefore, we distinguish the following three panels: Panel 5 covers the five Central European EU Member States (Czech Republic, Hungary, Poland, Slovakia, Slovenia); panel 8 includes panel 5 plus the three Baltic countries; and panel 12 covers panel 8 plus Bulgaria and Romania, i.e. the Southeastern European EU Member States, as well as Croatia and Turkey.[3] In each panel we included country-specific fixed effects. Conducting a panel study allows us not only to examine a shorter time period (from 1995 up to 2003, before the EU accession of eight CESEE-MS on May 1, 2004) and a longer time period (from 1995 to mid-2007), but to examine the two subperiods (1995 to 2003 and 2004 to mid-2007) separately from the full time period.

In econometric terms, we first perform panel unit root tests for each panel on all the variables, testing the null hypothesis of a unit root by using the Levin, Lin & Chu (LLC) t*-statistic, which is based on the assumption of a common unit root process, and the Im, Pesaran & Shin (IPS) W-statistic, which is based on the assumption of individual unit root processes. In both cases, we apply the test with individual intercepts and – partly as a robustness check – with individual intercepts and individual (deterministic) trends.

Next, we applied the Pedroni panel cointegration test, an Engle-Granger-based residual test of the null hypothesis of no cointegration (unit root in the residuals), against the alternative hypothesis with common autoregressive coeffi-

[3] *Actually, we build nine different panels, of which only three are shown in the tables due to space constraints and in the interest of focusing the presentation. Three of the remaining panels are variants of the ones mentioned above (Panel 6 covers panel 5 plus Croatia, panel 9 includes panel 8 plus Croatia, and panel 11 is panel 12 minus Turkey), while the other three are subpanels for the Baltic countries (panel 3ba) and for the Southeastern European countries (panel 3se excludes and panel 4se includes Turkey). Their results broadly confirm the results presented, which may be considered as some sort of robustness check. Occasionally, we will make reference to these estimates when interpreting the results.*

cients (within-dimension) or individual autoregressive coefficients (between-dimension, see group statistics). Pedroni (1999) provides seven statistics, four within-dimension and three between-dimension statistics for evaluation. We focus on the ADF statistics (both within-dimension and between-dimension) for two reasons. First, in a methodologically similar study, Canning and Pedroni (2004) opt for the same type of statistics. Second, in a comprehensive simulation study on the performance of panel cointegration methods, Wagner and Hlouskova (2007) conclude that these statistics show a superior performance, in particular in the case of a relatively short cross-section specific length of time series (T). Additionally, we take into account the other test statistics, even though they are not presented in the tables due to space constraints and in the interest of focusing the presentation. Here again, we apply the test with individual intercepts and – partly as a robustness check – with individual intercepts and individual trends.

The relationship between the cointegrated nonstationary variables is then recovered from a DOLS regression, with the numbers of leads and lags of the differenced terms determined by the Schwarz criterion. In order to control for heteroscedasticity across the panel, we performed standard error corrections (across cross-sections, the time dimension and both) to derive White-consistent t-statistics. While we report the values without heteroscedasticity corrections, the values resulting after these corrections are referred to as results of robustness checks.

Next, we build the ECM by rebuilding the DOLS regression in first differences, including the lagged ECT that was derived from the initial DOLS regression. Again, we determine the numbers of leads and lags of the differenced terms by the Schwarz criterion.[4] From the ECM estimation, we obtain the adjustment parameter for the disequilibrium in levels. We test for the homogeneity of the long-run adjustment parameter across countries by applying the Wald test, an F-test of the null hypothesis that all the cross-section-specific (i.e. country-specific) long-run adjustment parameters are equal to the average (across countries) long-run adjustment parameter.

5 Results

5.1 Single-Country Time Series

Under the country-specific single time series approach, the **unit root tests** on the stationarity of the time series involved show that all GDP components (M, C, I, X) can be considered nonstationary in the form of I(1).

However, with respect to the relative import price level, the results are not entirely clear cut (see appendix, table A.1). The relative import price level was found to be stationary in several cases (Estonia, Hungary, Poland and Romania as well as Bulgaria for the shorter and Lithuania for the longer period). Given the large swings in the exchange rate in both directions in Hungary, Poland and Romania, and the particularly high pass-through of import prices in very small

[4] *We also set up an ECM that was restricted to include only the first-order lag of the differenced terms. (The results of this variant were roughly in line with those of the Schwarz-determined ECM.) Moreover, we set up an ECM that included lags of the first differences of the dependent variable (in addition to the leads and lags of the differenced explanatory variables), with the number of lags again determined by the Schwarz criterion. Finally, we repeated the whole exercise on the basis of the Akaike information criterion.*

and open economies, this result is economically plausible for the time periods considered.

Moreover, the relative import price level was found to be trend stationary in the Czech Republic and Latvia, as well as in Bulgaria for the longer period. Finally, in Lithuania for the shorter period, the null of a unit root could not be rejected at the MacKinnon 5%-level of statistical significance, but at the 5.5%-level. For the cases of trend-stationary time series and for the borderline case of Lithuania in the shorter period, we examine both possible cointegration relationships, including and excluding the relative import price level.

Where the MacKinnon critical value (increased in absolute terms by correcting for the small sample size) is surpassed (in absolute terms), a significant **cointegration** relationship is established. In the longer period (up to mid-2007), significant cointegration is found in all countries except the Czech Republic, Croatia[5] and Turkey (see appendix, table A.2).

At the same time, significant cointegration relationships can be established more often in the period up to mid-2007 than in the period up to 2003. While extending the time series alone might have produced this result (given that the increase of the critical value as a result of the small-sample correction declines with the number of observations), the effect of this change in the size of the critical value is in fact rather small.

In the cases in which we examine both possible cointegration relationships (including and excluding the relative import price level), in particular the cases of trend-stationary relative import prices, the cointegration relation without the relative import prices is mostly found to be superior and significant (with the Czech Republic being the main exception). Thus, only one significant cointegration relationship remains in each country (or none in case of the Czech Republic, Croatia and Turkey).

The estimated **adjustment coefficient** is found to be negative in all cases in which a significant cointegration relationship can be established. Thus, any disequilibrium in the lagged long-run level relationship, i.e. ECT (–1), induces corrective changes in aggregate imports toward the long-run equilibrium ("ECT acts as attractor"). In fact, this is what is required for the stability of the long-run equilibrium.

The **long-run import elasticities** that are recovered from the significant cointegration relationships are summarized in table 3.

Exports are found to be highly significant in explaining imports in all countries. In six out of nine countries with significant cointegrating relationship, the import elasticity with respect to exports is highest among the import elasticities with respect to the main final demand components. It is considerably higher than the others in Estonia, Lithuania and Slovenia, and roughly equal to the elasticities with respect to fixed investment in Hungary, Bulgaria and Poland, thereby exceeding (Hungary, Bulgaria) or equaling (Poland) the elasticity with respect to private consumption. The significant large impact of exports confirms the hypothesis of a strong export-import link in these countries. Apart from the fact that the rela-

[5] *For Croatia, however, cointegration is found to be highly significant if we exclude the relative import price level from the long-run relationship. In this case, private consumption is highly significant (with a large coefficient) in explaining imports, and fixed investment is significant at the 10%-level, while exports are not significant.*

Table 3

Long-Run Elasticity of Imports with Respect to the Main Components of Total Final Demand (and, for A, with Respect to the Relative Import Price Level)

		swa 2003			swa 2007		
		1995q1 to 2003q4			1995q1 to 2007q2		
		C	I	X	C	I	X
		Coefficients significant at the 5%-level in bold print (with the corresponding p-values in italics below) ***Dependent variable: M (logarithm of M)***					
Estonia	B	−0.11	**0.26**	**0.84**	0.06	**0.19**	**0.81**
		0.640	*0.040*	*0.000*	*0.665*	*0.020*	*0.000*
Latvia	B	..	..	..	**0.59**	**0.19**	**0.42**
		..	..	..	*0.000*	*0.007*	*0.016*
Lithuania	B	0.02	**0.36**	**0.69**	**0.18**	**0.37**	**0.64**
		0.834	*0.000*	*0.000*	*0.017*	*0.000*	*0.000*
Hungary	B	..	..	..	−0.21	**0.72**	**0.71**
		..	..	..	*0.054*	*0.000*	*0.000*
Poland	B	0.27	**0.57**	**0.61**	**0.54**	**0.48**	**0.46**
		0.360	*0.000*	*0.000*	*0.017*	*0.000*	*0.000*
Slovenia	A	−0.37	**0.29**	**0.65**	0.14	**0.25**	**0.70**
		0.511	*0.036*	*0.005*	*0.542*	*0.000*	*0.000*
Slovakia	A	..	..	..	**1.06**	**0.10**	**0.51**
		..	..	..	*0.000*	*0.117*	*0.000*
Bulgaria	B	**−1.71**	**0.86**	**0.77**	**−1.30**	**0.74**	**0.86**
		0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Bulgaria 97[1]	A	..	..	..	−0.26	**0.51**	**0.67**
		..	..	..	*0.340*	*0.000*	*0.000*
Romania[2]	B	..	..	..	**0.89**	**0.32**	**0.41**
		..	..	..	*0.000*	*0.086*	*0.000*

Source: Author's calculations.

[1] *Based on time series starting in 1997q3.*

[2] *Time series starts only in 2000q1.*

Note: A stands for cointegration relationships that include relative import price levels; B denotes cointegration relationships that exclude relative import price levels; swa stands for seasonally and working day-adjusted data. Values in bold print indicate rejection of the null hypothesis at the 5% significance level. This table shows the relationship between the cointegrated nonstationary variables that was recovered from a DOLS regression (equation (2)), with the number of leads and lags of the differenced terms determined by the Schwarz criterion for each country.

tively high share of exports in total final demand supports this result, it is consistent with the observation that each of these countries can be considered a small and open economy that participates flexibly in international trade and the division of labor. More specifically, a strong export-import link may be explained, inter alia, by the high stock of export-oriented inward FDI in these countries. It may even partly consist of intra-company trade within transnational corporations. In some cases, the export-import link may reflect a country's role as transit country between the EU-15 and Russia.

Even in those three countries where the import elasticity with respect to exports is not highest among the import elasticities with respect to the main final demand components (Latvia, Slovakia and Romania), it is clearly significant and high, too: It is higher than the import elasticity with respect to fixed investment, but considerably smaller than that with respect to private consumption.

Gross fixed capital formation is found to be highly significant in explaining imports in nearly all countries, with its significance at about the 10%-level in the remaining two countries (Slovakia and Romania). The import elasticity with re-

spect to fixed investment is generally the second-highest or highest among the elasticities with respect to the main components of total final demand, even though the share of fixed investment in total final demand usually ranks only third. The notable exceptions to this pattern are Latvia, Slovakia and Romania, where import elasticity with respect to investment ranks only third, after private consumption and exports.

Private consumption offers the most heterogeneous picture, as it is found to be significant in explaining imports in only six of the nine countries with significant cointegration relationships, despite its generally relatively large share in total final demand. In four of these six countries, the import elasticity with respect to private consumption is even higher than (Latvia, Slovakia, Romania) or equal to (Poland) the import elasticity with respect to exports. In Bulgaria, the coefficient of private consumption has a negative sign. This rather unexpected result may be explained by the severe financial and economic crisis the country went through in 1995 and 1997: In a period of hyperinflation, private consumption slumped, while imports increased at the same time. This pronounced divergent development is reflected not only in the first-period results, but also translates into the full-period results. By contrast, the estimates for Bulgaria excluding the period of hyperinflation (i.e. from the establishment of the currency board in mid-1997 onward) do not yield private consumption as significantly related to imports.

Another perspective focuses on import elasticities with respect to the main components of total final demand in particular for countries with larger external imbalances, e.g. Estonia, Lithuania, Latvia, Slovakia, Bulgaria, Romania and Croatia. For those countries that show also a high import elasticity with respect to exports (as Estonia, Lithuania and Bulgaria do), it may be quite difficult to overcome the gap in the goods and services balance only by increasing exports. However, export-capacity-enhancing (foreign direct) investments in these countries that use also domestically produced goods as a considerable share of their input in the production process may change the picture. At the same time, if countries with large external imbalances display a (positive) import elasticity with respect to private consumption that is significant (as our results suggest for four of the seven countries listed above), this may provide, to some extent, a possible channel for diminishing the gap in the trade balance, even though this elasticity may be smaller than that of other demand components. In fact, in some of these countries (Latvia, Slovakia, Romania), this elasticity is found to be even relatively high.

5.2 Panel Estimates

Turning to the results of the panel estimates, the panel **unit root tests** (like those for the single-country time series) confirm the nonstationarity of the time series of the GDP components in levels.

Concerning the relative import price level, the results are more heterogeneous, as in the case of the single time series analysis. Over time, there is a tendency toward rejection of the null hypothesis of a unit root (see appendix, table A.3). In the following, we examine both possible cointegration relationships, including and excluding the relative import price level, whenever the results of the panel unit root tests on the relative import price level are somewhat ambiguous.

The time series of both the GDP components and the relative import price are stationary in first differences. Thus, all the GDP components time series are I(1), as expected.

The panel **cointegration test** clearly establishes significant cointegration relationships for all three panels both in the full period and in the two subperiods on the basis of the ADF statistics, which are the most relevant ones in the given context (see appendix, table A.4).

Moreover, the existence of cointegration (or, more precisely, the rejection of the null of no cointegration) is confirmed even by the two types of rho-statistics (within and between) for the first subperiod and the full period for panels 5 and 8 as well as for the subpanel covering the Baltic countries only. This is certainly reassuring, given that Pedroni (2004) concludes in his simulation study that "for example, in very small panels, if the group-rho statistic rejects the null of no cointegration, one can be relatively confident of the conclusion because it is slightly undersized and empirically the most conservative of the tests."

For panels 12 and 11 as well as the two Southeastern European (SEE) subpanels, the ADF statistics generally allow rejecting the null of no cointegration (with only one exception for both subpanels in the first subperiod), but the rho-statistics generally do not allow rejecting the null (with some exceptions for both full panels in the full period).

In all three panels (and in all others not shown explicitly), the **error correction model** (ECM) has a reasonable goodness of fit, with the adjusted R^2 being roughly in the range of 65% to 80% for panel 5, 60% to 70% for panel 8 and 50% to 65% for panel 12. Besides, also the Durbin-Watson statistic is generally at a satisfactory level for all the panels investigated.

In all three panels (and in all others not shown explicitly), the **adjustment coefficient** for the disequilibrium in levels lagged by one period is highly significant (see table 4) and has a negative sign. This indicates that precedent changes (innovations, shocks) which bring the difference (in levels) between imports and final demand components (or the relative import price) out of line with its long-run equilibrium will induce such corrective changes that the long-run equilibrium between imports and the activity variables (or the relative import price) will remain stable over time. In particular, a shock that raised the level of final demand in the previous period will imply an added factor to import growth in the current period. These results do not change when applying robustness checks, in particular when using the Akaike information criterion instead of the Schwarz criterion or when the ECM includes lags of the differenced dependent variable.[6]

The size of the adjustment coefficient is higher in panels 5 and 8 than in panel 12 in the second subperiod (i.e. after EU accession) and in the full period. Moreover, in panels 5 and 8 (as well as in the Baltic subpanel), its size increases over time, or else becomes larger after EU accession. The quicker import responsiveness probably reflects a higher degree of integration and openness and perhaps also, more generally, a higher degree of flexibility in these economies. Again,

[6] *With the exception of the two SEE subpanels in the second subperiod for which the adjustment coefficient becomes insignificant if the ECM includes lags of the differenced dependent variable.*

Table 4

Error Correction Model: Goodness of Fit and Adjustment Parameter to Disequilibrium in Levels

		swa 2003		swa 2004		swa 2007	
		1995q1 to 2003q4		2004q1 to 2007q2		1995q1 to 2007q2	
		coefficient	p-value	coefficient	p-value	coefficient	p-value
	Adjustment parameter significant at the 5%-level in bold print (with the corresponding p-values in italics) ***Dependent variable: dM (first difference of the logarithm of M)***						
	Variable						
Panel 5							
A	ECT (−1)	**−0.407**	*0.000*	**−0.738**	*0.000*	**−0.396**	*0.000*
A	number of observations	..	*165*	..	*65*	..	*235*
A	adjusted R2	..	*0.727*	..	*0.806*	..	*0.718*
A	Durbin-Watson statistic	..	*2.190*	..	*1.865*	..	*2.251*
A	F-statistic (Wald test)	..	*0.181*	..	*0.107*	..	*0.234*
B	ECT (−1)	..	..	**−0.789**	*0.000*	**−0.314**	*0.000*
B	number of observations	..	..	..	*65*	..	*240*
B	adjusted R2	..	..	..	*0.811*	..	*0.655*
B	Durbin-Watson statistic	..	..	..	*1.884*	..	*2.180*
B	F-statistic (Wald test)	..	..	..	*0.094*	..	*0.063*
Panel 8							
A	ECT (−1)	**−0.368**	*0.000*	**−0.634**	*0.000*	..	..
A	number of observations	..	*280*	..	*104*	..	..
A	adjusted R2	..	*0.684*	..	*0.624*	..	..
A	Durbin-Watson statistic	..	*2.125*	..	*1.561*	..	..
A	F-statistic (Wald test)	..	*0.125*	..	*0.927*	..	..
B	ECT (−1)	**−0.392**	*0.000*	**−0.672**	*0.000*	**−0.334**	*0.000*
B	number of observations	..	*272*	..	*104*	..	*384*
B	adjusted R2	..	*0.708*	..	*0.597*	..	*0.655*
B	Durbin-Watson statistic	..	*2.132*	..	*1.546*	..	*2.098*
B	F-statistic (Wald test)	..	***0.049***	..	*0.958*	..	***0.018***
Panel 12							
A	ECT (−1)	**−0.382**	*0.000*	..	..	..	..
A	number of observations	..	*344*	..	..	..	..
A	adjusted R2	..	*0.633*	..	..	..	..
A	Durbin-Watson statistic	..	*2.080*	..	..	..	..
A	F-statistic (Wald test)	..	*0.963*	..	..	..	..
B	ECT (−1)	..	..	**−0.492**	*0.000*	**−0.246**	*0.000*
B	number of observations	..	..	..	*156*	..	*512*
B	adjusted R2	..	..	..	*0.453*	..	*0.581*
B	Durbin-Watson statistic	..	..	..	*1.836*	..	*2.169*
B	F-statistic (Wald test)	..	..	..	*0.531*	..	***0.001***

Source: Author's calculations.

Note: Panel 5 includes the Czech Republic, Hungary, Poland, Slovenia and Slovakia. Panel 8 includes the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia. Panel 12 covers Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia, Croatia, and Turkey. A denotes cointegration relationships that include relative import prices (assuming the relative import price level to be nonstationary). B stands for cointegration relationships that exclude relative import prices (assuming the relative import price level to be stationary). All panels are estimated with the inclusion of country-specific fixed effects. ECT denotes the error correction term. The Wald test is an F-test of the null hypothesis of homogeneity of the long-run adjustment parameter across countries. Under the null, all the cross-section-specific (i.e. country-specific) long-run adjustment parameters are equal to the average (across countries) long-run adjustment parameter, which is shown in this table. Values in bold print indicate rejection of the null hypothesis at the 5% (or lower) significance level. Underlined values indicate rejection of the null hypothesis at the 10% (i.e. 5% to 10%) significance level.

these results are robust to changes in the lag selection criterion or to the inclusion of lags of the differenced dependent variable.

Concerning the homogeneity of the adjustment coefficient across countries in the respective panels, the results for panel 5 do not allow rejecting the null of homogeneity in both subperiods and in the full period.[7]

While for the Baltic subpanel the presence of homogeneity is confirmed even more strongly than for panel 5, the two panels combined (i.e. panel 8) yield a less clear picture concerning the homogeneity of the adjustment coefficient. In the second subperiod, the null of homogeneity cannot be rejected – a result that is robust.[8] Even if homogeneity cannot be taken for granted for the full period, the results of the baseline ECM for panel 8 suggest at least an increase in homogeneity over time, or else upon EU accession.

While for both SEE subpanels the results indicate the presence of homogeneity for both subperiods and the full period, adding these panels to obtain panel 12 (or 11) weakens homogeneity again, as the null of homogeneity has to be rejected for the full period. However, for each subperiod it cannot be rejected.

It is not too surprising that extending the set of countries erodes the homogeneity of the adjustment coefficient – even more so if this leads to the inclusion of structurally more heterogeneous countries. Notwithstanding this fact, the results supporting homogeneity are sufficiently strong even for the large panels to warrant a closer look at the long-run relationship embodied in the error correction term.

Looking at the panel results for the **long-run elasticity of imports** with respect to the main components of total final demand (see table 5), the high significance of *exports* and *gross fixed capital formation* in explaining imports is confirmed for all panels in all periods, with the only exception being the second subperiod for the SEE subpanels (concerning exports and partly also investment) and the Baltic subpanel (concerning investment). In spite of these rather exceptional deviations from the general pattern, in both panels 8 and 12 (and 11) exports and gross fixed capital formation are highly significant in this period, too. These findings are robust to the various standard error corrections performed to control for heteroscedasticity as well as to changes in the lag/lead selection criterion of the DOLS model. At the same time, the size of import elasticity with respect to exports is clearly higher than that with respect to fixed investment (wherever both elasticities were significant) (see table 5).

Private consumption is not found to be significant in explaining imports for panel 5 – a fully robust result again. The corresponding findings regarding the role of private consumption in the other panels are also robust to the various checks applied. The significance of private consumption changes over time both in the Baltic subpanel and in panel 8. In the first subperiod its coefficient is insignificant, but in the second subperiod it is highly significant and relatively large. Moreover, private consumption shows up as significant in both panels also in the full-period

[7] *This result is even more pronounced when including lags of the differenced dependent variable in the ECM.*

[8] *In the first subperiod the result is rather ambivalent and in the full period the null of homogeneity has to be rejected. However, this result is not robust to the inclusion of lags of the differenced dependent variable, as including these lags in the ECM leads to support of homogeneity in both cases.*

Table 5

Long-Run Elasticity of Imports with Respect to the Main Components of Total Final Demand (and, for A, with Respect to the Relative Import Price Level)

			swa 2003		swa 2004		swa 2007	
			1995q1 to 2003q4		2004q1 to 2007q2		1995q1 to 2007q2	
			coefficient	p-value	coefficient	p-value	coefficient	p-value
	Coefficients significant at the 5%-level in bold print (with the corresponding p-values in italics on the right-hand side)							
	Dependent variable: M (logarithm of M)							
		Variable						
Panel 5								
	A	Private consumption	−0.043	*0.639*	0.018	*0.938*	−0.099	*0.173*
	A	Gross fixed capital formation	**0.305**	*0.000*	**0.288**	*0.000*	**0.266**	*0.000*
	A	Exports of goods and services	**0.826**	*0.000*	**0.712**	*0.000*	**0.792**	*0.000*
	A	Relative import price level	**−0.233**	*0.000*	−0.026	*0.763*	**−0.269**	*0.000*
	B	Private consumption	..	..	0.016	*0.948*	0.033	*0.673*
	B	Gross fixed capital formation	..	..	**0.278**	*0.000*	**0.275**	*0.000*
	B	Exports of goods and services	..	..	**0.722**	*0.000*	**0.808**	*0.000*
Panel 8								
	A	Private consumption	−0.115	*0.081*	**0.391**	*0.000*	..	..
	A	Gross fixed capital formation	**0.219**	*0.000*	**0.174**	*0.003*	..	..
	A	Exports of goods and services	**0.850**	*0.000*	**0.631**	*0.000*	..	..
	A	Relative import price level	**−0.176**	*0.000*	−0.124	*0.189*	..	..
	B	Private consumption	−0.099	*0.152*	**0.397**	*0.000*	**0.098**	*0.035*
	B	Gross fixed capital formation	**0.227**	*0.000*	**0.180**	*0.002*	**0.205**	*0.000*
	B	Exports of goods and services	**0.883**	*0.000*	**0.635**	*0.000*	**0.799**	*0.000*
Panel 12								
	A	Private consumption	**−0.157**	*0.018*	..	..	..	..
	A	Gross fixed capital formation	**0.314**	*0.000*	..	..	..	..
	A	Exports of goods and services	**0.777**	*0.000*	..	..	..	..
	A	Relative import price level	**−0.311**	*0.000*	..	..	..	..
	B	Private consumption	..	..	**0.598**	*0.000*	−0.031	*0.492*
	B	Gross fixed capital formation	..	..	**0.138**	*0.004*	**0.321**	*0.000*
	B	Exports of goods and services	..	..	**0.571**	*0.000*	**0.803**	*0.000*

Source: Author's calculations.

Note: Panel 5 includes the Czech Republic, Hungary, Poland, Slovenia and Slovakia. Panel 8 includes the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia. Panel 12 covers Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia, Croatia, and Turkey. A denotes cointegration relationships that include relative import prices (assuming the relative import price level to be nonstationary). B stands for cointegration relationships that exclude relative import prices (assuming the relative import price level to be stationary). All panels are estimated with the inclusion of country-specific fixed effects. Values in bold print indicate rejection of the null hypothesis at the 5% significance level. This table shows the relationship between the cointegrated nonstationary variables that was recovered from a DOLS regression (equation (2)), with the number of leads and lags of the differenced terms determined by the Schwarz criterion for each panel.

estimate, albeit with the size of the corresponding import elasticity being comparatively lower than in the second subperiod. This development between these two subperiods probably reflects the strong acceleration of quarterly private consumption growth in the Baltic countries to a level considerably above that of quarterly GDP growth.

Also in the SEE subpanels and in panel 12 (and 11), private consumption is highly significant in the second subperiod, with the size of import elasticity even being equal to that with respect to exports in panel 12 (and 11). However, in the first subperiod, private consumption is significant, too, but has a negative sign. This rather unexpected result is very probably influenced decisively by the corre-

sponding large negative coefficient in Bulgaria that is explained in the context of the single-country time series results above. In most countries, private consumption is not significantly related to imports in the first subperiod, so that the significant and large negative coefficient for Bulgaria (that reflects the country's idiosyncratic development) dominates the panel results in this period. In the full period, private consumption is not significant, which may be interpreted as the significantly negative relation in the first subperiod offsetting the significantly positive relation in the second subperiod.

On a more general note, the fact that private consumption is often insignificant and mostly plays a less prominent role in explaining import demand than exports or fixed investment (as reflected e.g. in the mostly smaller size of import elasticity with respect to private consumption) is certainly not unexpected, given that most people have low income levels that do not allow them to buy large quantities of imported goods or goods with a high import content. The combination of a relatively large share in total demand and a relatively small import elasticity suggests that the marginal import content of private consumption, i.e. the import content of one additional unit of private consumption, is generally far below that of one additional unit of fixed investment or exports. Against the background that private consumption generally plays a subordinate role in driving imports, those cases in which private consumption is found to have a significant (and large) impact on imports deserve even more attention.

As the above-mentioned import elasticities express the extent to which changes in the explanatory variables translate into changes of imports, one should bear in mind when interpreting these results that the various components of total final demand usually have different levels of growth rates on average across time and across the countries concerned. Typically, export growth rates, which are on average roughly equal in size to import growth rates, are higher than the growth rates of gross fixed capital formation, which in turn are higher than those of private consumption. Thus, taking e.g. the import elasticities with respect to the main components of total final demand in panel 8 in the second subperiod (see table 5), the average quarterly import growth rate of 3.0% may be decomposed into: first, the 0.7 percentage points (or 22%) contribution to the average import growth rate by average private consumption growth of 1.7%; second, the 0.4 percentage points (or 14%) contribution by average gross fixed capital formation growth of 2.4%; and third, the 1.9 percentage points (or 61%) contribution by average export growth of 2.9%, which, in turn, is close to the average import growth rate.

Regarding the *relative import price level*, it has the expected sign where it enters the cointegration relation. It acquires high significance in the first subperiod in all panels as well as in the full period in panel 5 and in the Baltic and SEE subpanels.

In a final step, we tested for the strength of the economic interlinkages within the EU-27(+)[9] as measured by CESEE countries' import elasticities. The basic idea of this approach is to take into account the asymmetric size relations between the EA-12 on the one hand and the CESEE countries on the other. While the

[9] *In this study, EU-27(+) denotes the EU-27 plus Croatia and Turkey.*

Table 6

Long-Run Elasticity of Imports with Respect to Exports and Euro Area Imports in Comparison

			swa 2003		swa 2004		swa 2007	
			1995q1 to 2003q4		2004q1 to 2007q2		1995q1 to 2007q2	
			coefficient	p-value	coefficient	p-value	coefficient	p-value
	Coefficients significant at the 5%-level in bold print (with the corresponding p-values in italics on the right-hand side) ***Dependent variable: M (logarithm of M)***							
		Variable						
Panel 5								
	A	Exports of goods and services	**0.826**	*0.000*	**0.712**	*0.000*	**0.792**	*0.000*
	A	Euro area imports of goods and services	**1.097**	*0.000*	**0.669**	*0.000*	**1.054**	*0.000*
	B	Exports of goods and services	..	..	**0.722**	*0.000*	**0.808**	*0.000*
	B	Euro area imports of goods and services	..	..	**0.688**	*0.000*	**1.042**	*0.000*
Panel 8								
	A	Exports of goods and services	**0.850**	*0.000*	**0.631**	*0.000*	..	..
	A	Euro area imports of goods and services	**1.131**	*0.000*	**1.491**	*0.000*	..	..
	B	Exports of goods and services	**0.883**	*0.000*	**0.635**	*0.000*	**0.799**	*0.000*
	B	Euro area imports of goods and services	**1.050**	*0.000*	**1.508**	*0.000*	**1.149**	*0.000*
Panel 12								
	A	Exports of goods and services	**0.777**	*0.000*	..	..	..	..
	A	Euro area imports of goods and services	**0.766**	*0.000*	..	..	..	..
	B	Exports of goods and services	..	..	**0.571**	*0.000*	**0.803**	*0.000*
	B	Euro area imports of goods and services	..	..	**1.111**	*0.000*	**1.024**	*0.000*

Source: Author's calculations.

Note: Panel 5 includes the Czech Republic, Hungary, Poland, Slovenia and Slovakia. Panel 8 includes the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia. Panel 12 covers Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia, Croatia, and Turkey. A denotes cointegration relationships that include relative import prices (assuming the relative import price level to be nonstationary). B stands for cointegration relationships that exclude relative import prices (assuming the relative import price level to be stationary). Values in bold print indicate rejection of the null hypothesis at the 5% significance level. This table shows the relationship between the cointegrated nonstationary variables that was recovered from a DOLS regression (equation (2)), with the number of leads and lags of the differenced terms determined by the Schwarz criterion for each panel.

former have a large share in the CESEE countries' total external demand and exports, the reverse is not true. It follows that the total imports of the EA-12 probably have a decisive impact on the total exports of the CESEE countries. Hence, we may hypothesize that the total imports of the EA-12 also have a significant indirect influence on the CESEE countries' total imports, taking into account the generally strong export-import link that we documented above. Moreover, foreign demand from the euro area may induce fixed investment and thus imports. To examine this hypothesis, we substitute CESEE countries' total exports in the import demand equations of these CESEE countries by total imports of the EA-12 to yield testable relationships.

In general, the panel results show significant cointegration, with the adjustment coefficient having the appropriate sign in all panels. As before, the size of the adjustment coefficient increases over time in panels 5 and 8. Its homogeneity is roughly similar to that of the adjustment coefficient in the previous specification.

While the adjustment coefficient is less homogeneous in panel 12 (rejection of the null of homogeneity in the full period and in the first subperiod), it is more homogeneous in panel 8 (no rejection of the null in the full period and in each subperiod). Moreover, we found a strong impact of total EA-12 imports on CESEE countries' imports in terms of a high elasticity of CESEE countries' imports with respect to EA-12 imports (see table 6).[10] Also, these results are robust to the various robustness checks applied as outlined above. Hence, indirectly, euro area import growth helps explain a large part of the import growth observed in the countries under study. This certainly reflects important economic interlinkages between these country groups within the EU-27(+) and is indicative of advanced economic integration.

6 Conclusions

In this study we made systematic estimates of long-run import elasticities with respect to the main final demand components for both individual CESEE countries and different panels composed of these countries, following the same methodological approach on the basis of quarterly seasonally and working day-adjusted data for the periods from 1995 to 2003 and from 1995 to mid-2007 and, in the case of panel analysis, also for a second subperiod from 2004 to mid-2007.

The estimation results confirm the existence of a strong export-import link in most individual countries and nearly all panels and periods (except for the SEE panels in the second subperiod). The import elasticity with respect to exports is both highly significant and large. This appears to reflect a number of factors: the relatively high share of exports in total final demand, the flexible participation of these small and open economies in international trade and in the international division of labor, their high stock of export-oriented inward FDI, intra-company trade by transnational corporations and, in some cases, the countries' role as transit countries between the EU-15 and Russia.

Second, our findings confirm the prominent role of fixed investment in determining imports in most individual countries and nearly all panels and periods (except for the Baltic panel in the second subperiod), despite the relatively small share of gross fixed capital formation in these countries' total final demand. However, the size of import elasticity with respect to fixed investment is generally considerably smaller than that with respect to exports.

Third, the results show that private consumption plays a significant role in determining import developments in only about one-half of the countries under study. However, in most of the countries in which private consumption acquires a significant role, import elasticity with respect to this demand component is even higher than (Latvia, Slovakia, Romania) or equal to (Poland) that with respect to exports. On the basis of the panel estimates, we found that private consumption was highly significant with a relatively large coefficient not in the Central European panel but in the larger panels that include the Baltic and/or the SEE countries (as well as in the respective subpanels), in particular in the second subperiod.

[10] *The fact that the import elasticity with respect to EA-12 imports is mostly larger than that with respect to exports has to be seen against the background that the growth rate of EA-12 imports is generally lower than that of the CESEE countries' exports.*

In countries with larger external imbalances, a strong export-import link (e.g. Estonia, Lithuania and Bulgaria) renders it more difficult to overcome the gap in the goods and services balance by only increasing exports. Still, export capacity-enhancing (foreign direct) investments that use also domestically produced goods as a considerable share of their input in the production process may change the picture in these countries. At the same time, however, in most of the countries or country groups with larger external imbalances, import elasticity with respect to private consumption was found to be significant, which may provide a possible (additional) channel for diminishing the gap in the trade balance. This is true in particular for countries or country groups where this elasticity was found to be relatively high (e.g. Latvia, Slovakia, Romania; Baltic and SEE panels).

Finally, we tested for economic interlinkages between the euro area (EA-12) and the CESEE countries by using total imports of the EA-12 (instead of CESEE countries' total exports) in the estimated import demand equations of the CESEE countries. The estimation results show a significant and sizeable impact of total euro area imports on the CESEE countries' imports, which confirms a high degree of economic integration within the EU-27 (and within the EU-27 plus Croatia and Turkey). These economic interlinkages offer a field of further research.

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Appendix

Estimating Import Demand Functions for CESEE-MS, Croatia and Turkey: Data Issues

For most CESEE-MS and also for Croatia, annual time series are not available for a period that is sufficiently long to perform country-specific single time series regressions. Moreover, if they are available, the fundamental structural break due to the systemic transformation recession in the early 1990s renders any regression across this break very questionable.

Therefore, to work with a sufficient number of observations, we have to use quarterly data. For most CESEE-MS, both types of data are available – quarterly time series that are not seasonally adjusted (and not working day-adjusted, either) as well as seasonally and working day-adjusted quarterly time series.

More precisely, quarterly data that are not seasonally adjusted (nsa) are available from Eurostat in level form (as chain-linked volumes with the reference year 2000) for

- Estonia (EE), Slovakia (SK) and Turkey (TR) for the period from 1993q1 to 2007q2;
- Bulgaria (BG), the Czech Republic (CZ), Latvia (LV), Lithuania (LT), Hungary (HU), Poland (PL) and Slovenia (SI) for the period from 1995q1 to 2007q2;
- Croatia (HR) for the period from 1997q1 to 2007q2;
- and Romania (RO) for the period from 2000q1 to 2007q2.

Seasonally and working day-adjusted (swa) quarterly data are available from Eurostat in level form (as chain-linked volumes with the reference year 2000) for

- Estonia (EE), Lithuania (LT), Hungary (HU), Poland (PL), Slovenia (SI) and Slovakia (SK) for the period from 1995q1 to 2007q2;
- the Czech Republic (CZ) for the period from 1996q1 to 2007q2;
- and Latvia (LV) for the period from 1999q1 to 2007q2.

For Bulgaria (BG), Romania (RO) and Croatia (HR) swa data were not available yet.

However, with the help of Eurostat's DEMETRA tool for seasonal (and working day) adjustment, we could derive swa time series on the basis of nsa data from 1995q1 to 2007q2 for all countries except Croatia (starting in 1997q1) and Romania (starting in 2000q1).

In the case of Bulgaria, we made an additional estimate based on a sample ranging from 1997q3 to 2007q2, given the severe financial crisis in 1996/1997 and the setup of the currency board regime on July 1, 1997.

In addition, we performed the estimations on the basis of a shorter sample ranging from 1995q1 up to 2003q4, as one might suspect a potential structural break in the countries' external trade relations in the run-up to EU accession for the CESEE-MS that joined the EU on May 1, 2004. Given sufficient data availability, we included Bulgaria in these estimations, too.

While in most cases the quarterly time series are hence long enough to run least squares regressions, a small sample correction for deriving fully appropriate critical values was required in all cases when testing for cointegration.

Table A.1

Relative Import Price Level

	swa 2003		swa 2007	
	1995q1 to 2003q4		1995q1 to 2007q2	
	p-value	type	p-value	type
	Results of ADF Tests for Unit Roots in the Time Series in Levels			
Czech Republic	**0.025**	trend stationary	**0.012**	trend stationary
Estonia	**0.040**	I(0)	**0.020**	I(0)
Latvia	**0.001**	trend stationary	**0.006**	trend stationary
Lithuania	0.055	I(1) + trend	**0.000**	I(0) + constant
Hungary	**0.034**	I(0)	**0.028**	I(0)
Poland	**0.006**	I(0) + constant	**0.003**	I(0) + constant
Slovenia	0.205	I(1)	0.389	I(1)
Slovakia	0.309	I(1)	0.216	I(1)
Bulgaria	**0.044**	I(0)	**0.000**	trend stationary
Bulgaria 97[1]	..	..	0.595	I(1)
Romania[2]	..	..	**0.001**	I(0)
Croatia[3]	..	..	0.281	I(1)
Turkey	0.329	I(1)	0.341	I(1)

Source: Author's calculations.

[1] Based on time series starting in 1997q3.
[2] Time series starts only in 2000q1.
[3] Time series starts only in 1997q1.

Note: Relative import prices are defined as the ratio between the import price deflator and the GDP price deflator; swa stands for seasonally and working day-adjusted data; p-value refers to the MacKinnon p-value. The type column presents the resulting type of time series that the relative import prices are found to be on the basis of the ADF test at the 5% (Mac Kinnon) significance level and the Fischer test with respect to constant (and trend). I(0) means integrated of order 0, I(1) integrated of order 1; t stands for trend; c means constant. Values in bold print indicate rejection of the null hypothesis (of a unit root) at the 5% (or lower) significance level. Underlined values indicate rejection of the null hypothesis at the 10% (i.e. 5% to 10%) significance level.

Table A.2

Cointegration of Imports and the Main Components of Total Final Demand (and, for A, the Relative Import Price Level)

		swa 2003			swa 2007		
		1995q1 to 2003q4			1995q1 to 2007q2		
		t-stat	crit 5%	crit 10%	t-stat	crit 5%	crit 10%
		Results of ADF tests for unit roots in the "residuals" of the DOLS regression					
Czech Republic	A	−3.87	*−4.88*	*−4.48*	−3.85	*−4.71*	*−4.35*
	B	−2.97	*−4.47*	*−4.08*	−3.45	*−4.33*	*−3.98*
Estonia	B	**−4.87**	*−4.42*	*−4.05*	**−5.29**	*−4.32*	*−3.98*
Latvia	A	−0.52	*−4.85*	*−4.46*	−2.76	*−4.71*	*−4.36*
	B	−1.00	*−4.46*	*−4.08*	**−4.03**	*−4.33*	*−3.99*
Lithuania	A	−1.22	*−4.87*	*−4.47*	..	..	..
	B	**−4.88**	*−4.42*	*−4.05*	**−4.54**	*−4.33*	*−3.98*
Hungary	B	−3.31	*−4.43*	*−4.06*	**−5.00**	*−4.33*	*−3.98*
Poland	B	**−5.16**	*−4.46*	*−4.08*	**−7.04**	*−4.33*	*−3.98*
Slovenia	A	**−6.20**	*−4.88*	*−4.48*	**−5.22**	*−4.71*	*−4.35*
Slovakia	A	−2.69	*−4.84*	*−4.45*	**−6.65**	*−4.70*	*−4.35*
Bulgaria	A	..	..	..	−1.52	*−4.73*	*−4.37*
	B	**−5.35**	*−4.46*	*−4.08*	**−5.34**	*−4.34*	*−3.99*
Bulgaria 97[1]	A	..	..	..	**−5.89**	*−4.77*	*−4.40*
Romania[2]	B	..	..	..	**−9.09**	*−4.50*	*−4.10*
Croatia[3]	A	..	..	..	−2.00	*−4.76*	*−4.40*
Turkey	A	−2.40	*−4.87*	*−4.47*	−3.63	*−4.73*	*−4.37*

Source: Author's calculations.

[1] *Based on time series starting in 1997q3.*
[2] *Time series starts only in 2000q1.*
[3] *Time series starts only in 1997q1.*

Note: A denotes cointegration relationships that include relative import prices, B stands for cointegration relationships that exclude relative import prices; swa stands for seasonally and working day-adjusted data, crit 5% and crit 10% refer to critical values corrected for the small sample size according to MacKinnon (1991). Values in bold print indicate rejection of the null hypothesis of no cointegration.

Table A.3

Relative Import Price Level

		swa 2003		swa 2004		swa 2007	
		1995q1 to 2003q4		2004q1 to 2007q2		1995q1 to 2007q2	
		with indvidual **constant and trend**	with indvidual **constant**	with indvidual **constant and trend**	with indvidual **constant**	with indvidual **constant and trend**	with individual **constant**
		p-value	**p-value**	**p-value**	**p-value**	**p-value**	**p-value**
	Results of panel tests for unit roots in the time series in levels						
	Test type						
Panel 5							
	LLC	0.316	0.897	0.224	**0.032**	**0.012**	0.543
	IPS	0.145	0.857	0.061	0.263	**0.006**	0.535
Panel 8							
	LLC	**0.003**	**0.045**	0.129	**0.047**	**0.000**	**0.004**
	IPS	0.222	0.268	**0.038**	0.254	0.078	**0.028**
Panel 12							
	LLC	0.547	0.486	**0.005**	**0.010**	**0.000**	**0.007**
	IPS	0.303	0.558	**0.035**	0.087	**0.015**	**0.003**

Source: Author's calculations.

Note: Panel 5 includes the Czech Republic, Hungary, Poland, Slovenia and Slovakia. Panel 8 includes the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia. Panel 12 covers Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia, Croatia, and Turkey. LLC refers to the Levin, Lin & Chu t-statistic, which is based on the assumption of a common unit root process and tests the null hypothesis of a unit root. IPS denotes the Im, Pesaran & Shin W-statistic, which is based on the assumption of individual unit root processes and tests the null of a unit root. Values in bold print indicate rejection of the null hypothesis at the 5% (or lower) significance level. Underlined values indicate rejection of the null hypothesis at the 10% (i.e. 5% to 10%) significance level.*

Table A.4

Cointegration of Imports and the Main Components of Total Final Demand (and, for A, the Relative Import Price Level)

			swa 2003		swa 2004		swa 2007	
			1995q1 to 2003q4		2004q1 to 2007q2		1995q1 to 2007q2	
			with individual	with individual	with individual	with individual	with individual	with individual
			constant and trend	constant	constant and trend	constant	constant and trend	constant
			p-value	p-value	p-value	p-value	p-value	p-value
	Results of panel cointegration tests							
		Type of test statistic						
Panel 5								
	A	Panel ADF statistic	0.000	0.000	0.000	0.012	0.000	0.000
	A	Group ADF statistic	0.000	0.000	0.000	0.000	0.000	0.000
	B	Panel ADF statistic	..	..	0.000	0.001	0.000	0.000
	B	Group ADF statistic	..	..	0.000	0.000	0.000	0.000
Panel 8								
	A	Panel ADF statistic	0.000	0.000	0.000	0.000	..	..
	A	Group ADF statistic	0.000	0.000	0.000	0.000	..	..
	B	Panel ADF statistic	0.000	0.000	0.000	0.000	0.000	0.000
	B	Group ADF statistic	0.000	0.000	0.000	0.000	0.000	0.000
Panel 12								
	A	Panel ADF statistic	0.000	0.000	..	..	..	..
	A	Group ADF statistic	0.000	0.000	..	..	..	..
	B	Panel ADF statistic	..	..	0.000	0.000	0.000	0.000
	B	Group ADF statistic	..	..	0.000	0.000	0.000	0.000

Source: Author's calculations.

Note: Panel 5 includes the Czech Republic, Hungary, Poland, Slovenia and Slovakia. Panel 8 includes the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia. Panel 12 covers Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia, Croatia, and Turkey. A denotes cointegration relationships that include relative import prices (assuming the relative import price level to be nonstationary), B stands for cointegration relationships that exclude relative import prices (assuming the relative import price level to be stationary). The Pedroni panel cointegration test is an Engle-Granger-based residual test of the null hypothesis of no cointegration (unit root in the residuals), against the alternative with common autoregressive coefficients (within-dimension) or individual autoregressive coefficients (between-dimension, group statistics). Values below 5% indicate the rejection of the null hypothesis (of no cointegration) at the 5% (or lower) significance level.

Determinants of Currency Crises: A Conflict of Generations?

Jesús Crespo Cuaresma[1]
Tomáš Slačík[2]

Crespo Cuaresma and Slačík (2007) show that macroeconomic fundamentals are rather fragile determinants of currency crises under model uncertainty. The objective of the present follow-up study is to search for empirical support for the first- and second-generation models of currency crises in emerging economies using a larger dataset that includes crisis episodes of the 1980s and 1990s, while explicitly taking into account model uncertainty in a Bayesian manner. In line with the propositions made in the theoretical literature, our results suggest that crisis episodes in the 1980s were driven predominantly by adverse developments of macroeconomic fundamentals, while the results for crises in the 1990s might well be interpreted as empirical support for the second-generation type of crises. In addition, our estimation results stand in contradiction to the popular bipolar view and suggest that de facto intermediate exchange rate arrangements considerably reduce the risk of a speculative currency attack.

1 Introduction

The extensive research on currency crises that has been conducted both on the empirical and the theoretical front over the past three decades is often categorized in first-, second- and third-generation models. Prior to 1990, crises were believed to be driven mainly by unfavorable developments of macroeconomic fundamentals and were therefore thought to be to a large extent predictable. In contrast, the fact that exchange rate turbulences in the 1990s were not really preceded by unsustainable fiscal or monetary policies gave rise to the second-generation model, in which speculative currency attacks are triggered by sudden shifts in investors' expectations. In the *third-generation models*, the next stage of this development, it is the exposure of the financial sector to immanent risks and mismatches that leads to and aggravates currency and banking crises.

In the present paper we ask whether (and if so, to what extent) the model generations for currency crises find support in the data. This piece of research is thus a follow-up and a complementary exercise to Crespo Cuaresma and Slačík (2007), who show that macroeconomic fundamentals are rather fragile determinants of currency crises under model uncertainty. However, since their sample ranges from 1994 to early 2003, it might be conjectured that it covers predominantly currency crises of the second and third generation, in which fundamentals typically play only a secondary role. Hence, in this context the natural question arises whether the impact of macroeconomic fundamentals is more significant in first-generation crisis episodes and whether crisis determinants in earlier periods differ from those of later types of currency attacks. Therefore, we use a sample that covers a time span of more than two decades to assess whether earlier crises were indeed driven predominantly by adverse fundamentals while attacks in the 1990s can be traced back mainly to factors that play a major role in the second- and, partially, third-generation models.

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Given the binary character of the dependent variable – a crisis occurs or does not occur – we employ a limited dependent variable model, as does most of the literature. However, given that the extensive theoretical research does not provide guidelines on the precise set of explanatory variables, there is a substantial level of uncertainty with respect to the choice of covariates. Therefore, while pursuing our objective of assessing the relative importance of the determinants of first- and second-generation currency crises, we explicitly take into account model uncertainty using Bayesian statistical techniques (Bayesian model averaging – BMA). In concrete terms, we average the parameter estimates over alternative models using posterior model probabilities as respective weights to evaluate the relative importance of different variables. As the model space grows exponentially with the number of covariates, at some point it becomes impossible to calculate an average over all existing models within a finite amount of time. Therefore we reduced the intractably large model space and confined ourselves to "relevant" models only. We did this by using a simple Markov chain Monte Carlo model composite (MC^3) algorithm, thanks to which model subspaces with the highest posterior probability are visited.

The remainder of the paper is structured as follows: Section 2 outlines the quintessence of each of the three model generations, which will help us set the stage and interpret the results. Section 3 is devoted to the methodology, focusing in particular on the Bayesian model averaging and the MC algorithm. In section 4 we briefly describe the data and develop some intuition for the variables against the background of the theory developed in section 2. Section 5 presents and discusses the results, while section 6 concludes.

2 Currency Crises: Theoretical Settings

The ground-breaking contributions to the currency crisis literature, now dubbed *first-generation models*, reacted to speculative attacks that swept financial markets, particularly in Latin America in the late 1970s and early 1980s. The pioneering work in this realm, later extended in different aspects, was carried out by Krugman (1979) and Flood and Garber (1984). In these models, the speculative attack on a fixed exchange rate is triggered by an unsustainable fiscal policy. Excessive primary deficits are financed through credit creation by the central bank. The domestic credit expansion implies a predictable drain of international reserves, which would eventually lead to their complete exhaustion and to a devaluation of the exchange rate to the so-called shadow level. The latter is defined as the exchange rate that would prevail if the central bank ran out of foreign reserves and abandoned the peg while at the same time letting domestic credit grow. In other words, the shadow exchange rate is the price of foreign currency that would equilibrate the money market after a speculative attack in which international reserves were exhausted. Under the model assumptions, the shadow exchange rate thus rises linearly at the same rate at which domestic credit grows. This implies that at the very moment at which the shadow exchange rate marginally exceeds the peg, a speculative gain emerges for each unit of foreign reserves purchased from the central bank. Speculators anticipate this development and compete for the profit. However, since there cannot be any profit opportunity in an equilibrium, speculators end up triggering an attack precisely when the shadow exchange rate is equal to the level of the peg and their speculative profit is zero.

Under the strict assumptions of the first-generation models, foreign reserves drop to zero at the time of an attack, money supply falls in line with the size of the attack, and the exchange rate does not move. Moreover, given the assumed interest rate parity, the domestic interest rate has to increase by the size of the expected rate of devaluation. However, if the strict assumptions of a zero-maturity interest rate and perfect foresight are relaxed, the crisis should be preceded by rising longer-term interest rates and leaking reserves. At the time of an attack, the exchange rate will also rise discretely.

Hence, in first-generation models a currency crisis is triggered by financial markets foreseeing an exchange rate devaluation that they deem inevitable, usually due to unsustainable fiscal policy. However, the first-generation models might justify such an expectation also with an adverse development of other fundamentals – e.g. high inflation or money growth, or unsustainable current account deficits – that lead to a deviation of the shadow exchange rate from parity. It should be stressed that in the world of first-generation models no discrete shock is necessary for a speculative attack to occur.

The existing literature provides empirical evidence that the first-generation models are generally well applicable to crises that happened prior to 1990. Given the unfavorable development of fundamentals, those episodes of currency distress were to a great extent predictable. This view, however, was challenged by speculative attacks in the 1990s, particularly by those in the European Exchange Rate Mechanism in 1992, which were not really preceded by undisciplined fiscal and monetary policies. This gave rise to the *second generation of currency crises models* in which government behavior is no longer modeled to be state invariant. Hence, it is no longer assumed that the government is exogenously committed to the fixed peg. They rather maximize an objective function, which apart from the fixed exchange rate policy contains other, possibly conflicting, target variables (see e.g. Obstfeld, 1994).

Second-generation models thus generally exhibit multiple equilibria and, even if the economy is at a no-attack equilibrium, a speculative run may suddenly occur as a consequence of self-fulfilling expectations. Hence, even if there are capital gain opportunities known to the financial markets, they might not be pursued by speculators and the country may remain in the no-attack equilibrium. The smaller and less coordinated the market participants are, the more likely it is that this scenario will occur.

Different mechanisms have been proposed in the literature for the self-fulfilling shift from the no-crisis to the crisis equilibrium. Morris and Shin (1995) show that if an uncertainty element is introduced into the information signal the agents receive about the state of the economy, only the crisis equilibrium remains. In their model, a speculator's assessment of other investors' interpretations of the incoming announcements plays a crucial role in the outbreak of a crisis. Conversely, for example in Banerjee (1992), it is not an investor's concern about the beliefs of others that triggers a crisis but his observation of others' actual behavior that might make him join the herd even against his own positive signal. In this model, agents are thus apt to follow the crowd rather than use their own information and lean against the wind. Yet another viewpoint is presented in Calvo and Mendoza (1997), who show that the likelihood of herding behavior increases with the globalization of capital markets. The more intertwined the world financial

markets are, the more the relative performance of fund managers matters. Consequently, they tend to pick similar portfolios and are less inclined to search for and process country specific information that may be outside of the mainstream.

The fact that some of the currency crises at the end of the 1990s coincided with turbulences in the financial sector inspired a further development in the currency crises literature. In these *third-generation models* the exposures of the financial sector to immanent currency, liquidity and credit risks lead to and aggravate currency and banking crises (see Burnside, Eichenbaum and Rebelo 2007).[3]

In empirical work, one would expect that in crisis episodes to which the first-generation models are supposed to apply, particularly fundamental variables should show up with a strong impact on the probability of crisis occurrence. Apart from variables capturing the fiscal stance financed by domestic credit, a significant effect on the probability of a crisis might thus be expected from, inter alia, the current account, high inflation or money growth episodes, or real interest rate hikes (which typically precede crises in this model cohort). In contrast, in the second-generation type of crises we will be particularly interested in the effect of variables that approximate the market sentiment stimulating herding behavior. If crises of the third type were at play, then variables which unearth weaknesses and mismatches in the financial sector should prove significant.

3 Methodology

Given the lack of an unambiguous theoretical framework that would uniquely determine which variables are to be chosen in an equation attempting to explain currency crises, we do not know either the true model or a clearly defined subset of all possible models from which the true model has to be recruited. Hence, we face a substantial level of model uncertainty that has to be taken into account if we do not want to implicitly impose a rather strong restriction by presuming to know a limited model space in which the true model has to be included. Yang (2004), for instance, compares hypothesis testing and model selection strategies both theoretically and empirically and concludes that "when model selection rules give very different answers, model combining is a better alternative approach for estimation and prediction. With a proper weighting, the large variability of the estimator from model selection can be substantially reduced."

A way to combine models with a proper weighting is the Bayesian Model Averaging (BMA) methodology, which was employed and described in detail in Crespo Cuaresma and Slačík (2007) and references therein. In a nutshell, the BMA algorithm proposes averaging parameter estimates over all alternative models using posterior model probabilities as respective weights. Hence, the posterior mean and variance of the parameters of interest can be used to make inferences on the quantitative effect of changes in the covariates on the probability of a currency crisis explicitly taking into account the existence of model uncertainty. In the

[3] *Some studies refer to a fourth generation of currency crises although it seems that no consensual definition of this latest generation has been reached. While Krugman (2003) talks about a more general financial crisis model in which other asset prices play the starring role, Shimpaleea and Boucher Breuer (2005) define the fourth generation as models in which currency crises are determined by institutional factors. In contrast, Ghosh (2002b) understands the fourth generation as those models in which currency crises are created and accentuated by unforeseeable financial panic from different players in the market and the government.*

same fashion, we can evaluate posterior inclusion probabilities for the different variables proposed, which can be obtained by summing the posterior probability of models containing each individual variable (or groups of it). This measure thus captures the relative importance of the different covariates as determinants of the occurrence of a currency crisis and can be interpreted as the probability that a given variable belongs to the true specification.

However, since the model space grows exponentially with the number of regressors (2^K, where K is the number of potential regressors), at some point it is not computationally feasible to calculate an average of the parameter values over all models in the model space. For cases where the cardinality of the model space makes the problem intractable, several methods have been proposed for approximating the posterior model probability. We will use a simple Markov chain Monte Carlo model composite (MC^3) algorithm to evaluate the posterior distribution based on the work of Madigan and York (1995) (see also Fernández et al., 2001, and Koop, 2003). The random walk chain Metropolis-Hastings algorithm is implemented in the model space as follows. In a given replication r of the algorithm, a candidate model M^{r+1} is proposed, which is randomly drawn from the neighborhood of the current model, (M^r). The neighborhood is composed by the model which is active in that replication, (M^r), the same model with an extra variable added to the specification and the same model with a variable removed. The proposed model is accepted with a probability given by

$$\alpha(M^r, M^{r+1}) = \min\left[\frac{\mathrm{P}(\mathbf{Y} \mid M^{r+1})\mathrm{P}(M^{r+1})}{\mathrm{P}(\mathbf{Y} \mid M^r)\mathrm{P}(M^r)}, 1\right],$$

which is just the Bayes factor comparing M^r and M^{r+1} if equal prior probability is assumed across models (as will be the case in the empirical application below). Such a diffuse prior over the model space is a natural choice if we do not want to impose a prior structure which gives a higher weight to certain model sizes or combinations of variables, although other priors based on anchoring the prior to the expected model size (Sala-i-Martin et al., 2004) or imposing beta-binomial structures (Ley and Steel, 2007) have been recently proposed in the literature. This algorithm is repeated many times, and the posterior mean, variance and inclusion probability as described above are computed for the group of models replicated, which will tend to cover model subspaces with the highest posterior probability.

4 Data and Variables

In our study we will assess the robustness of different variables as predictors of currency crises. As we are interested in the probability of currency crises in emerging economies, we employed the to our best knowledge longest and most comprehensive dataset[4] consisting of a panel of monthly observations for 24 emerging economies: Argentina, Brazil, Chile, Colombia, the Czech Republic, Ecuador, Egypt, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Morocco, Peru, the Philippines, Poland, Russia, Slovakia, South Africa, Thailand, Turkey

[4] *For a detailed description of the data and their original sources, see Peltonen (2006), to whom we are very grateful for sharing his dataset with us.*

and Venezuela. Due to the limited availability of data for some variables, the dataset covers a timespan from January 1980 to December 2001, so that the adjusted sample contains a maximum of 3,340 country-month observations. It should be noted that for some countries, especially post-communist economies, not all data are available for the 1980s.[5] Since none of the variables used in the study can be directly interpreted as capturing the key elements behind third-generation models, we will focus on the first two model generations while taking model uncertainty explicitly into account. In order to empirically verify the adequacy of first- and second-generation models in subperiods of the data, we will also consider two subsamples ranging from January 1980 to December 1989 and from January 1990 to December 2001, respectively.

In line with the literature, the dependent crisis variable is constructed in two steps. First we compute a continuous variable known as the exchange market pressure index *(EMPI)*. Although there is no uniform definition, typically the EMPI is a weighted average of the change of the nominal or real exchange rate, the country's foreign reserves and the real or nominal interest rate.

We construct the *EMPI* for country *i* at time *t* as

$$EMPI_{i,t} = \omega_{ER}\left(\frac{\Delta e_{i,t}}{e_{i,t-1}}\right) + \omega_r\left(\frac{\Delta ir}{ir_{i,t-1}}\right) - \omega_{res}\left(\frac{\Delta res_{i,t}}{res_{i,t-1}}\right), \tag{1}$$

where *e* stands for the price of a U.S. dollar in country *i*'s currency, *ir* is the difference of short-term interest rate in country *i* and in the U.S.A., and *res* is the level of international reserves. As weights, the precision (inverse of the variance) for each one of these variables is used. In the next bout, this continuous variable is transformed into a binary index which equals 1 whenever $EMPI_{i,t}$ exceeds the threshold of the country-specific mean ($\overline{EMPI}_i$) plus twice its standard deviation σ_{EMPI_i},

$$CI_{i,t} = \begin{cases} 1 & \text{if} \quad EMPI_{i,t} > \overline{EMPI}^i + 2\sigma_{EMPI_i} \\ 0 & \text{otherwise.} \end{cases} \tag{2}$$

The choice of independent variables is inspired by the earlier literature which we briefly reviewed in section 2. Table 1 lists the set of regressors which are used as potential explanatory variables and table 2 presents descriptive statistics for the dependent and independent variables. Financial crises can typically not be reduced to only a few explanatory variables; they are complex events characterized by an accumulation of multiple economic problems. Naturally, this complexity cannot be mirrored in the three model generations which try to pinpoint the most distinguishing features. Hence, a clear-cut clustering of the explanatory variables into the generation categories is barely possible, although some variables can be expected to emerge as significant, with a higher probability in one generation type of crisis than another. The exchange rate variable is supposed to capture any excessive real overvaluation of the currency, which would be expected to increase the risk of devaluation. However, it provides no information about a possible trend

[5] *Hence, as communist countries are in fact not included in the 1980s subsample due to the missing data, the results are not really affected by their inclusion. Estimates for a subsample excluding these countries are available from the authors upon request.*

appreciation of the real exchange rate prior to a crisis as was observed in some studies (e.g. Edwards, 1989). Annual GDP growth is included, since higher economic growth should reduce the government's temptation to devalue its currency, e.g. in order to gain competitiveness. The effect of this variable should thus be particularly strong in the second-generation type of crises. The short-term-debt-to-reserves ratio (and analogously the total debt indicator) reflect the so-called Greenspan-Guidotti rule which states that reserves should cover entirely the amount of external debt that can be sold short-term by investors in case of an attack. Since a rise of this indicator, which renders a crisis more likely, can stem either from a rise in debt or a fall in reserves, we would expect this variable to be particularly significant in first-generation crisis episodes. Unfortunately, the data for these two variables were not available for the 1980s. The current account and government balances normalized with the respective country's GDP are typical fundamentals that play an important role in the framework of first-generation models. The contagion dummy could capture either an adverse development of fundamentals in the region or herding behavior on the finanical markets. Since Bussière and Fratscher (2006) show that contagion accross countries is only significant via the financial channel and not via trade, this variable should probably be significant particularly in second-generation crises. The exchange rate regime dummies will uncover whether some arrangements are more prone than others to currency crises. According to an influential, so-called "bipolar," view represented e.g. by Fischer (2001) since the beginning of the 1990s, countries have tended to leave the intermediate exchange rate regimes, which are perceived as more vulnerable, in favor of extreme arrangements such as free floating, dollarization/euroization or monetary unions. In contrast, Frankel (1999) presents a more sceptical approach to this issue and Rogoff et al. (2003) provide evidence for the bipolar view being a fallacy. In their opinion, there is neither support for countries moving toward the polar exchange rate arrangements nor for the claim that

Table 1

Definition of Independent Variables

Variable	Definition
Real exchange rate misalignment	Deviation of the real effective exchange rate from a Hodrick-Prescott trend
GDP growth rate	Annualized growth rate of GDP
Short-term debt	Short-term debt relative to reserves
Total debt	Total debt relative to reserves
Current account balance	Current account balance relative to GDP
Government balance	Primary fiscal balance relative to GDP
Contagion	Dummy equal to 1 if there has been a currency crisis within 3 months in the same region
De facto pegged FX regime	Dummy as defined by Reinhart and Rogoff (2004)
De facto crawling peg FX regime	Dummy as defined by Reinhart and Rogoff (2004)
De facto managed float FX regime	Dummy as defined by Reinhart and Rogoff (2004)
De facto floating FX regime	Dummy as defined by Reinhart and Rogoff (2004)
De facto freely falling FX regime	Dummy as defined by Reinhart and Rogoff (2004)
Real interest rates	Short term nominal interest rates deflated by the CPI
Broad money/reserves	Annualized growth rate of the ratio of broad money to reserves
Domestic credit	Annualized growth rate of real domestic credit
Stock market	Annualized growth of the composite stock market index
Hyperinflation	Dummy equal to 1 if annual CPI inflation > 40%

Source: Authors.

Table 2

Descriptive Statistics: Independent Variables

	Crisis variable	Real exchange rate misalignment	GDP growth rate	Short-term debt	Total debt	Current account balance	Government balance	Contagion	De facto pegged FX regime
Mean	0.029	−0.001	0.034	0.939	1.987	−0.020	−0.030	0.006	0.125
Median	0.000	−0.001	0.040	0.578	1.327	−0.020	−0.024	0.000	0.000
Maximum	1.000	0.738	0.403	15.695	27.043	0.183	0.100	1.000	1.000
Minimum	0.000	−0.542	−0.465	0.091	0.193	−0.209	−0.267	0.000	0.000
Standard deviation	0.168	0.069	0.052	1.262	2.424	0.047	0.039	0.078	0.331
Observations	5657	6418	6096	3934	3934	6012	5568	7200	6336

Source: Authors' calculations.

Table 2 continued

Descriptive Statistics: Independent Variables

	De facto crawling peg FX regime	De facto managed float FX regime	De facto floating FX regime	De facto freely falling FX regime	Real interest rates	Broad money/ reserves	Domestic credit	Stock market	Hyper-inflation
Mean	0.278	0.271	0.027	0.191	0.291	3213.342	14525035.000	1655.181	0.163
Median	0.000	0.000	0.000	0.000	0.019	0.021	0.050	0.174	0.000
Maximum	1.000	1.000	1.000	1.000	1388.455	182*105	$793000*10^5$	5912571.000	1.000
Minimum	0.000	0.000	0.000	0.000	−163.730	−1.000	−1.000	−1.000	0.000
Standard deviation	0.448	0.444	0.162	0.393	22.414	232163.300	10700*105	82671.930	0.370
Observations	6336	6336	6336	6336	6108	6155	5460	5778	7200

Source: Authors' calculations.

the latter outperform intermediate regimes. Due to the recognized inconsistencies between reported and actual policies in many countries, we employ both the de jure exchange rate regimes as defined by the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions as well as two widely acknowledged de facto classifications compiled by, respectively, Reinhart and Rogoff (2004) and Levy-Yeyati (2005). Real interest rates, domestic credit growth, the hyperinflation dummy and the ratio of broad money to reserves are typical first-generation fundamentals which should affect the probability of a crisis. In contrast, the stock market variable is a proxy for financial market sentiment and is expected to matter particularly in crisis episodes of the second generation.

5 Empirical Results: Robust Determinants of Currency Crises

The results of the Bayesian Model Averaging exercise are presented in table 3. The potential determinants correspond to all the variables in table 1 for samples including the 1990s, and all except *total debt* and *short-term debt* for the exercise using data from the 1980s (due to lack of data on these variables for that decade). We assumed equal prior probability for all models, which implies prior inclusion probabilities of 50% for each covariate. Therefore, in table 3 we report the posterior inclusion probabilities for each variable and the posterior expected value

of the corresponding parameter for those variables with inclusion probabilities over 0.5. Also presented is the ratio of the posterior expected value of the parameter to the root of the posterior variance of the parameter, which can be interpreted as a measure of precision in the estimates analogous to the t-ratio in classical (frequentist) econometrics.[6] We will refer to these variables as "robust" (since, after observing the data, the inclusion probability increases), although robustness should also be measured in terms of the precision of the corresponding estimated parameter and is hence discussed below. We used an MC^3 algorithm such as the one described above to obtain the results, with 10,000 replications.[7] All explanatory variables are evaluated with a one month lag with respect to the crisis variable, which is defined as in (1)-(2). The lag is used in an attempt to proxy a causality structure from the independent variables to the crisis indicator and avoid (at least to a certain extent) endogeneity. Results are presented for the full sample and for the 1990s and 1980s.

The full sample results highlight three variables as the most important determinants of currency crises: the *GDP growth rate,* the *current account balance* and *real interest rates,* which achieve posterior inclusion probabilities of over 99%. The effect of these variables is not estimated very precisely, although the posterior mean of the parameters has the expected sign in all three cases. Interestingly, the variables found to be robust determinants can be interpreted as representative of both first-generation and second-generation models. In particular, the current account balance and real interest rates can be seen as typical representative variables relevant for crisis prediction in first-generation models. GDP growth can be thought of as a first-generation determinant to the extent that it reflects fundamental macroeconomic dynamics, although it can also be interpreted as a second-generation model variable since it affects the temptation to devalue.

The results emmanating from the division in subsamples show fundamental differences across decades. The growth rate of GDP is the only robust covariate for the 1990s. For this subsample, the BMA estimate is much more precise and has a similar expected value to the one obtained for the whole sample. This implies that the lack of precision in the estimation of the effect of GDP growth on the probability of currency crisis occurrences for the full sample is caused by the lack of relationship in the 1980s (see corresponding column in table 3). Hence, GDP growth thus seems to be rather a second-generation model variable which reduces the incentive of the government to abandon the exchange rate peg. The other two variables which were found to be robust in the full sample, the current account balance and real interest rates, appear to be relevant only in the 1980s. Moreover, if we exclusively use data for this decade, their effects are more precisely estimated and have the expected sign: smaller current account deficits (or higher surpluses) reduce the probability of a crisis and higher real interest rates imply a higher

[6] *If there are 2^K models, 2^{K-1} contain each particular covariate, so that our prior inclusion probability is given by $\frac{2^{K-1}}{2^K}$.*

[7] *We also obtained the exact results (with model averaging based on the estimation of the posterior for the full model space) in some cases, so as to evaluate the precision of the Markov Chain proposed. Our results (available upon request) indicate that 5,000 replications already lead to quantitatively very similar results to those obtained from the exact method.*

crisis probability. For the subsample spanning the 1980s, we also find evidence that countries undergoing hyperinflationary episodes tended to have a much higher probability of a currency crisis. This effect, however, is not present in the 1990s and does not show up robustly if we use data for the full period. The results may thus be interpreted as in line with the propositions made by the theoretical literature. Surprisingly enough, however, we do not find any robust impact of typical first-generation fundamental variables such as the government balance, domestic credit growth or the ratio of money supply to reserves in any of the samples. There might be several interpretations for this nonresult. To begin with, the first model generation was developed particularly in reaction to pervasive currency turmoil in the 1970s and early 1980s. Currency markets calmed down somewhat in the mid- and late 1980s. Hence, a subsample spanning the 1980s might not be ideal for finding a significant effect of typical first-generation model variables. Moreover, Kaminsky and Reinhart (1999) document that while the ratios of domestic credit to GDP and M2 to reserves grow soundly prior to the crisis, the former stabilizes and the latter even falls shortly before the crisis. Since we use one-month lags of these indicators, they might not capture the rising trend and in the future, research of longer lags should be included. Similarly, the same authors show that the fiscal balance to GDP fares worst among the macroeconomic indicators in accurately calling a currency crisis. Lastly, Fidrmuc (2003) shows that, particularly in the 1980s, current account deficits tended to be accompanied by fiscal deficits. In our 1980s subsample, the correlation between the two variables for crisis episodes is around 0.5, suggesting a nonnegligible degree of multicollinearity. In order to test this hypothesis explicitly, we also repeated the exercise without the current account variable. With this constellation of variables, the fiscal deficit variable appears as a robust determinant of currency crises, with an inclusion probability of 0.99. Interestingly enough, the nature of the exchange rate regime does not affect the probability of a crisis. While the reported results were derived using the de facto categorization by Reinhart and Rogoff (2004), neither of the two alternatively employed classifications – the de jure exchange rate regimes as defined by the IMF and the de facto classification compiled by Levy-Yeyati (2005) – changed the outcome.

In order to test the robustness of the result concerning the lack of predictive power of the fiscal variable, we also carried out the exercise including up to one year (12 months) lagged fiscal deficits. That is, we expanded the model set to include 11 new variables, each one corresponding to a lag of the primary fiscal balance relative to GDP. The inclusion probabilities for the fiscal variables, however, were in all cases below 10%. Their inclusion did not affect the evidence concerning the effect of other variables on the probability of a currency crisis.

The binary crisis variable used until now is given by the definition in (1)-(2). A model based on such a crisis definition attempts to predict the exact timing of a crisis in a given country. However, it is argued in Bussière (2007) that, by trying to explain the exact month of a crisis, the model attempts to achieve something that may simply be unfeasible. Moreover, such a definition might identify multiple crisis episodes which in fact are part of the same crisis. To avoid these problems, we follow Peltonen (2006) and smooth the crisis variable by switching a noncrisis observation to a crisis observation if two out of the three neighboring periods were labeled as crisis months.

Table 3

Bayesian Model Averaging Results: Definition (Equation 2) of Crisis Moments

	Full sample			1990s			1980s		
	PIP	$E(\beta\|Y)$	$\frac{E(\beta\|Y)}{\sqrt{var(\beta\|Y)}}$	PIP	$E(\beta\|Y)$	$\frac{E(\beta\|Y)}{\sqrt{var(\beta\|Y)}}$	PIP	$E(\beta\|Y)$	$\frac{E(\beta\|Y)}{\sqrt{var(\beta\|Y)}}$
Real exchange rate misalignment	<0.5	–	–	<0.5	–	–	<0.5	–	–
GDP growth rate	0.9999	−4.6029	0.4353	0.9999	−4.0929	−5.7659	<0.5	–	–
Short-term debt	–	–	–	<0.5	–	–	–	–	–
Total debt	–	–	–	<0.5	–	–	–	–	–
Current account balance	0.9983	−5.0870	1.1659	<0.5	–	–	0.9313	−9.1725	−2.9218
Government balance	<0.5	–	–	<0.5	–	–	<0.5	–	–
Contagion	<0.5	–	–	<0.5	–	–	<0.5	–	–
De facto pegged FX regime	<0.5	–	–	<0.5	–	–	<0.5	–	–
De facto crawling peg FX regime	<0.5	–	–	<0.5	–	–	<0.5	–	–
De facto managed float FX regime	<0.5	–	–	<0.5	–	–	<0.5	–	–
De facto floating FX regime	<0.5	–	–	<0.5	–	–	<0.5	–	–
Real interest rates	0.9999	0.0176	0.0000	<0.5	–	–	0.9022	0.0404	1.9788
Broad money/reserves	<0.5	–	–	<0.5	–	–	<0.5	–	–
Domestic credit	<0.5	–	–	<0.5	–	–	<0.5	–	–
Stock market	<0.5	–	–	<0.5	–	–	<0.5	–	–
Hyperinflation	<0.5	–	–	<0.5	–	–	0.8985	0.7571	2.4242

Source: Authors' calculations.

Note: PIP stands for Posterior Inclusion Probability. Results obtained using 10,000 replications of the Markov chain Monte Carlo model composite procedure explained in the text. Since our prior inclusion probability is given by 0.5, we report the posterior inclusion probabilities for each variable and the posterior expected value of the corresponding parameter only for those variables with inclusion probabilities over this threshold.

We redo the BMA exercise for this variable proxying "crisis periods" instead of "crisis moments" and summarize the results in table 4, which has the same structure as table 3. The results of this exercise confirm and complement those highlighted above for crisis moments. Our conclusions concerning the robustness of the GDP growth rate, current account balance and real interest rates as predictors of the currency crises for the whole sample are left unaffected by the use of the alternative crisis definition. This time, however, the estimation precision of these three covariates in the whole sample has improved substantially. An interesting feature which is revealed in the new estimates is that differences in exchange rate regimes did not systematically account for crises in the 1980s but played an important role in explaining different exposure to currency crises in the 1990s and were also strong enough in the whole sample. Moreover, in contrast to the bipolar view, it turns out that intermediate exchange rate regimes (peg, crawling peg and managed float) substantially decrease the probability of a crisis. This result is in line with earlier studies and should be interpreted with respect to the reference regime (which is not included in the procedure), which is the free-falling exchange rate regime defined by Reinhart and Rogoff (2004) for observations corresponding to inflation episodes over 40%. While Rogoff et al. (2003) document that the impact of de facto exchange rate regimes on the probability of a currency crisis is mixed and substantially hinges on the definition of the dependent variable, the time span covered and the countries included in the sample, Ghosh, Gulde and Wolf (2002a) conclude that, statistically, currency crises are more likely under floating regimes, but their impact is more severe under pegged and intermediate

Table 4

Bayesian Model Averaging Results: Definition of Crisis Periods

	Full sample			1990s			1980s		
	PIP	$E(\beta\|Y)$	$\frac{E(\beta\|Y)}{\sqrt{var(\beta\|Y)}}$	PIP	$E(\beta\|Y)$	$\frac{E(\beta\|Y)}{\sqrt{var(\beta\|Y)}}$	PIP	$E(\beta\|Y)$	$\frac{E(\beta\|Y)}{\sqrt{var(\beta\|Y)}}$
Real exchange rate misalignment	<0.5	–	–	<0.5	–	–	<0.5	–	–
GDP growth rate	0.9990	−3.3972	−5.0023	0.9990	−3.8535	−4.7846	<0.5	–	–
Short-term debt	–	–	–	<0.5	–	–	–	–	–
Total debt	–	–	–	<0.5	–	–	–	–	–
Current account balance	0.9998	−5.4405	−5.2117	<0.5	–	–	0.8703	−9.0364	−2.3060
Government balance	<0.5	–	–	<0.5	–	–	<0.5	–	–
Contagion	<0.5	–	–	<0.5	–	–	<0.5	–	–
De facto pegged FX regime	0.9999	−0.8508	−5.0950	1.0000	−0.9848	−4.9012	<0.5	–	–
De facto crawling peg FX regime	0.9999	−0.7259	−5.9078	1.0000	−0.7397	−5.0432	<0.5	–	–
De facto managed float FX regime	0.9999	−0.7662	−6.0684	1.0000	−0.8816	−6.1146	<0.5	–	–
De facto floating FX regime	<0.5	–	–	<0.5	–	–	<0.5	–	–
Real interest rates	0.9981	0.0146	2.9658	<0.5	–	–	0.8518	0.0403	1.7392
Broad money/reserves	<0.5	–	–	<0.5	–	–	<0.5	–	–
Domestic credit	<0.5	–	–	<0.5	–	–	<0.5	–	–
Stock market	<0.5	–	–	0.9998	−0.0749	−2.8709	<0.5	–	–
Hyperinflation	<0.5	–	–	<0.5	–	–	0.8705	0.8277	2.2379

Source: Authors' calculations.

Note: PIP stands for Posterior Inclusion Probability. Results obtained using 10,000 replications of the Markov chain Monte Carlo model composite procedure explained in the text. Since our prior inclusion probability is given by 0.5, we report the posterior inclusion probabilities for each variable and the posterior expected value of the corresponding parameter only for those variables with inclusion probabilities over this threshold.

regimes.[8] Finally, the results for the newly defined currency crises also unveil one new determinant which was not labeled as robust under the former definition. High stock market returns tended to relate to a lower probability of crisis over the course of the 1990s, a result which can be easily reconciled with second-generation models if interpreted as a proxy for market sentiment.

Our use of monthly data has an effect on the nature of the determinants of currency crises. In particular, there could be variables whose short-term volatility obscures a causal effect that may be present at lower frequencies. In order to unveil such relationships, we repeated the exercise after aggregating the data at a quarterly frequency. Our crisis variable now takes value one if there was at least one month in the quarter where the monthly indicator signaled a crisis. The results for the crisis "moments" definition (2) are presented in table 5 and reveal some interesting relationships. On the one hand, GDP growth remains a robust determinant of currency crises, with a similar elasticity to that obtained with monthly data. On the other hand, real exchange rate misalignments appear as an empirically relevant determinant of the occurrence of crises. The information embodied in this variable is hence lost when moving to higher frequencies but appears statistically important at the quarterly frequency. The opposite occurs to current account

[8] *We also repeated the exercise using de jure classifications. De jure exchange rate regimes did not appear robustly related to the occurrence of crises in this setting, although their inclusion tended to affect the robustness of other variables. Further research in this direction should be carried out in order to unveil the nature of the interaction between de jure regimes and macroeconomic fundamentals as determinants of crisis periods.*

Table 5

Bayesian Model Averaging Results: Definition (Equation 2) of Crisis Moments – Quarterly Data

	Full sample		
	PIP	$E(\beta \mid Y)$	$\frac{E(\beta \mid Y)}{\sqrt{var(\beta \mid Y)}}$
Real exchange rate misalignment	0.9999	4.8503	6.0862
GDP growth rate	0.9999	−5.6262	−5.4856
Short-term debt	–	–	–
Total debt	–	–	–
Current account balance	<0.5	−1.3086	−0.5712
Government balance	<0.5	–	–
Contagion	<0.5	–	–
De facto pegged FX regime	<0.5	–	–
De facto crawling peg FX regime	<0.5	–	–
De facto managed float FX regime	<0.5	–	–
De facto floating FX regime	<0.5	–	–
Real interest rates	<0.5	–	–
Broad money/reserves	<0.5	–	–
Domestic credit	<0.5	–	–
Stock market	<0.5	–	–
Hyperinflation	<0.5	0.0077	0.0032

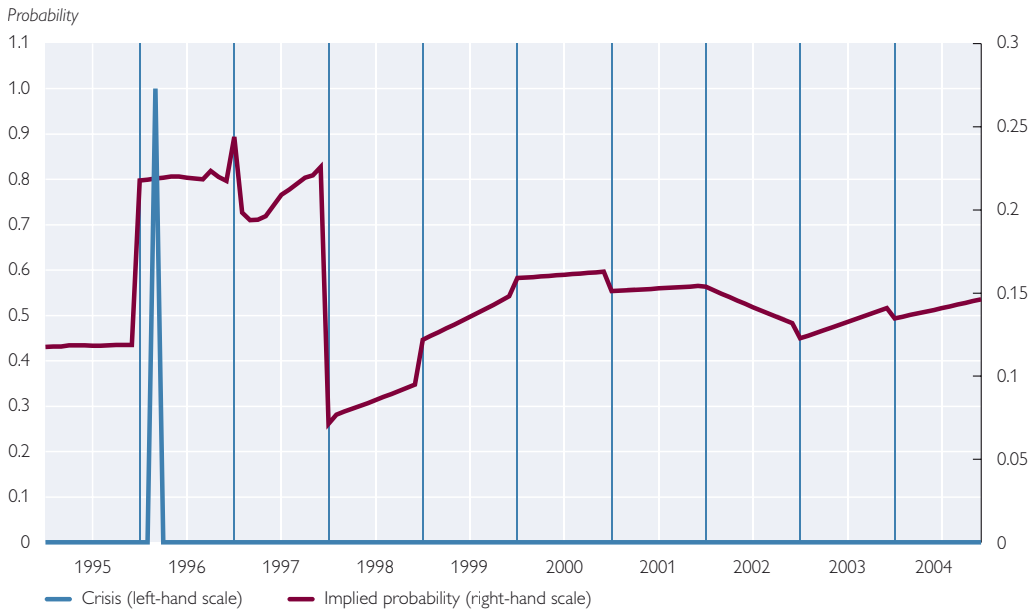
Source: Authors' calculations.

Note: PIP stands for Posterior Inclusion Probability. Results obtained using 10,000 replications of the Markov chain Monte Carlo model composite procedure explained in the text.

dynamics and real interest rates, whose high(er) frequency component contains more important information concerning potential crisis situations in the exchange rate market. This result may be interpreted as evidence that the signals issued by

Chart 1

Implied Out-of-Sample Crisis Probability for Bulgaria



Source: Authors' calculations.

some variables tend to be masked at higher frequencies through noisy volatility, which is averaged away when aggregating the variable at lower frequencies. However, the opposite, namely that short-run volatility may also contain useful signals, occurs for some other variables.

As an extra robustness check concerning the out-of-sample abilities of the model averaging estimates, we also applied the Bayesian model-averaged parameters of the robust variables to data to Bulgaria, which is not part of the sample used for estimation. The definition of the crisis is given by (2). Chart 1 presents the implied probabilities and the observed crisis in the available sample. The probability implied by the averaged parameters increases sharply and doubles right before the crisis, implying a reasonable out-of-sample predictive power of the Bayesian averaged model.

6 Conclusions

The objective of the present paper is to complement the results obtained in Crespo Cuaresma and Slačík (2007) by searching for empirical support for the three model generations in which the literature on financial crises is usually categorized. In this sense, this exercise is both a follow-up and a complementary exercise to that carried out in Crespo Cuaresma and Slačík (2007). We use a broad sample of 24 emerging economies and, due to the limited availability of data, we concentrate on the first and second generation type of crises. In contrast to the existing literature on early warning mechanisms for currency crisis, which generally ignores the immanent caveat of model uncertainty, we took this issue explicitly into account by means of the Bayesian model averaging algorithm. We thus calculated the parameter value for each covariate as a weighted average over all relevant models using posterior model probablities as respective weights. We employed the Markov chain Monte Carlo model composite algorithm to reduce the size of the large model space.

In line with the propositions made by the theoretical literature, the results suggest that crisis episodes in the 1980s were driven predominantly by an adverse development of macroeconomic fundamentals. Particularly hyperinflation, high interest rates and current account deficits tended to increase the probability of a crisis. Results for the subsample covering the 1990s could be interpreted as an empirical indication for the second-generation type of crises. In contrast, surprisingly enough, other fundamental variables that typically play a major role in theoretical first-generation concepts, such as government balance or domestic credit growth, seem to have no robust impact on crisis probabilities. If the definition of the dependent crisis variable is broadened from one month to a time window of three months, the impact of de facto exchange rate regimes becomes robust too. In this respect, the results stand in contradiction to the popular bipolar view and suggest that intermediate exchange rate arrangements considerably reduce the risk of a speculative currency attack.

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Highlights

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.

Stress Tests for the Austrian FSAP Update 2007: Methodology, Scenarios and Results

Michael Boss, Gerhard Fenz, Gerald Krenn, Johannes Pann, Claus Puhr, Thomas Scheiber, Stefan Schmitz, Martin Schneider, Eva Ubl

This paper presents the methodology, scenarios and results of the stress tests conducted for the update of Austria's Financial Sector Assessment Program (FSAP) in 2007. The focus of the paper lies in particular on the following two macroeconomic stress scenarios: (a) a regional shock in Central, Eastern and Southeastern Europe hitting Austrian banks through their large exposure in the region, and (b) a global downturn in economic activity causing a deterioration of Austrian banks' domestic loan portfolios, whereby in the second scenario, contagion risk within the Austrian interbank market was also taken into account. Stress test calculations were performed by the OeNB for all Austrian banks (top-down approach) as well as by the six largest Austrian banking groups for their respective exposure (bottom-up approach). The paper describes the methodologies for scenario construction and the stress tests themselves and then discusses the scenarios as well as the stress test results in detail, including a comparison of the two approaches. Finally, the paper presents the results of additional sensitivity stress tests for credit risk emanating from foreign currency lending, for the most important categories of market risk and for liquidity risk. Overall, the update of Austria's FSAP 2007 confirmed the results of previous stress testing exercises, in particular for the large Austrian banking groups that show considerable shock resistance mainly as a result of their generally sound capital buffers and high profitability.

Published in Financial Stability Report 15.

Walking the Tightrope: A First Glance on the Impact of the Recent Global Financial Market Turbulences on Central, Eastern and Southeastern Europe

Sándor Gardó, Antje Hildebrandt, Zoltan Walko

The Central, Eastern and Southeastern European (CESEE) countries have, to some extent, felt the impact of the international financial market turbulence observed since mid-July 2007. While CESEE markets tended to follow the negative global investor sentiment in general, they performed relatively well compared to other emerging markets. Overall, increases in risk premiums and asset price losses were rather contained in the region, which may reflect a positive impact on investor judgment induced by EU convergence. However, the fact that the financial turmoil had a stronger impact on countries with weaker economic fundamentals and/or insufficient policy credibility shows that correcting overly large economic imbalances remains imperative in a relatively fragile international environment.

Published in Financial Stability Report 15.

Effects of the Full Opening of the Austrian Labor Market to EU-8 Citizens

Klaus Prettner, Alfred Stiglbauer

Within the next few years, Austria will lift its temporary restrictions on the free movement of workers from the EU-8 countries. Estimates of the resulting inflow of foreign labor to Austria are surrounded by a high level of uncertainty and vary widely. A review of the literature and the results of empirical estimations presented in this paper – indicating an expected inflow of some 200,000 immigrant

employees within ten years – suggest the following: Immigration will have a small impact on the Austrian labor market at the aggregate level, but may reduce the employability of low-skilled, low-income workers. As regards the impact on inflation, it can be assumed that price pressures will decline.

Published in Monetary Policy & the Economy 4/2007.

The Competitiveness Challenge: EU Member States in International Trade

Antje Hildebrandt, Maria Antoinette Silgoner

Given the increasing internationalization of trade, it is imperative for any country to ensure that its economy remains competitive. This study sheds light on trends in competitiveness in the EU Member States as made evident in an analysis of various indicators. Having lost their exchange rate autonomy by adopting the euro, the euro area countries face an additional constraint on national economic policy-making in the pursuit of competitiveness. In recent years, diverging unit labor cost developments have left their mark on competitiveness trends in individual euro area countries. Changes in competitiveness should not be interpreted in isolation, but rather against the background of a country's level of economic development, as evidenced in particular by the EU Member States in Central, Eastern and Southeastern Europe. For instance, long-term catching-up processes and equilibrium price adjustments have a major impact on price competitiveness indicators. The countries of this region managed to tap their potential for catching up and succeeded in withstanding international competition especially by raising product quality.

Published in Monetary Policy & the Economy 4/2007.

The Treaty of Lisbon – Amendments to the EU Treaties and Their Consequences for EMU

Sylvia Gloggnitzer

The Treaty of Lisbon is the EU's new legal framework. The EU heads of state or government have agreed on a new EU treaty conceived to ensure that the enlarged EU consisting of 27 Member States functions more efficiently than under the Treaty of Nice, which is currently in place. The Treaty of Lisbon was signed by EU heads of state or government on December 13, 2007, in Lisbon. The Treaty of Lisbon is to replace the EU Constitutional Treaty rejected in national referendums in France and the Netherlands; it has retained large parts of the constitutional treaty's substance. First and foremost, the new EU treaty represents a reform that introduces increased majority voting, a clear delimitation of EU competences and a changed institutional framework for EU institutions. Other than the general institutional changes, elements of the Treaty of Lisbon relevant to Economic and Monetary Union (EMU) include, above all, the introduction of price stability to the new treaty's list of objectives, the institutional status of the ECB and the protection of its independence as well as the strengthening of the Eurogroup. The conditions for EMU set out in the Treaty of Maastricht are now reinforced politically in the Treaty of Lisbon. For the EU's new legal basis to enter into force on January 1, 2009, as scheduled, the Treaty of Lisbon needs to be ratified by all 27 Member States prior to the elections to the European Parliament in 2009.

Published in Monetary Policy & the Economy 1/2008.

The Impact of EU Enlargement in 2004 and 2007 on FDI and Migration Flows – Gravity Analyses of Factor Mobility

Andreas Breitenfellner, Jesús Crespo Cuaresma, Peter Mooslechner, Doris Ritzberger-Grünwald

This paper contributes to the ex post assessment of macroeconomic effects triggered by the 2004/ 2007 wave of EU enlargement, with a specific focus on factor trade, i.e. the cross-border mobility of labor and capital. While most of the potential for trade in goods and for foreign direct investment (FDI) was tapped ahead of actual enlargement, above all migration effects are spread out over a longer period given transition rules for labor market integration. We use (innovative) gravity models to establish the potential for factor trade and cross-check the results against current developments. Our key finding is the uneven development of capital and labor mobility since EU enlargement. While migration potentials are materializing as expected, FDI stocks have remained relatively stable at already high levels. Furthermore, we observe a nonlinear relationship between migration and per-capita income, which may be explained on theoretical grounds and attributed to institutional factors. While the highest-income countries (above all Slovenia and the Czech Republic) are already turning into immigration countries, the low-income countries and those last to join the EU (Bulgaria and Romania) are likely to see further emigration and more FDI inflows.

Published in Monetary Policy & the Economy 2/2008.

SUERF Workshop and Special OeNB East Jour Fixe

Commodities, Energy and Finance

On March 3, 2008, the OeNB hosted a Special East Jour Fixe on "Commodities, Energy and Finance," which was organized as a joint event with a SUERF workshop. Around 100 participants from over 16 countries followed a day of debates on the dynamics between financial, commodity and energy markets in Europe, on the challenges of oil wealth and on the role for monetary policy with respect to commodity and energy prices. The event was opened by OeNB Governor Klaus Liebscher, who referred to the staggering developments in commodity and energy prices and also mentioned the related issue of climate change. The workshop brought together both professional and academic perspectives on the role of commodities in five sessions:

- Session 1: Commodities as an asset class
- Session 2: Financial investors and commodity market dynamics
- Session 3: Energy markets in Europe – state of play, future prospects and implications for financial markets
- Session 4: Oil revenues: Role and management of sovereign wealth funds, and the challenge of a dual economy
- Session 5: Policy panel: How should monetary policy take commodity and energy prices into account?

The first session – chaired by Beat Bernet of the Swiss Institute of Banking and Finance at the University of Sankt Gallen – explained why investors increasingly regard commodities as an asset class, a safe haven or a useful portfolio supplement for enhancing return and diversifying risks. With a view on the long-term properties of commodity futures, K. Geert Rouwenhorst, Deputy Director of the International Center for Finance at the Yale School of Management, pointed out that commodity futures are less risky than stocks, negatively correlated with stocks and bonds, and perform better during inflation periods. John Cavalieri, Real Return Product Manager at the international capital investment company PIMCO in California, envisioned the continued potential of commodities to enhance returns and diversify risks in an environment of increasing demand, supply constraints and a secularly weak U.S. dollar.

The second session, chaired by Ernest Gnan, Head of the OeNB's Economic Analysis Division, addressed various effects of financial investors' activity on commodity and energy markets by asking two questions: First, to what extent is financial activity in commodities markets driving commodities and energy prices away from fundamentals; and second, are commodities markets becoming more complete and liquid through derivatives markets? Alexandra Heath, Senior Economist at the Bank for International Settlements, stated that fundamentals still provide strong anchors for commodity prices and that financial investors have improved the depth of commodity markets. Michael Lewis, Global Head of Commodities Research at Deutsche Bank London, confirmed increased commodity speculation which follows rather than leads commodity prices, as commodities are ultimately driven by physical rather than financial factors. However, he saw a risk of overshooting (in precious metals, copper and oil) given that financial market turbulences have lured more investors into commodities, but also due to the overshooting of the U.S. dollar.

The third session, chaired by Doris Ritzberger-Grünwald, Head of the OeNB's Foreign Research Division, focused on energy markets in Europe. This session described and analyzed recent developments and the current state of play in the organization of European energy markets by addressing the following questions: How well developed are the markets for trading energy across Europe? To what extent have liberalization and privatization increased competition and lowered prices for consumers and business? Which obstacles remain to be overcome? Juan Delgado of the Brussels-based think tank BRUEGEL highlighted the constraints of the common EU energy market by physical/technical factors and economic/political factors. He pointed to world competition for resources as well as the growing prominence of energy efficiency and climate considerations. Delgado described an "impossible trinity" of security of supply, competition/competitiveness and environmental sustainability. Walter Boltz, CEO at the Austrian energy regulator E-Control in Vienna, commended the EU Commission for its third energy liberalization package given its potential for consumer gains, while also pointing out that it may provoke collusion between national and companies' interests. According to Boltz, cross-border capacity congestion results in higher prices for consumers. Active households are crucial for avoiding abusive supplier behavior.

The fourth session, chaired by Peter Mooslechner, Director of the OeNB's Economic Analysis and Research Department, dealt with oil revenues. It addressed the role and management of sovereign wealth funds, and the possible challenge posed to oil exporting countries by the risk of a dual economy. Birger Vikøren, Director of the Financial Markets Department at Norges Bank in Oslo, highlighted the experiences of Norges Bank with organizing the Government Pension Fund. The three objectives of oil revenue accumulation in this sovereign wealth fund are intergenerational justice (transforming natural wealth into future financial wealth), economic stabilization (protecting the nonoil economy from volatile oil prices and extraction) and fiscal discipline (restraining immediate consumption of oil income). He also referred to the unprecedented ethic standards the bank follows while perusing its investment policies. Vasily Astrov of The Vienna Institute for International Economic Studies (wiiw) in Vienna described the Russian Oil Fund as a tool of fiscal stabilization and monetary sterilization (avoiding inflation) and pointed to the risks of a recent reform, as more spending could fuel overheating and corruption. Drawing on research conducted with Stephan Barisitz from the OeNB, Simon-Erik Ollus of the Bank of Finland Institute for Economies in Transition (BOFIT) in Helsinki, discussed signs of Dutch disease in the Russian economy, as oil and gas revenues contribute nearly one-third to Russia's GDP and two-thirds to its export revenues. Given substantial real rouble appreciation he observed some symptoms of Dutch disease. As policy advice he proposed prudent fiscal and monetary policies, diversification, integration and competition.

The concluding policy panel, chaired by Már Gudmundsson, Deputy Head of the Monetary and Economic Department at the Bank for International Settlements, discussed the implications of commodity and energy prices for monetary policy. The issues facing monetary policymakers include: How should monetary policy react to changes in commodity and energy prices? Should monetary policy pay more attention to core or headline inflation? How should commodity and energy prices be taken into account in measuring core inflation? Do these prices serve as leading indicators of activity and inflation? Ulrich Kohli, Alternate Mem-

ber of the Governing Board of the Swiss National Bank, recommended distinguishing between relative price changes, general price level changes and inflation (i.e. a continuous increase in the price level). He reasoned that if energy prices increase, real wages need to decrease, since a real shock requires real adjustment. The appropriate monetary policy depends on whether a demand or a supply shock is given. Kohli warned against monetary accommodation as it only delays real adjustment at the cost of higher inflation. Yet to ignore energy price hikes by using an exclusion-based core inflation indicator ("cold and hungry index") is also inappropriate. Monetary policy needs to consider the general price level, i.e. headline inflation, and should not exclude specific items, particularly if energy prices rise for an extended period. He finished in saying that central bankers target the real price of money. Irma Rosenberg, First Deputy Governor of the Sveriges Riksbank suggested that perhaps it is only now that the successful low inflation policy is put to the test. She stated that flexible inflation targeting is a simple principle with complex implementation. According to Rosenberg, one has to distinguish between price shocks with a lasting versus temporary impact on inflation. She concluded that in order to maintain the credibility of inflation targets, rising inflation calls for counteraction. Frank Smets, Deputy Director General Research of the European Central Bank, complemented in the same spirit by starting with a remark that relative price changes allow resource reallocation to happen. He stated that terms-of-trade shocks are like productivity shocks. Their effect on the equilibrium interest rate depends on the balance of supply and demand effects. Smets attributed the apparently decreased inflationary impact from oil shocks to higher central bank credibility and lower real wage rigidity. The appropriate monetary policy response depends on the (perceived) persistence of inflationary effects – first-round effects depend on expected second-round effects. He finally reiterated that central bank credibility helps to anchor inflation.

In his wrap-up, Ernest Gnan turned the focus to mid- and long-run economic issues of a growing and developing world population facing scarce (energy) resources: Will massive swings in relative prices of production factors translate into a global shift in income and wealth? How will financial markets reflect these developments? How should economic policy react? He also referred to important noneconomic aspects, such as the social consequences of rising food and energy prices, environmental issues and geopolitical (military) consequences, which would ultimately influence economic and financial market developments. As exemplified by price-increasing effects of biofuels and price regulation, narrow and short-term thinking may yield undesired results.

Opportunities and Risks of Austrian Corporates in Central and Eastern Europe – An Empirical Analysis of the ATX Prime

Presentation at the OeNB

On March 7, 2008, the Oesterreichische Nationalbank invited Peter Szopo, head of Sal. Oppenheim's equity research, to present a recent study by Sal. Oppenheim Austria on "Opportunities and risks of Austrian corporates in CEE – An empirical analysis of the ATX Prime."

The Austrian equity market is highly exposed to Central and Eastern Europe (CEE). Based on the regional split of the companies' top lines we estimate the current CEE exposure of the ATX Prime, which is composed of 58 shares, at 42%. In other words: More than 40% of the aggregate market valuation can be derived from the companies' operations in CEE. This figure is higher than both the market's dependence on the domestic economy (29%) and on the rest of Europe (23%).

In contrast to its bold move into CEE, Austria's corporate sector has been lagging those of e.g. Switzerland, Scandinavia or the Netherlands in its expansion outside Europe. Austria's listed sector, in line with the broader economy, is Europe-centered. For the overall market, the exposure to non-European markets is less than 10%; for non-financials just 11%. In a way, the reliance on the fast-growing economies in CEE compensated the Austrian economy and the listed corporate sector for the (on average) poor presence in the other growth regions of the world, like East Asia, and more recently, Latin America.

We expect to see a further rise in the market's CEE exposure for several reasons: First, recent investments in the region are simply not yet fully reflected in current figures, either because the projects are still not completed or the new operations are still too small or too recent to be consolidated. Second, almost all core players with significant operations in the region plan to strengthen their CEE presence (by expanding in countries where they are already on the ground, adding new markets or taking over competitors). Third, a number of companies that have not been very active in CEE so far are now entering the region. Finally, and possibly most importantly, the superior growth outlook for CEE relative to Western Europe is likely to increase the share of CEE business for most companies, even without any further shift in capital expenditure toward the region.

There are reasons to assume that the increased economic integration with CEE has been highly beneficial for Austria and its corporate sector, listed and unlisted. Macroeconomic simulations by the Austrian Institute of Economic Research (WIFO) show that the Eastern opening has been adding 0.15 percentage points annually to real GDP growth, has supported employment growth (although estimates vary widely), and has contributed to Austria's strong productivity gains over the past decade. In our view, the corporate sector has benefited in several ways: (a) The opening of CEE was a key catalyst for many Austrian companies to start any international expansion at all. (b) CEE was also crucial in allowing many companies to achieve scale effects that would have been unattainable in the domestic market alone. (c) The CEE expansion not only brought access to new and much bigger, but also more rapidly-growing, markets than the domestic ones. (d)

Austrian companies, which tend to be small or mid caps in a global context, have often managed to be among the market leaders in CEE – something they would typically not have achieved in Western Europe. (e) There is some evidence that CEE operations tend to be more profitable than the domestic or Western European business, either because of better margins, or because the expansion into the region allowed companies to move into more profitable business segments. (f) Finally, the CEE expansion provided companies with a broader risk diversification because – despite rising integration – the business cycles between mature Western economies, new EU members, and CIS economies are unlikely to become fully correlated anytime soon.

The market's high CEE exposure may partly explain why the Austrian stock market underperformed other European stock markets toward the end of 2007. Investors seemed to be increasingly nervous about what they saw as mounting risks in the region. The main argument in this context is that, due to external imbalances which characterize many of the CEE economies as well as the private sector's high foreign exchange exposure, the region may be harder hit by an international credit crunch than other parts of the world. We feel that the market has overreacted, particularly after the recent correction: First, the macro concerns just mentioned only apply to some countries (Balkans, Baltic states) while the biggest economy in the region, Russia, is not affected at all; also, Poland and the Czech Republic are in good health. Second, even in those economies with a credit boom and a surging domestic absorption, growth seems to reflect "normal" convergence rather than a fundamentally irrational boom. Growth is likely to slow down, but will stay ahead of Western European growth.

The ensuing discussion centered primarily on the ongoing global financial market turbulence, particularly how secondary effects might turn out after primary effects of the crisis have been contained, whether we have been observing a downward overshooting reaction in equity markets, and the likelihood of contagion – especially with respect to CEE. In this context, there was also some debate on the optimal timing of market entry as – according to Peter Szopo – a number of Austrian equities have fallen well below the level justifiable by fundamentals so that they currently offer a good opportunity to go long.

Olga Radzyner Award for Scientific Work on European Economic Integration

The Oesterreichische Nationalbank has established an award to commemorate Olga Radzyner, former Head of the Foreign Research Division, who died in a tragic accident in August 1999. The award is bestowed on young economists for excellent research focused on topics of European economic integration and is conferred annually. In 2008, four applicants are eligible to receive a single payment of EUR 3,000 each from an annual total of EUR 12,000.

The submitted work shall be in the form of a master's or doctoral thesis, a working paper or a scientific article, and shall be in English or in German. Authors shall submit the work before their 35th birthday and shall be citizens of any of the following countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, the FYR Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, or Slovenia.

To identify their work as a submission, applicants shall mark the envelope with the reference "Olga Radzyner Award" and send it to the Oesterreichische Nationalbank, Foreign Research Division, Otto-Wagner-Platz 3, PO Box 61, 1011 Vienna, Austria. The Oesterreichische Nationalbank shall receive the work submitted for the award in 2008 by October 8, 2008, at the latest.

For detailed information, please visit our Internet website at *http://ceec.oenb.at* or contact Ms. Eva Gehringer-Wasserbauer in the Foreign Research Division of the Oesterreichische Nationalbank either by e-mail (eva.gehringer-wasserbauer@oenb.at) or by phone (+43-1-40420-5205).

Statistical Annex

Statistical Annex

Table 1

Gross Domestic Product

	2001	2002	2003	2004	2005	2006	2007
	Annual real change in %						
Albania	7.9	4.2	5.8	5.7	5.8	5.5	5.6
Bosnia and Herzegovina	4.5	5.5	3.0	6.3	3.9	6.7	6.0
FYR Macedonia[1]	−4.5	0.9	2.8	4.1	4.1	4.0	5.1
Serbia	4.8	4.2	2.5	8.4	6.2	5.7	7.5
Montenegro	1.1	1.9	2.5	4.4	4.2	8.6	7.0
Ukraine	9.2	5.2	9.6	12.1	2.7	7.3	7.6

Source: wiiw.

[1] *Former Yugoslav Republic of Macedonia.*

Table 2

Industrial Production

	2001	2002	2003	2004	2005	2006	2007
	Annual real change in %						
Albania	6.1	−5.1	29.0	14.1	2.5	7.3	8.0
Bosnia and Herzegovina	4.9	5.7	5.1	12.0	11.0	11.7	6.3
FYR Macedonia	−2.9	−4.8	4.1	−2.2	7.1	2.5	3.7
Serbia	0.1	1.8	−3.0	7.1	0.8	4.7	3.7
Montenegro	−0.7	0.6	2.4	13.8	−1.9	1.0	0.1
Ukraine	14.3	7.0	15.8	12.5	3.1	6.2	10.2

Source: wiiw.

Table 3

Average Gross Wages – Total Economy

	2001	2002	2003	2004	2005	2006	2007
	Annual change in %						
Albania	15.1	14.2	8.5	14.4	9.9	7.5	18.7
Bosnia and Herzegovina[1]	4.9	5.7	5.1	12.0	11.0	11.7	6.3
FYR Macedonia	−0.4	6.4	4.9	4.1	2.7	8.0	4.8
Serbia	128.8	52.6	25.3	23.7	24.1	24.4	22.1
Montenegro	16.8	42.6	7.8	11.7	7.8	15.6	31.7
Ukraine	35.2	21.0	22.8	27.6	36.7	29.2	29.7

Source: wiiw.

[1] *Net wages.*

Table 4

Unemployment Rate

	2001	2002	2003	2004	2005	2006	2007
	End of period, %						
Albania[1]	16.4	15.8	15.0	14.4	14.1	13.6	14.0
Bosnia and Herzegovina[1]	40.3	40.9	41.9	43.2	44.1	44.1	42.9
FYR Macedonia[2]	30.5	31.9	36.7	37.2	37.3	36.0	34.9
Serbia[2]	12.2	13.3	14.6	18.5	20.8	20.9	18.8
Montenegro[2]	23.7	20.7	22.7	27.7	30.3	29.6	30.0
Ukraine[2]	10.9	9.6	9.1	8.6	7.2	6.8	6.4

Source: wiiw.

[1] *Registered, end of period.*

[2] *Labor Force Survey, period average.*

Table 5

Industrial Producer Price Index

	2001	2002	2003	2004	2005	2006	2007
	Period average, annual change in %						
Albania[1]	−7.2	5.1	1.8	12.2	4.9	0.7	12.0
Bosnia and Herzegovina[2]	3.9	−0.3	−0.1	2.3	−0.6	3.4	4.6
FYR Macedonia	2.0	−0.9	−0.3	0.9	3.2	4.5	1.7
Serbia	87.7	8.8	4.6	9.1	14.2	13.3	5.9
Montenegro	×	14.5	4.5	5.8	2.1	3.6	7.0
Ukraine	8.7	3.0	7.6	20.5	16.7	9.6	19.5

Source: wiiw, national sources.

[1] *Manufacturing industry.*

[2] *Federation of Bosnia and Herzegovina.*

Table 6

Consumer Price Index

	2001	2002	2003	2004	2005	2006	2007
	Period average, annual change in %						
Albania	3.1	5.2	2.2	3.0	2.4	2.4	2.9
Bosnia and Herzegovina	3.2	1.3	1.1	0.8	3.0	6.2	1.5
FYR Macedonia	5.5	1.8	1.2	−0.4	0.5	3.2	2.3
Serbia	93.3	16.6	9.9	11.4	16.2	11.7	7.0
Montenegro	21.8	16.0	6.7	2.4	2.3	3.0	4.2
Ukraine	12.0	0.8	5.2	9.0	13.5	9.1	12.8

Source: wiiw.

Table 7

Trade Balance

	2001	2002	2003	2004	2005	2006	2007
	% of annual GDP						
Albania	−25.3	−25.9	−23.3	−21.7	−22.4	−23.2	−27.2
Bosnia and Herzegovina	−93.7	−54.5	−49.5	−45.6	−45.8	−34.8	−38.7
FYR Macedonia	−15.3	−21.4	−18.3	−21.1	−18.4	−20.1	−21.1
Serbia	−19.5	−20.4	−19.8	−26.4	−20.2	−19.6	−21.0
Montenegro	−37.6	−31.2	−23.8	−24.9	−28.3	−39.5	−66.9
Ukraine	0.5	1.7	1.0	5.8	−1.3	−4.8	−7.5

Source: National central banks, wiiw.

Table 8

Current Account Balance

	2001	2002	2003	2004	2005	2006	2007
	% of annual GDP						
Albania	−7.0	−9.0	−6.6	−4.9	−7.5	−7.4	−11.2
Bosnia and Herzegovina	−14.1	−19.1	−20.9	−16.3	−18.0	−8.4	−13.1
FYR Macedonia	−6.9	−10.0	−4.1	−8.4	−2.6	−0.9	−3.1
Serbia	−2.4	−7.9	−7.0	−11.7	−8.5	−11.5	−16.4
Montenegro	−15.1	−12.0	−6.8	−7.2	−8.5	−24.7	−44.2
Ukraine	3.7	7.5	5.8	10.6	2.9	−1.5	−4.2

Source: wiiw.

Table 9

Net FDI Inflows

	2001	2002	2003	2004	2005	2006	2007
	% of annual GDP						
Albania	5.1	3.0	3.1	4.6	3.4	3.5	5.8
Bosnia and Herzegovina	2.2	4.3	4.9	7.0	5.5	5.8	13.7
FYR Macedonia	13.0	2.8	2.4	6.0	1.6	6.8	4.3
Serbia	1.4	3.0	6.7	3.9	5.9	13.8	5.2
Montenegro	0.8	6.6	2.6	3.0	21.0	21.7	23.0
Ukraine	2.0	1.6	2.8	2.6	8.7	5.3	6.5

Source: wiiw.

Table 10

Reserve Assets Excluding Gold

	2001	2002	2003	2004	2005	2006	2007
	End of period, % of annual GDP						
Albania	18.2	18.9	17.7	18.6	17.2	19.4	..
Bosnia and Herzegovina	24.4	23.6	25.3	28.1	27.0	33.9	..
FYR Macedonia	21.7	19.0	19.4	16.9	21.1	27.7	..
Serbia	9.5	14.2	17.3	18.3	25.0	36.1	..
Montenegro	×	×	×	×	×	×	×
Ukraine	7.8	9.9	13.3	14.6	22.0	20.5	..

Source: wiiw, IMF.

Table 11

Gross External Debt

	2001	2002	2003	2004	2005	2006	2007
	End of period, % of annual GDP						
Albania	28.9	25.3	22.0	20.8	20.9	19.9	20.0
Bosnia and Herzegovina[1]	38.1	33.4	29.9	25.5	25.6	21.3	18.6
FYR Macedonia	44.2	39.3	35.9	47.9	53.9	49.1	48.9
Serbia	95.6	64.1	60.3	52.5	61.9	58.9	55.8
Montenegro	×	65.7	30.6	29.3	28.3	23.5	20.3
Ukraine	32.5	27.3	42.9	43.1	48.5	48.2	55.8

Source: wiiw.

[1] *Gross external public debt.*

Table 12

General Government Balance

	2001	2002	2003	2004	2005	2006	2007
	% of GDP						
Albania	−6.9	−6.0	−4.9	−5.1	−3.4	−3.2	−3.5
Bosnia and Herzegovina	−3.3	−0.1	0.8	1.6	2.4	2.9	..
FYR Macedonia	−6.3	−5.0	−1.1	0.0	0.3	−0.6	0.6
Serbia	−1.5	−3.3	−4.0	−1.4	1.4	−0.6	−0.5
Montenegro	−3.1	−2.8	−3.1	−2.0	−1.7	1.8	5.0
Ukraine	−0.3	0.7	−0.2	−3.2	−1.8	−0.7	−1.1

Source: wiiw.

Table 13

Gross General Government Debt

	2001	2002	2003	2004	2005	2006	2007
	% of annual GDP						
Albania	66.6	65.3	61.7	56.6	56.7	55.7	..
Bosnia and Herzegovina	38.1	33.4	27.7	25.5	25.6	21.3	18.5
FYR Macedonia	51.6	48.7	45.0	43.8	48.5	41.5	27.0
Serbia	×	80.6	70.9	56.7	52.9	38.8	28.7
Montenegro	×	88.3	47.1	44.5	38.6	32.6	32.4
Ukraine	36.9	33.5	29.3	36.4	19.7	16.5	..

Source: EBRD, European Commission.

Table 14

Broad Money

	2001	2002	2003	2004	2005	2006	2007
	End of period, annual nominal change in %						
Albania (M2)	13.1	12.2	7.6	8.2	11.7	7.6	..
Bosnia and Herzegovina (M2)	31.4	66.7	4.8	21.0	17.6	21.6	25.0
FYR Macedonia	64.0	−9.3	18.0	17.0	15.9	24.6	..
Serbia (M3)	67.6	73.4	27.8	31.9	42.1	38.9	41.2
Montenegro (M21)	×	×	−0.3	10.6	58.7	82.9	71.8
Ukraine	41.9	41.8	46.5	32.4	54.3	34.5	51.7

Source: European Commission, wiiw.

Table 15

Official Key Interest Rate

	2001	2002	2003	2004	2005	2006	2007
	End of period, %						
Albania (refinancing base rate)	7.0	8.5	6.5	5.3	5.0	5.5	6.3
Bosnia and Herzegovina[1]	×	×	×	×	×	×	×
FYR Macedonia (discount rate)	10.70	10.70	6.50	6.50	6.50	6.50	6.50
Serbia (discount rate)	16.43	9.50	9.00	8.50	8.50	8.50	8.50
Montenegro[2]	×	×	×	×	×	×	×
Ukraine (refinancing rate)[3]	12.50	7.00	7.00	9.00	9.50	8.50	8.00

Source: Eurostat, Bloomberg, wiiw, IMF.

[1] *Currency board.*

[2] *Unilateral euroization.*

[3] *Average.*

Table 16

Exchange Rate

	2001	2002	2003	2004	2005	2006	2007
	Period average, national currency per EUR						
Albania	128.47	132.36	137.51	127.67	124.19	123.08	123.62
Bosnia and Herzegovina	1.96	1.96	1.96	1.96	1.96	1.96	1.96
FYR Macedonia	60.91	60.98	61.26	61.34	61.30	61.19	61.18
Serbia	59.46	60.68	65.05	72.57	82.91	84.06	80.09
Montenegro	×	×	×	×	×	×	×
Ukraine	4.81	5.03	6.02	6.61	6.39	6.34	6.92

Source: wiiw, national sources, Thomson Financial.

Notes

Legend, Abbreviations and Definitions

Legend

x = No data can be indicated for technical reasons
. . = Data not available at the reporting date
– = The numerical value is zero or smaller than half of the unit indicated

Discrepancies may arise from rounding.

Abbreviations

ATS	Austrian schilling
BGN	Bulgarian lev
BIS	Bank for International Settlements
BNB	Bulgarian National Bank
BNR	Banca Națională a României (National Bank of Romania)
BS	Banka Slovenije (Bank of Slovenia)
CAR	capital adequacy ratio
CBBH	Centralna banka Bosne e Hercegovine (Central Bank of Bosnia and Herzegovina)
CBCG	Centralna banka Crne Gore (Central Bank of Montenegro)
CBR	Central Bank of Russia
CEE	Central and Eastern Europe(an)
CEEI	Conference on European Economic Integration (OeNB)
CESEE	Central, Eastern and Southeastern Europe(an)
CIS	Commonwealth of Independent States
ČNB	Česka národní banka (Czech National Bank)
CPI	consumer price index
CZK	Czech koruna
DEM	German mark
DG ECFIN	Directorate-General for Economic and Financial Affairs
DOLS	dynamic ordinary least squares
EBRD	European Bank for Reconstruction and Development
ECB	European Central Bank
Ecofin	Council of Economic and Finance Ministers
EDP	excessive deficit procedure
EIB	European Investment Bank
EME	emerging market economies
EMU	Economic and Monetary Union
ERM (II)	exchange rate mechanism (II)
ESA	European System of Accounts
ESCB	European System of Central Banks
EU	European Union
EUR	euro
FCC	foreign currency cash
FCD	foreign currency deposit
FDI	foreign direct investment

FEEI	Focus on European Economic Integration
GBP	pound sterling
GDP	gross domestic product
GFCF	gross fixed capital formation
HICP	Harmonised Index of Consumer Prices
HNB	Hrvatska narodna banka (Croatian National Bank)
HRK	Croatian kuna
HUF	Hungarian forint
HWWI	Hamburgisches WeltWirtschaftsInstitut
IAS	International Accounting Standards
IFS	international financial statistics (IMF)
ILO	International Labor Organization
IMF	International Monetary Fund
IPO	initial public offering
KLR	Kaminsky, Lizondo and Reinhart approach (to predicting currency crises)
LFS	Labor Force Survey
MNB	Magyar Nemzeti Bank (Hungary's central bank)
MPI	Market Pressure Index
NBB	Nationale Bank van België (Banque Nationale de Belgique)
NBER	National Bureau of Economic Research
NBP	Narodowy Bank Polski (National Bank of Poland)
NBRM	Narodna banka na Republika Makedonija (National Bank of the Republic of Macedonia)
NBS	Národná banka Slovenska (National Bank of Slovakia)
NBS	Narodna banka Srbije (National Bank of Serbia)
NCB	national central bank
NMS	new Member State(s) (EU)
NPL	nonperforming loan
OECD	Organisation for Economic Co-operation and Development
OeNB	Oesterreichische Nationalbank
OLS	ordinary least squares
OSF	Oil Stabilization Fund
PLN	Polish złoty
PPI	producer price index
PPP	purchasing power parity
ROE	return on equity
RPI	retail price inflation
RON	Romanian leu
RSD	Serbian dinar
RUB	Russian ruble
SAA	Stabilisation and Association Agreement
SDR	Special Drawing Right
SEE	Southeastern Europe(an)
SFR	Swiss franc
SGP	Stability and Growth Pact
SIT	Slovenian tolar
SKK	Slovak koruna

SME(s)	small and medium-sized enterprise(s)
TRY	Turkish lira
ULC	unit labor costs
UN	United Nations
USD	U.S. dollar
VAR	vector autoregression
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
WTO	World Trade Organization

Country Codes

AL	Albania	LU	Luxembourg
AT	Austria	LV	Latvia
BA	Bosnia and Herzegovina	MD	Republic of Moldova
BE	Belgium	ME	Republic of Montenegro
BG	Bulgaria	MK	Republic of Macedonia
BY	Belarus	MT	Malta
CY	Cyprus	NL	Netherlands
CZ	Czech Republic	NO	Norway
DE	Germany	PL	Poland
DK	Denmark	PT	Portugal
EE	Estonia	RO	Romania
ES	Spain	RS	Republic of Serbia
FI	Finland	RU	Russia
FR	France	SE	Sweden
GR	Greece	SI	Slovenia
HR	Croatia	SK	Slovakia
HU	Hungary	TR	Turkey
IE	Ireland	UA	Ukraine
IT	Italy	UK	United Kingdom
KZ	Kazakhstan	US	U.S.A.
LT	Lithuania		

Definitions

Croatia, the 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 the FYR Macedonia.

Albania, Bosnia and Herzegovina, Montenegro and Serbia are potential EU candidate countries, i. e. countries that will become an integral part of the EU once they meet the established criteria. Western Balkan countries involved in the Stabilisation and Accession process are recognized as potential candidate countries.

List of Studies and Special Reports Published in Focus on European Economic Integration[1]

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Issue 2/07

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Exchange Rate Arrangements and Monetary Policy in Southeastern Europe: An Update (2004–2007)
Stephan Barisitz

Development and Regional Disparities – Testing the Williamson Curve Hypothesis
Béla Szörfi

[1] *Focus on Transition was published up to issue 2/2003 and has been replaced by Focus on European Economic Integration since issue 1/04.*

Periodical Publications of the Oesterreichische Nationalbank

For further details see *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.

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.

econ.newsletter — 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 newsletter offers information on publications, studies or working papers as well as events (conferences, lectures and workshops). For further details see *www.oenb.at/econ.newsletter.*

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.

Focus on European Economic Integration

semiannual

The English-language publication Focus on European Economic Integration is the successor publication to Focus on Transition (published up to issue 2/2003). Reflecting a strategic regional research priority of the OeNB, this publication is a channel for communicating our ongoing research on Central, Eastern and Southeastern European (CESEE) countries ranging from economic country studies to studies on central banking issues and related topics. One of the purposes of publishing theoretical and empirical studies in the Focus on European Economic Integration, which are subject to an external refereeing process, is to stimulate comments and suggestions prior to possible publication in academic journals.

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.

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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 policymakers, financial market players, academics and researchers. The conference proceedings comprise all papers presented at the conference.

Conference on European Economic Integration (Conference Proceedings)

annual

This series, published in English by a renowned international publishing house, reflects presentations made at the OeNB's annual conference on Central, Eastern and Southeastern European issues and the ongoing EU enlargement process (formerly East-West Conference). For further details see *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 highlights the interaction between human, relational, structural and innovation capital within the OeNB and reveals the influence of underlying factors. The integrated view of this stock-taking exercise serves to assess the consistency of the OeNB's intellectual capital with its knowledge-based strategic orientation.

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The English-language publication Focus on European Economic Integration is the successor publication to Focus on Transition (published up to issue 2/2003). Reflecting a strategic regional research priority of the OeNB, this publication is a channel for communicating our ongoing research on Central, Eastern and Southeastern European (CESEE) countries ranging from economic country studies to studies on central banking issues and related topics. One of the purposes of publishing theoretical and empirical studies in the Focus on European Economic Integration, which are subject to an external refereeing process, is to stimulate comments and suggestions prior to possible publication in academic journals.

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Imprint
Publisher and editor:
Oesterreichische Nationalbank
Otto-Wagner-Platz 3, 1090 Vienna, Austria
Günther Thonabauer, Communications Division
Internet: www.oenb.at
Printed by: Oesterreichische Nationalbank, 1090 Vienna, Austria

DVR 0031577

Vienna, 2008