



OESTERREICHISCHE NATIONALBANK  
EUROSYSTEM

# FOCUS ON EUROPEAN ECONOMIC INTEGRATION



Stability and Security.

Q4/12

The OeNB's quarterly *Focus on European Economic Integration (FEEI)* presents peer-reviewed studies on macro-financial and monetary integration in Central, Eastern and Southeastern Europe (CESEE) as well as related country analyses and statistics. This publication reflects a strategic research priority of the OeNB.

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

# Call for Applications: Visiting Research Program

The Oesterreichische Nationalbank (OeNB) invites applications from external researchers for participation in a Visiting Research Program established by the OeNB's Economic Analysis and Research Department. The purpose of this program is to enhance cooperation with members of academic and research institutions (preferably post-doc) who work in the fields of macroeconomics, international economics or financial economics and/or with a regional focus on Central, Eastern and Southeastern Europe.

The OeNB offers a stimulating and professional research environment in close proximity to the policymaking process. Visiting researchers are expected to collaborate with the OeNB's research staff on a prespecified topic and to participate actively in the department's internal seminars and other research activities. They will be provided with accommodation on demand and will, as a rule, have access to the department's computer resources. Their research output may be published in one of the department's publication outlets or as an OeNB Working Paper. Research visits should ideally last between 3 and 6 months, but timing is flexible.

Applications (in English) should include

- a curriculum vitae,
- a research proposal that motivates and clearly describes the envisaged research project,
- an indication of the period envisaged for the research visit, and
- information on previous scientific work.

Applications for 2013 should be e-mailed to [eva.gehringer-wasserbauer@oenb.at](mailto:eva.gehringer-wasserbauer@oenb.at) by May 1, 2013.

Applicants will be notified of the jury's decision by mid-June. The following round of applications will close on November 1, 2013.

# Recent Economic Developments and Outlook

# Developments in Selected CESEE Countries: Growth Moderation Mainly against the Background of External Headwinds<sup>1,2,3</sup>

External environment remains difficult despite efforts to tackle the sovereign debt crisis in the euro area

## 1 Introduction

Uncertainties in the international environment increasingly weighed on economic dynamics in the Central, Eastern and Southeastern European (CESEE) region during the review period (April to October 2012). Especially developments in the euro area were taking their toll on CESEE economies via trade integration and financial linkages but also via a more general deterioration of sentiment. Growth was dampened further by domestic factors – e.g. ongoing fiscal consolidation efforts – in a number of the countries under review.

Since the summer, several important steps have been taken toward tackling the sovereign debt crisis in the euro area. To name a few examples: (1) the initiation of the Outright Monetary Transaction program by the ECB, (2) preparatory steps toward creating a banking union (in particular a single supervisory mechanism) for the euro area as well as (3) further adjustment measures in peripheral euro area countries. These developments intensified a positive trend in the area of CDS premiums and eurobond spreads in CESEE that had already been observed since June 2012, when the European Council first adopted the goal to set up a banking union. The improvement was rather broadly based and risk perception in several countries again declined almost to the levels seen right before the collapse of Lehman in September 2008 (e.g. in the Czech Republic, Poland, Turkey and Russia). Against this backdrop, the region's floating currencies recovered part of the losses incurred vis-à-vis the euro during the second half of 2011.

External demand, however, remained weak during the observation period, with anemic growth in the euro area amid no signs of a noticeable recovery in the short term as well as a moderating momentum in the world economy. Recent growth projections see the euro area in recession in 2012 and expect only a moderate pickup of economic dynamics into marginally positive territory in 2013. World growth is forecast to come in at around 3.3% in 2012 and around 3.6% in 2013 by the IMF, somewhat weaker than expected in spring. The momentum in the world economy continues to be fueled by emerging markets. Even in these countries, however, growth in 2012 and 2013 is set to turn out lower than expected in earlier projections. All of this is holding back economic growth in the CESEE region as well, given the close real and financial links between this region and the euro area.

Cross-border deleveraging leads to headwinds for economic growth in a number of CESEE countries

Increased funding pressures and higher capital requirements prescribed by the European Banking Authority (EBA) had raised concerns in the latter part of 2011 about a potentially disorderly cross-border deleveraging by European banks. It was argued that such a development would not spare the CESEE region, as the lion's

<sup>1</sup> Compiled by Josef Schreiner with input from Stephan Barisitz, Mariya Hake, Mathias Lahnsteiner, Thomas Reiningger, Katharina Steiner, Jarmila Urvová, Zoltan Walko and Julia Würz.

<sup>2</sup> Cutoff date: October 5, 2012 (October 22, 2012, for fiscal and BIS data). This report focuses primarily on data releases and developments from April 2012 up to the cutoff date, while selectively recalling earlier developments wherever needed to put recent developments into perspective.

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

share of credit there is provided by Western European banks, either through subsidiaries or via direct cross-border lending. While deleveraging has indeed taken place in the interim, it has essentially remained orderly and has affected only some countries in the region more strongly (e.g. Hungary and Slovenia). In this context, the ECB's long-term refinancing operations (in December 2011 and February 2012) had a positive impact on the liquidity conditions of euro area banks, which also benefited the financing of their CESEE subsidiaries. Parent banks managed to reach EBA requirements in the middle of 2012 without major reductions on the asset side of their balance sheets. In its report on the recapitalization of European banks, the EBA concluded that the strengthening of capital positions had not led to a significant reduction in lending to the real economy. It also recalled that the deleveraging process had already started before the capital exercise and that this process needed to continue to further strengthen banks' balance sheets.

Consolidated banking statistics from the BIS (adjusted for exchange rate changes<sup>4</sup>) confirm this, as there has been some deleveraging for the region as a whole but not for all CESEE countries individually. European banking groups have reduced their overall exposure to CESEE by 5% or some EUR 48 billion since the third quarter of 2011. This development occurred mainly in the fourth quarter of 2011 and again in the second quarter of 2012, with some transient rebound in cross-border lending in the first three months of 2012. The countries most affected were Hungary, Slovenia and Russia, where claims declined by more than 10% between end-September 2011 and end-June 2012. The exposure of European BIS-reporting banks to some other countries of the region, however, remained broadly unchanged or even increased slightly in the case of Slovakia and the Czech Republic.

The Emerging Markets Bank Lending Conditions Survey of the Institute of International Finance (IIF) conveys a similar picture. Its index of emerging market bank lending conditions for emerging Europe has remained below 50 (the threshold indicating an overall deterioration) since the third quarter of 2011, with the overall development of the index being strongly driven by a worsening of international funding conditions. In addition, rising nonperforming loans have also started to weigh on the development of overall lending conditions more recently. At the same time, the subindex capturing the demand for loans increased to above 50 in the second quarter of 2012.

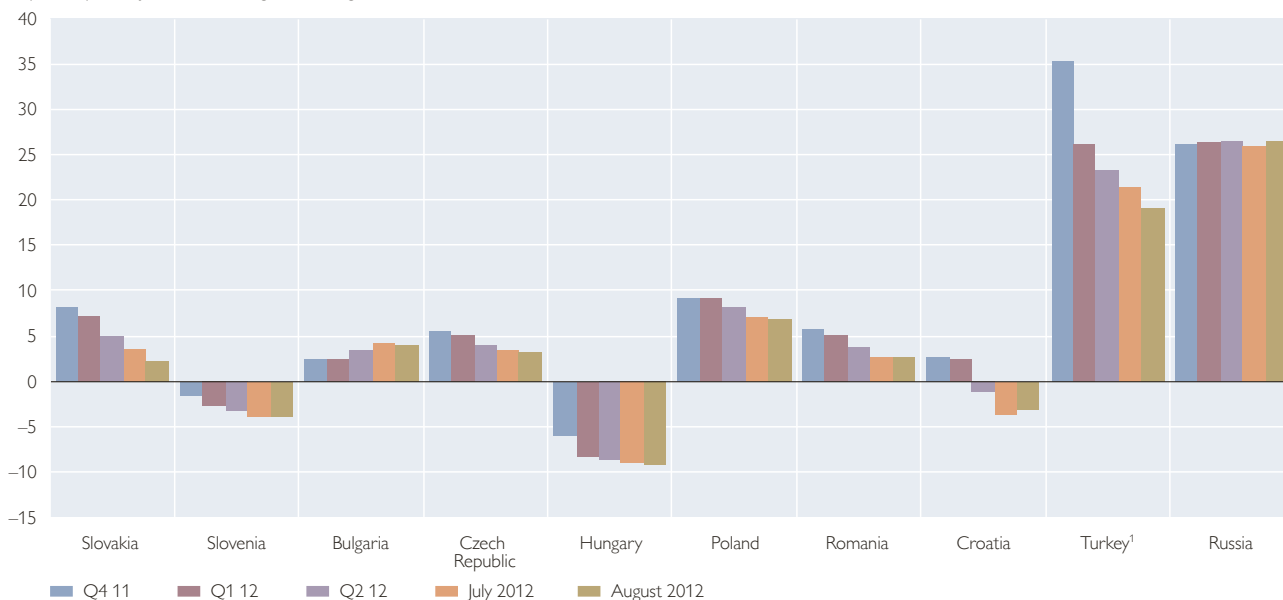
Clearly, the development of credit to the private sector mirrored these trends. Credit growth decelerated in most CESEE countries during the review period – substantially in some countries (e.g. in Slovakia, Croatia and Turkey). Only in Russia did credit dynamics remain buoyant. The other countries covered here registered declining credit growth rates in credit to households as well as corporates, but the deterioration was generally more pronounced in the latter sector. While it is notoriously difficult to disentangle supply and demand factors of credit developments, it appears that credit supply (and consequently economic growth) was negatively affected in those CESEE countries which experienced a

<sup>4</sup> Exchange rate adjustments based on OeNB calculations. The adjustment is approximate (based on plausible assumptions about the currency denomination of bank claims).

Chart 1

### Growth of Credit to the Private Sector

%, year on year, adjusted for exchange rate changes



Source: National central banks.

<sup>1</sup> Turkey: non adjusted.

The real economy generally loses steam in the region while cross-country variation in growth rates persists

more pronounced reduction of cross-border claims of European BIS-reporting banks.<sup>5</sup>

GDP growth continued to lose steam in the first quarter of 2012 and remained low in the second quarter. Output in the region expanded by an average of 0.4% and 0.5%, respectively, in the first and second quarter of 2012, after it had grown by 1.3% and 0.9%, respectively, in the last two quarters of 2011 (quarter-on-quarter figures).<sup>6</sup> These were the weakest GDP readings since mid-2010. Growth in the region as a whole, however, clearly remained in positive territory and with that notably stronger than in the euro area.

Aggregate figures for the whole region mask substantial differences across countries, though. In fact, the Czech Republic, Hungary, Croatia and Slovenia were in recession in the first half of 2012. Other countries fared far better, however. Slovakia, for example, has been growing at a healthy rate for the past six quarters, and dynamics in Poland were stronger than the regional average in the first quarter of 2012, while being close to the regional average in the second quarter. Growth in Romania and Turkey even picked up measurably in mid-2012. In year-on-year terms, GDP growth rates ranged from -1.7% in Croatia to +4.5% in Russia in the first half of 2012.

<sup>5</sup> A more detailed analysis of financial sector developments in CESEE during the observation period can be found in the OeNB's Financial Stability Report 24 (December 2012).

<sup>6</sup> All regional averages in this text are weighted by GDP at PPP.

Table 1

### Real GDP Growth

	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Period-on-period change in % (seasonally and working-day adjusted)</i>								
Slovakia	4.2	3.3	0.9	0.9	0.7	0.8	0.7	0.7
Slovenia	1.2	0.6	-0.2	0.6	-0.2	-1.1	0.0	
Bulgaria	0.4	1.7	0.4	0.3	0.1	0.1	0.0	0.3
Czech Republic	2.7	1.7	0.5	0.3	0.0	-0.2	-0.6	-0.2
Hungary	1.3	1.6	1.4	-0.3	0.0	0.1		-0.2
Poland	3.9	4.3	1.1	1.4	0.7	0.9	0.6	0.4
Romania	-1.7	2.5	1.2	0.0	1.1	-0.1	0.1	0.5
Croatia	-1.4	0.0	0.1	0.0	-0.3	-0.5	-0.6	-0.7
Turkey	9.2	8.5	1.4	1.3	1.7	0.6	0.4	1.8
Russia	4.3	4.3	0.9	0.6	1.7	1.6	0.6	0.1
CESEE average <sup>1</sup>	4.5	4.6	1.0	0.7	1.3	1.0	0.4	0.5
Euro area	2.0	1.4	0.6	0.2	0.1	-0.3	0.0	-0.2

Source: Eurostat, national statistical offices.

<sup>1</sup> Average weighted with GDP at PPP.

Net exports were the most important driving force of GDP growth in the first half of 2012, contributing substantially to dynamics in all countries but Bulgaria, Romania and Russia. In the Central European countries (with the exception of Poland), they even were the only GDP component that contributed positively to growth.

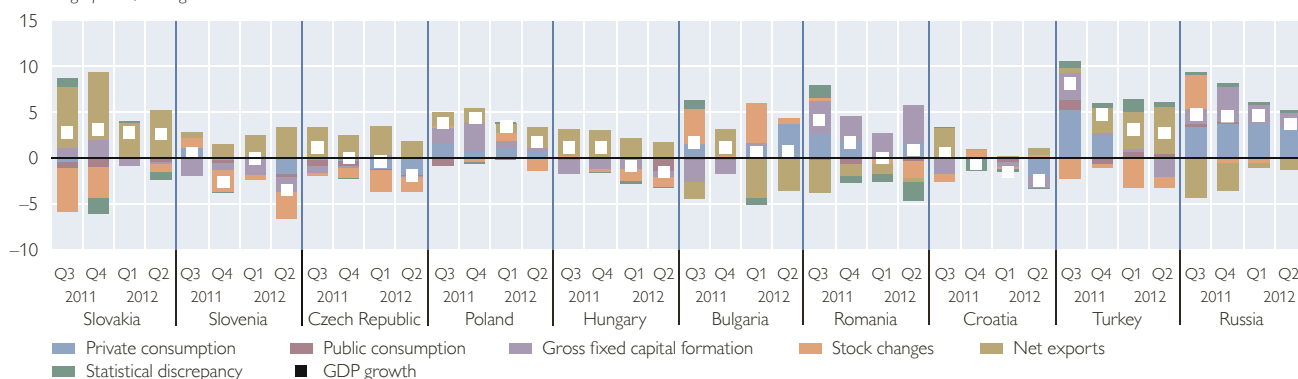
Against the backdrop of a weakening external environment and missing domestic dynamics in many countries, both export and import growth decelerated, with import dynamics receding more strongly than export dynamics. In fact, exports still expanded moderately in most countries during the observation period (in Turkey, they even boomed), while imports stagnated or even declined throughout most of the region (main exceptions: Bulgaria, and – despite strongly moderating import growth rates – Russia). It seems that the performance of exports is to some extent related to developments in the international competitiveness of the region. As a matter of fact, the improvement in cost competitiveness under way in many CESEE countries since 2009 also continued into 2012. Unit labor costs in manufacturing (measured in euro), for example, declined in a number of countries under review (e.g. in the Czech Republic, Hungary, Poland and Slovakia), while they rose by 3.7% year on year in the euro area in the second quarter of 2012. While this development was to a considerable extent driven by currencies trading lower against the euro in the second quarter of 2012 than a year earlier, notable productivity growth also played a role in several countries of the region (especially Slovakia and the Czech Republic). While exchange rate developments since mid-year have offset some of the gains during the earlier part of 2012, the price competitiveness of many CESEE countries remains well intact.

As shown in greater detail below, industrial production figures also support this picture. Output of this highly export-oriented sector continued to grow moderately throughout summer, while it was already declining in the euro area. Furthermore, it needs to be borne in mind that trade linkages with the euro area countries affected most strongly by the debt crisis are rather limited for most

Against the background of weak domestic dynamics, net exports are once again the most important growth driver

## GDP Growth and Its Main Components

Percentage points, GDP growth in %



Source: Eurostat, national statistical offices.

CESEE countries. In fact, Germany is by far the most important trading partner for the region, and economic dynamics there still remained comparatively solid in the first half of 2012.

Domestic demand, to the contrary, was rather anemic and hardly contributed to growth in the Central European countries. Some factors behind this development, which affect many CESEE countries, are ongoing fiscal consolidation efforts, subdued labor market conditions, declining real wages, considerable spare capacities, weak sentiment and – in a few countries – ongoing efforts by households (in Slovenia also by the corporate sector) to reduce leverage. Domestic demand was also surprisingly subdued in Turkey, but more than offset by brisk export growth.

However, domestic demand was not weak in all CESEE countries covered here. Notable exceptions in this respect are Bulgaria, Russia and Romania, where net exports hardly played a role in driving economic dynamics while domestic sources of growth contributed noticeably to GDP. Explanations for this development relate to strong wage growth in these three countries, and buoyant gross fixed capital formation dynamics (mainly due to infrastructure investments) in Romania. In addition, as shown above, credit growth in Russia was by far the most dynamic in the whole CESEE region.

Sentiment indicators mostly deteriorated in the observation period. The economic sentiment indicator of the European Commission (which is available for EU Member States only), for example, recovered somewhat from its two-year low of 89.2 points (December 2011) in the first two months of 2012. From March onward, however, it declined steadily and reached 87.7 points in September 2012, thus sitting well below its long-run average. All subindices of the indicator trended lower, with the deterioration somewhat less pronounced in the area of consumer and retail confidence.

While this general picture is also confirmed by PMI data for Poland and the Czech Republic, the Purchasing Managers' Index for Russia and Turkey has shown an upward trend since summer. The latest reading of the index from

Data on sentiment and activity so far do not indicate imminent economic turning point

September indicates a positive momentum in these two countries with values clearly above 50.<sup>7</sup>

The growth of industrial output moderated somewhat from 3.8% (regional average) in January 2012 to 2.4% in August 2012. A somewhat more notable reduction was observed in Poland and Hungary, while Slovakia posted a considerable acceleration of industrial output growth (by far the highest among CESEE countries). Likewise, no discernible momentum in activity was observed in construction and retail trade in most of the region. Construction output declined in all countries but Romania, and retail sales were essentially flat throughout the region with the exception of Romania and Russia.

In light of the recent showings of sentiment and high frequency indicators, economic growth will most likely be subdued during the remainder of 2012. Real GDP in the region covered here is projected to grow by 2.6% in 2012, two percentage points below the 2011 figure. In 2013, growth should pick up marginally to 3.1% on average.<sup>8</sup>

Price developments in CESEE can roughly be divided into two periods: Disinflation in the first half of the year followed by some rise in price pressures since the summer. Inflation declined in most countries under observation in the first and second quarter of 2012. Substantially influenced by lower inflation contributions from processed food (incl. alcohol and tobacco), this development was most pronounced in Russia, where prices rose by 3.9% in the second quarter after an increase of 6.8% in the final quarter of 2011. Upturns in inflation rates were only seen in the Czech Republic, Hungary and Croatia and were related to VAT hikes at the beginning of the year (in the case of the former two countries and in March in the case of Croatia).

Inflation has been accelerating somewhat since summer on the back of higher food prices

Inflation started to pick up more generally in summer, with only a few countries reporting continuing disinflation (e.g. the Czech Republic, Poland and Turkey). Rising prices of unprocessed food items in the context of hot, dry weather in many CESEE countries and also higher world market prices largely drove this development. In some countries, energy likewise started to contribute more strongly to inflation in recent months (e.g. in Slovenia, Romania and Bulgaria). Against this background, core inflation did not accelerate and remained clearly below the headline HICP throughout the region, confirming only modest, if any, demand pressure on prices.

To date, Russia is the only country where rising inflation rates have been reflected in interest rate decisions. The central bank of Russia increased its policy rate by 25 basis points to 8.25% in September against the background of higher food prices and a tariff hike. In contrast, the Czech central bank (CNB) cut its key interest rate in June and September by 25 basis points each to 0.25%, and the Hungarian central bank (MNB) did so in August and September (25 basis points each to 6.5%). While the CNB argued that the monetary policy-relevant inflation rate (CPI adjusted for first-round effects of changes to indirect taxes) will be in the lower half of the tolerance band around its inflation target over the policy horizon

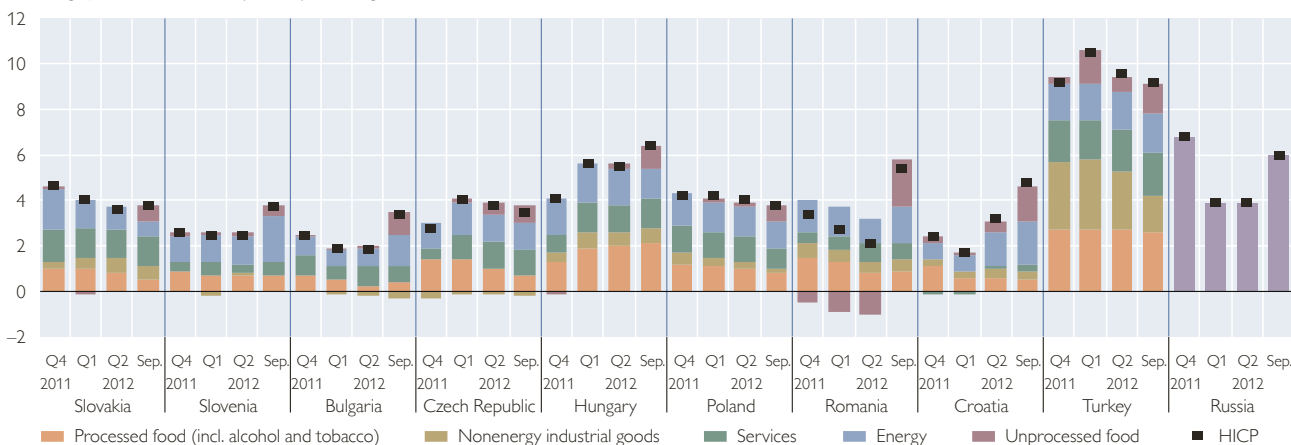
<sup>7</sup> PMI indicators are only available for the four countries mentioned in this paragraph.

<sup>8</sup> The figures used for calculating the regional average come from the OeNB (Bulgaria, the Czech Republic, Hungary, Poland, Romania, Croatia and Russia) and from the IMF (Slovakia, Slovenia and Turkey). For the detailed OeNB-BOFIT projections for CESEE, see page 38.

Chart 3

## HICP Inflation and Its Main Drivers

Percentage points, contribution to year-on-year change in HICP; HICP in %



Source: Eurostat.

Note: Russia: CPI. No breakdown according to COICOP available.

(12 to 18 months), the interest rate cuts of the MNB were less expected. The central bank of Turkey continued with its unorthodox policy mix and narrowed its interest rate corridor for overnight lending in September.

### Further external adjustment in the first half of 2012

Combined current and capital account positions in the CESEE region had improved substantially during the global financial crisis. After some pause in 2011, during the observation period, external positions again improved in most CESEE countries – and substantially so in some cases. The average current account balance in the region improved from 0.1% of GDP in the fourth quarter of 2011 to 0.7% of GDP in the second quarter of 2012 (four-quarter moving sums). With that, current account balances ranged from some –8% of GDP (Turkey) to about 5.5% of GDP (Russia). Improvements were most pronounced in Slovakia and Turkey, where the adjustment amounted to more than 1.5% of GDP, but also notable in the Czech Republic and Romania. This was mainly due to better outcomes in the trade balance (and in line with net export developments in the national accounts). A lower gap in the income balance played a supporting role in the Czech Republic, while Romania also recorded a higher surplus in its capital account.

The only notable exception from this pattern was Bulgaria, where a small surplus in the trade balance turned into a deficit of 2.7% of GDP (again four-quarter moving average) by the second quarter of 2012. This development was mainly fueled by rising imports (especially investment goods and energy) amid accelerating domestic demand.

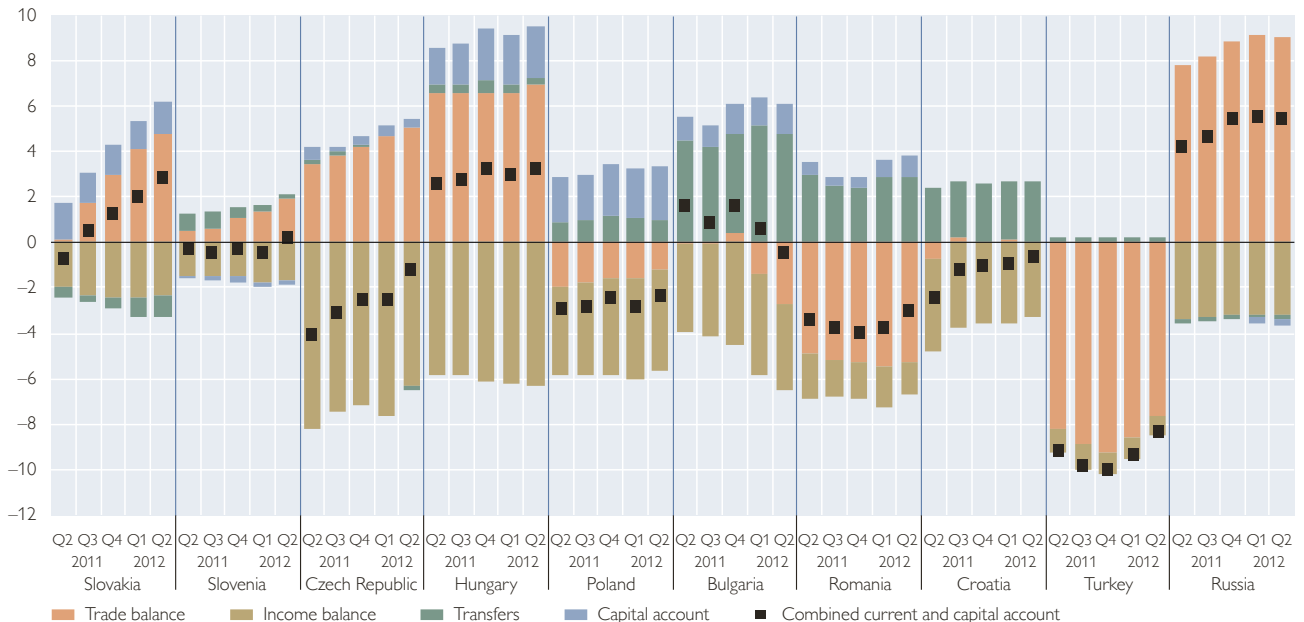
### Outflows of other investments weigh on the financial account

Net capital flows to the ten CESEE countries as a whole decelerated sharply from 2.9% of GDP in the final quarter of 2011 (four-quarter moving sum) to –0.9% of GDP in the second quarter of 2012 (four-quarter moving sum). This development partly mirrored the deterioration of international sentiment that weighed on the risk perception of CESEE countries. As already explored above, deleveraging of internationally active banking groups was a factor in this context.

Chart 4

### Combined Current and Capital Account Balance

% of GDP, four-quarter moving sum



Source: Eurostat, IMF, national central banks.

Indeed, net capital flows were strongly driven by outflows from the category of other investments (including loans). This position deteriorated in all countries except for Slovenia, which saw a shift from portfolio investments to other investments in connection with bond repayments and a wider use of the ECB's long-term refinancing operations facility.

Nevertheless, the financial account was positive or balanced in most countries under review in the first half of 2012. Only Russia and Hungary reported a deficit (both countries had a current account surplus, however). In Bulgaria, the Czech Republic, Romania and Slovenia, net FDI inflows made up the largest positive component of the financial account. By contrast, (net) portfolio investment represented the financial account's largest positive component in Slovakia, Poland and Croatia. (Net) other investments – in particular loans – were negative in all countries under observation but Slovenia and Turkey. In Turkey, other investments were the most important source of international financing. Russia reported capital outflows in all three categories in the period under review. Net FDI inflows covered more than 100% of the current account deficits in the Czech Republic, Bulgaria and Croatia, around 85% in Poland, roughly 50% in Romania and only around 20% in Turkey.

With the exception of Croatia, budget deficits decreased in each country under review in 2011, with deficits even turning into surpluses in Russia and Hungary. In the latter country, however, this was due to large one-off receipts from the de facto abolition of formerly compulsory private pension funds (the pension system's "second pillar"). Without these one-off revenues, the deficit would have been somewhat above 5% of GDP. The European Commission deemed this devel-

Fiscal consolidation efforts have continued in 2012

opment not sustainable and thus inadequate for terminating Hungary's ongoing excessive deficit procedure (EDP) in 2011 as targeted. Subsequently, the Council of the EU set 2012 as the new target year for achieving a credible and sustainable correction, and, in late June, it concluded that Hungary had taken the necessary measures to this end. Bulgaria managed to reduce its budget deficit to 2% of GDP in 2011. Hence, the EDP against the country was abrogated on June 22, 2012. The other EU Member States in the CESEE region are still in an EDP (target dates scheduled for reducing excessive deficits: 2012 for Poland and Romania, 2013 for the Czech Republic and Slovakia).

Most CESEE EU Member States covered here have continued with consolidation in 2012. Deficits are set to decrease most markedly in Poland, Slovenia and Romania and should decline to (or stay) below the 3%-of-GDP benchmark in Bulgaria, Hungary, Poland and Romania, according to national budget plans. Budgetary targets in the CESEE EU Member States had to be adjusted in many countries already in the course of the year as economic dynamics decelerated (e.g. in Slovakia, the Czech Republic, Poland, Slovenia and Hungary). As far as the rest of the CESEE region is concerned, the deficit in Croatia is set to shrink to just below 4% of GDP, while Turkey will post a somewhat higher deficit and Russia a lower surplus in its 2012 budgets than in 2011.

Box 1

#### **Ukraine: Declining Growth, Deteriorating External Position**

*After being buoyant (5.2%) in 2011, Ukraine's GDP growth (year on year) slowed down sharply to 2.0% in the first quarter of 2012, before recovering to 3.0% in the second quarter. Growth in the first six months of the year thus came to 2.5%. The slowdown is due to less dynamic household consumption and gross fixed investment. A weakening of price competitiveness, given the hryvnia's quasi-peg to the U.S. dollar, which recently appreciated against the currencies of most of Ukraine's trading partners, may have contributed to the slowing of GDP growth and also to the widening of the current account gap.*

*In fact, Ukraine continues to feature twin deficits, which have worsened in recent months. In the first half of 2012, the current account gap widened to 6.6% of GDP; the consolidated government budget shortfall, while still moderate, rose to 1.5% of GDP. Interventions to support the hryvnia's peg and sovereign debt repayments are responsible for a steady decline of foreign exchange reserves before a eurobond issue of USD 2 billion in July made them rise temporarily. The reserves stood at EUR 22.7 billion at end-September (about 17% of GDP). Exchange rate pressures emanated from households' depreciation expectations and from spikes of risk aversion in international financial markets, to which Ukraine is particularly sensitive given the fact that its IMF Stand-By Arrangement has been off track for over 1½ years.*

*CPI inflation is still strongly subdued by the repercussions of last year's bumper harvest, which inter alia triggered a food price contraction of 4.2% in May 2012 (year on year). Consumer prices were entirely flat in September 2012 (year on year).*

### Western Balkans<sup>1</sup>: Dipping into Recession?

Real GDP growth in the Western Balkans, which had already moderated in the second half of 2011, dipped into negative territory in the first half of 2012 in Serbia (–1.7%), Albania (–0.2%<sup>2</sup>), FYR Macedonia (–1.1%) and Montenegro (–1.1%), partly due to adverse effects of harsh weather conditions in the first quarter of 2012 but also on the back of a worsening external environment alongside weak domestic demand. Quarterly GDP data are still not available for Bosnia and Herzegovina but industrial production and retail sales indicators point to a stagnation or moderate decline in GDP in the first six months of 2012. For Kosovo, neither quarterly GDP data nor other activity indicators are available.

External positions of Western Balkan countries did not change substantially during the review period. Despite the weakening GDP dynamics, current account deficits remained high in most countries (except for FYR Macedonia, where the shortfall is small at 2% of GDP in the second quarter of 2012 on a four-quarter moving sum basis). In all the other countries covered here, deficit ratios were still in the double-digit range (in Montenegro even somewhat above 20% of GDP). On the financing side, net FDI inflows in the first half of 2012 trended down or were broadly stable (with the latter the case in Albania, Bosnia and Herzegovina and Serbia), covering on average (unweighted average) two-thirds of the current account deficits. Only FYR Macedonia displays full coverage; in the other countries the coverage ratio ranges from one-fifth (Bosnia and Herzegovina) to three-quarters (Albania).

Disinflation continued from the second half of 2011 into the first quarter of 2012 but then inflation picked up somewhat in most countries (except for Bosnia and Herzegovina). In August 2012, inflation in the Western Balkans ranged from 1.8% (Bosnia and Herzegovina) to 7.9% (Serbia). Higher food and commodity prices were mainly driving this recent pickup in inflation. In some countries, the effect of global food price developments was augmented by domestic factors (droughts). In Albania, the central bank lowered its policy rate in two steps to 4% (with inflation most recently hovering between 2% and 3%) between March 2012 and October 2012, while, in the same period, the Serbian central bank increased its policy rate in several steps to 10.75%.

In line with weakening GDP dynamics, the pace of private sector credit growth decelerated in the first half of 2012 in almost all countries, while still remaining positive in a range from 5% to 15% in nominal and from 3% to 11% in real terms. Only in Montenegro, credit to the private sector continued to shrink both nominally and in real terms. Credit quality deteriorated, with NPL shares creeping up further in all countries. At the same time, capital adequacy ratios of banking sectors in the Western Balkans remained rather steady around 15% to 17% as of mid-2012 (no figures for Montenegro and Kosovo).

In the first half of 2012, fiscal consolidation efforts continued in a number of countries under review here, even though the economic downturn may hinder meeting headline fiscal targets in 2012. In particular, fiscal deficits narrowed in Montenegro and Albania during the first part of the year, while earlier deficits turned into small surpluses in Kosovo as well as in Bosnia and Herzegovina. However, fiscal deficits widened in FYR Macedonia (mainly due to lower-than-expected revenues) and in Serbia (given pre- and post-election increases in expenditures). In Serbia, the parliament approved renewed consolidation measures (mostly on the revenue side) in early fall in a quest to limit this year's deficit to 6.7% of GDP.

The IMF remains a major economic and financial policy anchor in the region. For Bosnia and Herzegovina, a new Stand-By Agreement (SBA) of SDR 338.2 million was approved in

<sup>1</sup> The Western Balkans comprise the EU candidate countries former Yugoslav Republic of Macedonia (FYR Macedonia), Montenegro and Serbia, as well as the potential candidate countries Albania, Bosnia and Herzegovina and Kosovo. Developments in Croatia are not covered here but in the subsequent country section.

<sup>2</sup> GDP data for Albania are only available for the first quarter of 2012, but production and sales data suggest continued weak dynamics in the second quarter of 2012.

September 2012, after a two-year program had expired in July 2012, with only one-third of the originally approved amount having been disbursed. After the SBA with Kosovo was derailed in June 2011 due to a large increase of public sector wages which had not been accorded with the IMF, the IMF approved a new 20-month SBA of SDR 90.97 million in April 2012. As for FYR Macedonia, the two-year Precautionary Credit Line arrangement will expire in January 2013. After having drawn about half of the financial means available under the program in spring 2011, FYR Macedonia has not drawn further amounts and does not envisage doing so during the remainder of the program duration. The SBA with Serbia, approved in September 2011, was frozen in February 2012 due to fiscal slippages which were not corrected by the authorities. The new government recently requested discussions on a new IMF-supported program. In response, the IMF has called on Serbia to shore up its consolidation and reform agenda (including effective implementation) and to revisit recent changes to the central bank law which have evoked concerns about a weakening of the independence of the central bank. Preparations for future EU accession of Western Balkan countries are proceeding gradually. In particular, during the review period, the European Council decided to open EU accession negotiations with Montenegro.



## 2 Slovakia: Car Industry Exports Keep Growth in Positive Territory

Net exports and  
automobile industry  
drive growth

Slovakia still remains among the EU's best economic performers, posting 2.9% annual GDP growth in the first half of 2012. However, growth has only been driven by external demand. Even though both exports and imports decelerated, export growth, in particular, is still relatively strong at 7.5% year on year. This has been mainly due to machinery and transport equipment exports, which accounted for 77% of total export growth in the first half of 2012, not least reflecting automobile producers' investments in new production lines and car models over the past years. In contrast, all domestic demand components have contributed negatively to output growth. Public consumption has been declining due to Slovakia's commitment, under the Excessive Deficit Procedure, to bring the public deficit below 3% of GDP by 2013. Households have been affected by fiscal consolidation, sluggish labor market conditions and general uncertainty as reflected, for instance, by a higher savings rate and low consumer confidence. Gross fixed capital formation has been dragged down by falling construction and, more generally, by both household and government restraint on capital spending.

Further improvement in  
the current account  
balance

The improvement of the current account balance seen in 2011 continued into the first half of 2012, when it reached a surplus of 2.5% of GDP. This was due to an improvement in all of its components except current transfers (lower private and EU Funds receipts), but most notably due to a 5.4%-of-GDP surplus in the trade balance. Net FDI inflows continued their upward trend, reaching 2.6% of GDP in the first half of 2012.

Inflation persistently  
high, competitiveness  
improved

HICP inflation decreased somewhat compared with 2011. However, it still remained elevated at 3.8% in August 2012. Inflation was mainly driven by increasing food and energy prices, which had been rising until May 2012 and started losing pace thereafter. On the domestic front, transportation and a new categorization of pharmaceuticals contributed to higher regulated prices.

Positive, though decelerating, economic growth since 2010 still failed to revive the sluggish labor market. Employment has been stagnating at levels just slightly below 60%, and unemployment remains elevated at 13.7% as of mid-2012. These developments, alongside growing manufacturing production, have resulted in rising labor productivity in manufacturing. Amid moderate nominal labor cost growth, this has led to a significant improvement in Slovakia's competitiveness, with unit labor costs in manufacturing declining by 7.4% in the first half of 2012 (while increasing by 3.6% in the euro area).

Fiscal consolidation  
imperiled by lower-  
than-expected tax  
revenues

For 2012, Slovakia has budgeted a deficit of 4.6% of GDP. However, in September, the Ministry of Finance revised down the 2012 tax revenue forecast by 0.2% of GDP. It remains to be seen whether the consolidation measures already implemented by the new government (which will take effect in the final quarter of 2012) will offset such a shortfall. The measures comprise, for instance, changes in the pension system, including the reduction of the contributions under the privately funded pillar, an introduction of a special levy on selected regulated industries and an extension of the bank levy base to include household deposits. Apart from these measures, the 2013 budget, to be submitted to parliament in the course of October with a deficit of 2.9% of GDP, relies also on recently adopted changes – in social contribution schemes as well as in corporate and personal income taxes, including the reintroduction of progressivity – which have yet to be approved by the parliament.

Table 2

## Main Economic Indicators: Slovakia

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	-4.9	4.2	3.3	3.4	3.5	3.0	3.4	3.0	2.8
Private consumption	0.2	-0.7	-0.4	-0.2	-0.1	-0.8	-0.3	-0.1	-0.2
Public consumption	6.1	1.1	-3.5	-1.7	-5.1	-3.3	-3.7	0.4	-2.1
Gross fixed capital formation	-19.7	12.4	5.7	1.6	6.4	5.9	8.4	-3.9	-1.1
Exports of goods and services	-15.9	16.5	10.8	16.8	13.1	6.8	7.5	6.0	8.9
Imports of goods and services	-18.1	16.3	4.5	11.4	10.9	-1.8	-1.0	2.1	3.2
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-7.2	4.2	-1.5	0.8	0.4	-4.5	-2.4	-0.7	-1.6
Net exports of goods and services	2.3	0.0	5.1	4.2	1.9	6.6	7.4	3.7	5.2
Exports of goods and services	-13.3	11.7	8.8	13.4	10.6	5.2	6.5	5.6	8.0
Imports of goods and services	15.6	-11.7	-3.7	-9.2	-8.7	1.4	0.9	-1.9	-2.8
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	7.3	-1.8	-0.7	0.0	-0.9	-0.3	-1.6	-0.8	0.3
Unit labor costs in manufacturing (nominal, per hour)	1.4	-16.8	2.6	-3.6	2.3	5.6	5.8	-4.4	-10.3
Labor productivity in manufacturing (real, per hour)	4.0	19.3	4.2	7.8	4.2	4.3	0.8	9.5	16.8
Labor costs in manufacturing (nominal, per hour)	4.7	0.0	6.9	4.0	6.6	10.1	6.6	4.6	4.7
Producer price index (PPI) in industry	-6.6	0.1	4.4	5.3	5.1	3.7	3.6	2.5	1.7
Consumer price index (here: HICP)	0.9	0.7	4.1	3.5	4.1	4.1	4.7	4.0	3.6
EUR per 1 SKK, + = SKK appreciation	..	..	..	..	..	..	..	..	..
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	12.1	14.4	13.6	13.9	13.2	13.2	14.0	14.1	13.7
Employment rate (%, 15–64 years)	60.2	58.8	59.5	59.0	59.6	59.9	59.5	59.6	59.8
Key interest rate per annum (%)	..	..	..	..	..	..	..	..	..
SKK per 1 EUR	..	..	..	..	..	..	..	..	..
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	3.2	4.4	0.7	2.8	3.9	5.0	0.7	3.0	1.9
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	-1.4	1.3	-3.8	0.3	2.5	-5.5	-3.8	-7.2	-6.7
Domestic credit of the banking system	23.0	9.2	9.4	4.2	3.8	4.4	9.4	11.7	4.4
<i>of which: claims on the private sector</i>	6.0	3.2	6.9	4.6	6.8	7.5	6.9	6.5	3.6
<i>claims on households</i>	3.5	4.2	3.9	4.3	4.5	4.3	3.9	3.9	3.5
<i>claims on enterprises</i>	2.4	..	2.9	0.3	2.4	3.2	2.9	2.6	0.1
<i>claims on the public sector (net)</i>	17.0	6.0	2.5	-0.4	-3.0	-3.1	2.5	5.2	0.7
Other assets (net) of the banking system	-18.4	-6.1	-4.9	-1.7	-2.4	6.1	-4.9	-1.5	4.2
<i>% of GDP, ESA 95</i>									
General government revenues	33.5	32.3	33.2	..	..	..	..	..	..
General government expenditures	41.5	40.0	38.1	..	..	..	..	..	..
General government balance	-8.0	-7.7	-4.9	..	..	..	..	..	..
Primary balance	-6.6	-6.3	-3.4	..	..	..	..	..	..
Gross public debt	35.6	41.0	43.3	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-16.8	21.5	16.9	26.7	18.5	16.0	8.6	10.8	11.5
Merchandise imports	-20.0	22.5	13.6	27.6	21.3	7.1	2.8	6.7	9.5
<i>% of GDP (based on EUR), period total</i>									
Trade balance	1.5	1.2	3.5	2.9	2.1	4.3	4.7	6.3	3.9
Services balance	-1.6	-1.1	-0.5	-0.8	-0.9	-0.7	0.2	0.4	0.4
Income balance (factor services balance)	-1.4	-1.9	-2.4	-2.5	-2.4	-2.3	-2.5	-2.3	-2.2
Current transfers	-1.1	-0.6	-0.5	1.4	-0.8	-1.1	-1.4	-0.4	-0.9
Current account balance	-2.6	-2.5	0.1	1.0	-1.9	0.2	1.0	3.9	1.2
Capital account balance	0.7	1.5	1.3	0.3	2.3	1.1	1.3	0.2	2.8
Foreign direct investment (net)	1.0	0.2	1.7	1.7	-1.6	1.4	5.3	4.7	0.7
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	72.2	74.9	76.7	77.7	..	78.0	76.7	76.8	74.8
Gross official reserves (excluding gold) <sup>1</sup>	0.8	0.8	1.0	0.9	0.9	0.9	1.0	0.9	0.9
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold) <sup>1</sup>	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<i>EUR million, period total</i>									
GDP at current prices	62,795	65,744	69,058	15,853	17,192	18,258	17,756	16,556	17,849

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

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

### 3 Slovenia: Tackling the Crisis without International Assistance

Economic and financial developments in Slovenia frequently made headlines over the past few months. At the beginning of August, the three major rating agencies downgraded the country's creditworthiness by one (Fitch and S&P) and three (Moody's) notches. They also changed their assessment of the country's biggest banks and banking system to the worse. Slovenian banks are burdened by an increasing share of nonperforming loans, which erodes profitability and puts pressure on capital positions. To comply with EBA requirements, the government had to inject EUR 320 million into Nova Ljubljanska banka in mid-2012 (along with EUR 60 million by state funds). The authorities have aired that they do not plan, at the current stage, to ask for international assistance but intend to come to grips with the crisis by means of domestic policy adjustments and reforms.

Recession deepens in the second quarter of 2012, inflation is fueled by energy and food prices

The economy contracted by 1.5% year on year in the first half of 2012. Consumption diminished sharply on the back of fiscal consolidation efforts, decreasing real wages and employment, and a further reduction of both credit to households and consumer confidence. The decline in investments intensified again in the first two quarters of 2012, as economic sentiment continued to worsen, as did deleveraging in the corporate sector. Changes in inventories reduced GDP growth particularly in the second quarter. Reflecting weaker export market conditions, export growth continued to ease and turned negative in the second quarter, but as imports contracted even more, the contribution of net exports to GDP growth increased substantially compared with 2011.

Headline HICP inflation accelerated from 2.4% in March to 3.1% in August 2012. The weak economic environment was mirrored in the more benign development of core inflation (1.2%–1.6%). On the upside, ULC growth again moderated to less than 1% during the first half of 2012.

Fiscal consolidation, privatization and structural reforms as high priority

In its Stability Programme update of April 2012, the government confirmed its announcement to reduce the fiscal deficit from 6.4% of GDP in 2011 to 3.5% in 2012 and to 2.5% in 2013. However, according to the European Commission, the planned deficit path is surrounded by various risks. The Commission expects the deficit to be higher, namely 4.3% in 2012 and 3.8% in 2013. The government has finalized the budget for 2013–14 roughly along these principles, setting the deficit for 2013 at slightly below 3% of GDP. While additional savings (e.g. pension reform, cut in public sector wage expenditure and in various transfers) on the expenditure side should help achieve the target, a greater role than foreseen in the Stability Programme update is to come from tax increases or new taxes (e.g. temporary tax on real estate of greater value, increase in the motor vehicle tax, selective VAT hike).

In addition, Slovenia's parliament has recently approved legislation to set up a "bad bank" and recapitalize banks, which is seen as a prerequisite for privatizing state-owned banks and for kick-starting credit growth. Also, the creation of a new state asset management company has been approved. Moreover, the government has drafted labor market legislation (to reduce segmentation, increase flexibility and shorten the duration of unemployment insurance benefits). At the same time, an all-party commission failed to reach agreement on the implementation of a fiscal rule in the constitution to meet EU obligations and bolster market confidence. Positively, though, investor confidence manifested itself in Slovenia's successful placement of a USD 2.25 billion bond in late October.

Table 3

**Main Economic Indicators: Slovenia**

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	-7.8	1.2	0.6	2.5	1.6	0.8	-2.4	0.2	-3.2
Private consumption	0.1	1.3	0.9	1.7	0.6	2.1	-0.5	0.6	-3.0
Public consumption	2.5	1.5	-1.2		-1.5	-1.1	-1.3	0.0	-2.0
Gross fixed capital formation	-23.2	-13.8	-8.1	-8.1	-11.8	-8.7	-3.5	-10.5	-8.9
Exports of goods and services	-16.7	10.1	7.0	11.6	8.8	5.1	3.1	2.0	-0.5
Imports of goods and services	-19.5	7.9	5.2	10.6	5.6	4.4	0.8	-1.1	-5.4
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-10.2	-0.2	-0.7	1.6	-0.6	0.2	-3.8	-2.0	-6.7
Net exports of goods and services	2.4	1.5	1.3	0.8	2.2	0.6	1.5	2.2	3.4
Exports of goods and services	-11.3	5.9	4.6	7.5	5.7	3.4	2.1	1.4	-0.3
Imports of goods and services	13.7	-4.5	-3.4	-6.7	-3.6	-2.8	-0.6	0.8	3.7
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	8.7	-0.6	-1.8	-1.8	-1.3	-1.5	0.7	0.3	-0.2
Unit labor costs in manufacturing (nominal, per hour)	25.1	-0.6	-0.7	-5.4	-0.1	-0.4	3.5	-0.2	10.9
Labor productivity in manufacturing (real, per hour)	-15.9	3.9	2.5	8.1	3.2	0.3	-1.1	-2.1	-1.1
Labor costs in manufacturing (nominal, per hour)	5.7	3.2	1.9	2.3	3.1	-0.1	2.4	-2.3	9.7
Producer price index (PPI) in industry	-1.4	2.0	4.6	5.7	4.8	4.1	3.6	1.3	0.8
Consumer price index (here: HICP)	0.9	2.1	2.1	2.2	2.0	1.5	2.6	2.5	2.5
EUR per 1 SIT, + = SIT appreciation	..	..	..	..	..	..	..	..	..
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	6.0	7.4	8.4	8.7	7.8	8.0	8.9	8.7	8.3
Employment rate (%, 15–64 years)	67.5	66.2	64.4	63.7	64.4	65.1	64.4	64.0	63.8
Key interest rate per annum (%)	..	..	..	..	..	..	..	..	..
SIT per 1 EUR	..	..	..	..	..	..	..	..	..
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	3.4	1.6	3.0	0.5	1.4	2.9	3.0	4.3	3.3
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	6.6	-4.0	6.5	-0.6	4.8	7.8	6.5	-6.8	-4.9
Domestic credit of the banking system	2.1	6.7	-3.1	2.3	0.1	-2.7	-3.1	10.8	6.8
<i>of which: claims on the private sector</i>	4.7	2.8	-3.8	1.1	0.2	-1.5	-3.8	-3.4	-5.0
<i>claims on households</i>	2.7	3.9	0.8	3.0	2.3	1.6	0.8	0.6	-0.3
<i>claims on enterprises</i>	2.0	-1.1	-4.6	-1.9	-2.2	-3.0	-4.6	-4.0	-4.7
<i>claims on the public sector (net)</i>	-2.6	3.9	0.7	1.1	0.0	-1.2	0.7	14.2	11.7
Other assets (net) of the banking system	-5.3	-1.2	-0.4	-1.1	-3.6	-2.2	-0.4	0.4	1.4
<i>% of GDP, ESA 95</i>									
General government revenues	43.1	44.5	44.3	..	..	..	..	..	..
General government expenditures	49.1	50.2	50.7	..	..	..	..	..	..
General government balance	-6.0	-5.7	-6.4	..	..	..	..	..	..
Primary balance	-4.6	-4.1	-4.5	..	..	..	..	..	..
Gross public debt	35.0	38.6	46.9	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-19.4	13.8	15.6	23.1	16.9	13.0	10.5	2.9	0.1
Merchandise imports	-25.7	16.2	13.8	22.9	14.9	12.0	7.1	2.5	-2.1
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-2.0	-3.4	-2.9	-2.7	-2.3	-2.3	-4.3	-2.5	4.9
Services balance	3.3	3.7	4.0	3.7	4.3	3.8	4.1	4.7	4.9
Income balance (factor services balance)	-2.2	-1.4	-1.5		-1.5	-2.5	-0.9	-2.0	-1.3
Current transfers	-0.4	0.3	0.4	0.6	0.4	0.0	0.7	-0.4	0.3
Current account balance	-1.3	-0.8	0.0	0.7	0.8		-0.4	-0.2	2.9
Capital account balance	0.0	0.0	-0.3	-0.1	-0.1	-0.1	-0.9	0.1	0.3
Foreign direct investment (net)	-1.8	0.9	1.8	-0.1	2.6	2.6	1.8	2.6	0.5
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	113.3	114.4	111.3	118.9	117.1	117.5	111.3	115.2	113.8
Gross official reserves (excluding gold) <sup>1</sup>	1.9	2.0	1.8	1.8	1.8	1.8	1.8	1.6	1.7
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold) <sup>1</sup>	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
<i>EUR million, period total</i>									
GDP at current prices	35,556	35,607	36,172	8,453	9,370	9,382	8,968	8,545	9,156

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

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

#### 4 Bulgaria: Fiscal Position Improves in spite of Slowing Growth

Strengthening domestic demand counters negative growth contribution from net exports in the first half of 2012

After post-crisis real GDP growth had peaked in the third quarter of 2011, it was again somewhat lower in the first two quarters of 2012, but remained in positive territory (+1% year on year). GDP growth was held back by extremely unfavorable weather conditions in the first quarter of 2012 and by the deterioration of external demand during the observation period. Following three years of a negative trend, domestic demand entered positive territory in the first half of 2012 on the back of strengthened private consumption (+4.1% year on year) due to steady real wage growth and slightly improving consumer confidence. Another major growth driver in the first half of 2012 was gross fixed capital formation, which turned positive in response to increasing foreign capital inflows and higher government capital expenditures. In addition, inventories posted a remarkable increase. Export growth nearly came to a halt in the first half of 2012, while import growth accelerated on the back of strengthening domestic demand so that net exports reduced the overall GDP growth rate for the first time since the outbreak of the crisis.

Gradual reduction of external debt despite increasing external vulnerabilities

The current account deficit widened in the first half of 2012 (−5% of GDP compared with −0.7% in the first half of 2011). This was mostly attributable to the trade balance and somewhat mitigated by an increase of current transfers (reflecting a rise in remittances and a higher absorption of EU structural funds). On the financing side, net FDI inflows remained moderate, but fully covered the current account deficit. Gross external debt was broadly stable at about 93% of GDP during the observation period.

Inflation eased and then picked up slightly again, competitiveness position strengthens

After peaking in the first quarter of 2011, the annual inflation rate (HICP) came down to 1.8% in the second quarter of 2012, with the largest contribution stemming from energy and fuel prices (electricity and oil price hikes by mid-2012). Inflation, however, accelerated over the summer to reach 3.1% in August on the back of rising prices of unprocessed food. Core inflation, however, remained constrained at 1.4% as of August 2012. There have also been signs that external competitiveness has strengthened somewhat: In the first quarter of 2012, the growth of unit labor costs both in the whole economy and in the manufacturing sector decelerated somewhat, even though they remained in positive territory. This development was mainly driven by labor reduction, while gross real wages in the whole economy were still growing at a respectable annual rate of above 6%.

Abrogation of EDP, fiscal consolidation continues in a more gradual fashion

Bulgaria managed to correct its excessive deficit in 2011 on the back of mostly expenditure-side measures (i.e. lower-than-projected capital spending, freeze of public sector wages as well as cuts in subsidies), so that the Excessive Deficit Procedure was lifted in June 2012. Its fiscal performance up to July 2012 suggests that the 2012 deficit target of 1.9% of GDP is within reach. Revenues have grown (especially from VAT receipts and excise duties), thereby alleviating some of the pressure of rising expenditures. In view of upcoming parliamentary elections (second quarter of 2013), major consolidation efforts are not to be expected in the remainder of 2012 and in 2013. The budget proposal for next year currently discussed by the government and the social partners targets a deficit ratio of 1.3% of GDP, assuming a real GDP growth rate of 1.9% for 2013.

Table 4

## Main Economic Indicators: Bulgaria

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	-5.5	0.4	1.7	2.0	2.7	1.9	0.3	0.9	1.0
Private consumption	-7.6	0.1	-0.6	-3.0	-0.6	2.9	-1.6	2.1	6.2
Public consumption	-6.5	1.9	0.5	2.7	2.4	-2.4	-0.2	-1.4	-0.4
Gross fixed capital formation	-17.6	-18.3	-9.7	-2.4	-6.6	-12.4	-14.4	1.3	-0.3
Exports of goods and services	-11.2	14.7	12.8	25.6	13.0	4.6	13.4	-4.4	5.1
Imports of goods and services	-21.0	2.4	8.5	13.6	8.1	9.0	4.5	1.5	9.9
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-15.5	-5.2	-0.6	-2.8	0.5	2.8	-3.5	5.3	4.4
Net exports of goods and services	10.0	5.6	2.3	5.2	2.4	-1.8	4.2	-4.2	-3.3
Exports of goods and services	-6.5	7.0	7.3	13.9	7.3	3.1	6.8	-3.1	3.3
Imports of goods and services	16.5	-1.4	-5.1	-8.7	-5.0	-4.9	-2.6	-1.1	-6.6
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	13.3	6.1	1.0	-3.5	0.7	2.9	4.8	2.0	0.8
Unit labor costs in manufacturing (nominal, per hour)	24.0	-5.1	0.5	-6.3	2.2	2.0	5.1	1.8	-2.1
Labor productivity in manufacturing (real, per hour)	-9.8	12.0	6.9	12.4	6.4	6.1	3.6	2.0	5.8
Labor costs in manufacturing (nominal, per hour)	11.5	6.3	7.9	5.4	8.8	8.3	8.9	3.8	3.6
Producer price index (PPI) in industry	-6.3	8.5	9.5	13.2	10.3	8.4	6.1	3.9	3.0
Consumer price index (here: HICP)	2.5	3.0	3.4	4.5	3.4	3.1	2.5	1.9	1.8
EUR per 1 BGN, + = BGN appreciation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	6.9	10.3	11.3	12.1	11.3	10.3	11.5	13.0	12.4
Employment rate (%, 15–64 years)	62.6	59.7	58.5	57.3	58.2	59.9	58.7	56.9	58.3
Key interest rate per annum (%) <sup>1</sup>	..	..	..	..	..	..	..	..	..
BGN per 1 EUR	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	4.2	6.4	12.3	7.4	8.0	10.3	12.3	10.7	10.2
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	1.7	5.0	7.9	4.5	6.2	8.5	7.9	9.2	8.3
Domestic credit of the banking system	6.6	5.1	7.3	5.7	3.8	4.5	7.3	5.4	5.5
<i>of which: claims on the private sector</i>	4.1	1.5	3.9	2.0	2.7	2.8	3.9	3.6	4.2
<i>claims on households</i>	2.3	-0.3	-0.2	-0.3	-0.2	-0.1	-0.2	-0.4	-0.4
<i>claims on enterprises</i>	1.8	1.8	4.1	2.3	2.9	2.9	4.1	3.9	4.7
<i>claims on the public sector (net)</i>	2.5	3.7	3.4	3.7	1.1	1.6	3.4	1.8	1.2
Other assets (net) of the banking system	-4.1	-3.7	-3.0	-2.8	-2.0	-2.7	-3.0	-3.9	-3.6
<i>% of GDP, ESA 95</i>									
General government revenues	37.1	34.3	33.6	..	..	..	..	..	..
General government expenditures	41.4	37.4	35.6	..	..	..	..	..	..
General government balance	-4.3	-3.1	-2.0	..	..	..	..	..	..
Primary balance	-3.6	-2.5	-1.4	..	..	..	..	..	..
Gross public debt	14.6	16.2	16.3	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-23.0	32.9	30.2	56.9	30.3	22.0	19.7	-2.8	6.3
Merchandise imports	-33.3	15.4	22.3	37.1	19.2	24.5	13.1	10.3	16.8
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-11.9	-7.7	-5.6	-3.5	-6.5	-3.3	-8.9	-11.7	-12.9
Services balance	3.7	5.2	6.0	1.8	5.2	14.0	1.6	1.3	6.3
Income balance (factor services balance)	-3.4	-3.1	-4.5	-4.5	-4.9	-4.6	-4.1	-4.0	-2.5
Current transfers	2.7	4.2	4.4	4.2	6.9	3.1	3.4	7.5	6.0
Current account balance	-8.9	-1.5	0.3	-2.1	0.8	9.2	-8.0	-6.9	-3.0
Capital account balance	1.4	0.8	1.3	0.2	0.5	1.2	3.1	0.3	0.5
Foreign direct investment (net)	7.2	2.7	4.1	0.1	2.1	3.4	10.1	5.9	2.5
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	108.3	102.7	93.1	98.6	96.0	93.9	93.1	93.8	93.8
Gross official reserves (excluding gold)	34.2	32.2	30.6	29.5	29.0	29.7	30.6	30.2	31.9
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	7.4	6.5	5.6	5.7	5.6	5.6	5.6	5.3	5.4
<i>EUR million, period total</i>									
GDP at current prices	34,933	36,052	38,483	8,166	9,605	10,760	9,953	8,030	9,718

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

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

## 5 Czech Republic: Economic Activity Slows amid Negative Sentiment

Domestic demand drags  
the economy into  
recession

In the first half of 2012, the Czech Republic entered a recession with a GDP decline of 0.9% year on year. While the contraction was moderate in the first quarter, it deepened in the subsequent three months. In the first half-year, most domestic demand components dragged GDP down, while the only notable positive contribution came from net exports. Nevertheless, export growth decelerated substantially, in line with the external environment, with import growth slowing down even more due to contracting domestic demand. As household consumption suffered from consolidation measures, a sluggish labor market and general uncertainty, the consumer confidence indicator reached the lowest levels in thirteen years. For similar reasons, but also due to public investments being cut back and a further fall in construction output, gross fixed investment stagnated. At 1.9 percentage points, changes in inventories (used mainly for exports) contributed considerably to the GDP decline during the six-month period through June.

The current account reached a mild surplus of 0.9% of GDP in the first half of 2012. As in past years, developments in this area were driven strongly by the negative income balance. This was, however, almost compensated for by the trade balance surplus of 5.5% of GDP. FDI inflows amounted to 2.6% of GDP in the first half of 2012.

Inflation elevated due to  
tax hikes, regulated  
prices and commodities

HICP inflation doubled to about 4% in the first half of 2012 (against the same 2011 period), but came down to 3.4% in August. The greatest contribution to the rise in inflation (about 1.1 percentage points) came from the January 2012 hike of the lower VAT rate from 10% to 14%. Inflation was also driven by rising food prices, regulated prices (house rents, heating prices, health care) and by rising fuel prices. The monetary policy-relevant inflation rate (CPI adjusted for first-round effects of changes to indirect taxes) remained in the upper bound of the inflation target of 2% +/-1 percentage points set by the Czech National Bank (CNB).

CNB policy rates at  
historical lows

In June 2012, and again in September, the CNB lowered its policy rate by 25 basis points each to a historical low of 0.25% in light of low domestic activity and absent inflation pressures from domestic demand.

The exchange rate of the Czech koruna was driven mainly by developments of global risk aversion and slowing output. The Czech currency depreciated from March to June 2012, then regained previous losses until September, while reversing the trend again in early October. Against the euro, it stood at approximately the same level as a year earlier (24.8 EUR/CZK, September 2012 average).

Fiscal consolidation  
jeopardized by political  
instability

The public deficit target for this year, as set in the country's Convergence Programme, is 3% of GDP. More recently, the Ministry of Finance, however, revised this figure up to 3.2% due to lower-than-originally-projected tax revenues. For 2013, the deadline year to correct the excessive deficit under the EDP, the government plans a deficit of 2.9% of GDP. But the budget has yet to be approved by the parliament. The same goes for some consolidation measures envisaged in the budget, which have already once been rejected by the parliament. The government resubmitted them, tying them to a confidence vote. These measures comprise, in particular, hikes in the lower and the standard VAT rate by 1 percentage point to 15% and 21%, respectively, and the introduction of a temporary additional personal income tax surcharge for higher incomes. Consolidation measures on the expenditure side comprise, above all, a temporarily lowered pension indexation and lower expenditures on goods and services.

Table 5

## Main Economic Indicators: Czech Republic

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	-4.7	2.7	1.7	3.1	2.1	1.4	0.3	-0.2	-1.7
Private consumption	-0.4	0.6	-0.6	-0.5	-0.5	-0.7	-0.8	-2.4	-3.5
Public consumption	3.8	0.6	-1.7	-0.3	-1.3	-3.0	-2.1	-0.5	-0.9
Gross fixed capital formation	-11.5	0.1	-0.9	-1.7	1.4	-2.6	-0.7	1.7	-0.5
Exports of goods and services	-10.0	16.4	11.0	19.2	13.0	8.6	4.6	7.7	2.4
Imports of goods and services	-11.6	16.0	7.5	16.9	10.0	3.7	1.1	4.0	0.0
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-5.5	1.8	0.6	0.6	-0.4	-2.0	-2.1	-3.2	-3.5
Net exports of goods and services	0.8	0.9	2.7	2.4	2.4	3.3	2.5	3.1	1.9
Exports of goods and services	-6.5	9.8	7.5	12.9	8.7	5.7	3.2	6.0	1.8
Imports of goods and services	7.2	-8.9	-4.8	-10.4	-6.3	-2.4	-0.7	-2.9	0.0
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	1.9	-0.3	1.0	0.6	1.4	0.5	1.5	4.5	3.1
Unit labor costs in manufacturing (nominal, per hour)	-2.2	-8.4	-3.3	-3.0	-2.4	-2.4	-5.4		-2.5
Labor productivity in manufacturing (real, per hour)	2.1	12.3	9.7	8.5	10.4	9.8	10.3	7.8	9.7
Labor costs in manufacturing (nominal, per hour)	-0.2	3.0	6.1	5.2	7.8	7.1	4.4	6.7	6.9
Producer price index (PPI) in industry	-1.5	0.1	3.7	3.2	3.1	3.7	4.9	3.8	2.6
Consumer price index (here: HICP)	0.6	1.2	2.1	1.9	1.8	2.0	2.8	4.0	3.8
EUR per 1 CZK, + = CZK appreciation	-5.7	4.6	2.9	6.2	5.2	2.2	-2.0	-2.8	-3.7
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	6.7	7.4	6.8	7.3	6.8	6.6	6.5	7.2	6.8
Employment rate (%, 15–64 years)	65.4	65.0	65.7	65.0	65.7	66.1	66.1	65.6	66.5
Key interest rate per annum (%)	1.5	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7
CZK per 1 EUR	26.5	25.3	24.6	24.4	24.3	24.4	25.3	25.1	25.3
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	0.2	1.9	2.8	1.3	-0.8	1.8	2.8	4.8	5.4
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	1.0	0.4	-0.8	-3.3	-5.7	-4.8	-0.8	3.0	6.0
Domestic credit of the banking system	4.6	4.0	7.9	5.4	5.7	10.2	7.9	5.3	5.5
<i>of which: claims on the private sector</i>	0.3	2.1	4.1	3.2	3.9	4.5	4.1	3.8	3.3
<i>claims on households</i>	3.8	2.7	2.2	2.6	2.5	2.2	2.2	2.1	2.0
<i>claims on enterprises</i>	-3.5	-0.6	1.9	0.6	1.4	2.3	1.9	1.7	1.3
<i>claims on the public sector (net)</i>	4.3	1.9	3.7	2.2	1.8	5.7	3.7	1.5	2.2
Other assets (net) of the banking system	-5.4	-2.6	-4.3	-0.8	-0.8	-3.5	-4.3	-3.6	-6.0
<i>% of GDP, ESA 95</i>									
General government revenues	38.9	39.0	39.8	..	..	..	..	..	..
General government expenditures	44.7	43.8	43.1	..	..	..	..	..	..
General government balance	-5.8	-4.8	-3.3	..	..	..	..	..	..
Primary balance	-4.5	-3.4	-1.9	..	..	..	..	..	..
Gross public debt	34.2	37.8	40.8	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-16.3	21.3	15.7	27.8	18.3	11.7	6.8	7.9	2.8
Merchandise imports	-19.2	24.1	14.0	28.6	17.6	9.3	3.7	5.2	0.2
<i>% of GDP (based on EUR), period total</i>									
Trade balance	2.3	1.4	2.5	3.8	3.0	0.8	2.3	6.0	5.0
Services balance	2.0	2.0	1.7	1.6	2.1	1.9	1.3	1.6	1.2
Income balance (factor services balance)	-6.7	-7.6	-7.2	-3.2	-11.6	-8.5	-5.0	-5.2	-6.4
Current transfers	0.0	0.2	0.1	0.4	0.6	-0.3	-0.4	0.1	-0.4
Current account balance	-2.4	-3.9	-2.9	2.6	-5.9	-6.0	-1.7	2.6	-0.7
Capital account balance	1.4	0.9	0.4	0.1	0.0	0.3	1.1	0.1	0.0
Foreign direct investment (net)	1.0	2.5	2.0	1.5	3.6	-0.4	3.2	3.5	1.8
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	43.7	47.2	46.9	46.0	46.7	47.6	46.9	50.2	48.4
Gross official reserves (excluding gold)	20.2	21.0	19.8	19.4	19.1	19.1	19.8	20.6	20.2
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	4.3	3.9	3.4	3.4	3.3	3.3	3.4	3.4	3.3
<i>EUR million, period total</i>									
GDP at current prices	141,602	149,401	154,823	36,270	39,515	39,601	39,436	35,724	37,927

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

## 6 Hungary: Zigzagging about Precautionary International Financial Assistance

Over the summer months, talks with the EU/IMF about precautionary financial assistance seem to have come into motion, as a joint mission of the IMF, the EU and the ECB held exploratory talks in Hungary in July. Afterwards, however, the government signaled that an agreement was no “must” at all and took controversial policy moves. It, for instance, subjected the central bank to a new financial transaction tax (FTT) from the beginning of 2013 and insisted on the feasibility of its original 2013 fiscal target, which was deemed too optimistic by the prospective lenders. At the beginning of October, the government, however, brought its growth assumptions close to the forecasts of the IMF and the EU, revised the 2012 and 2013 deficit targets from 2.5% and 2.2%, respectively, to 2.7% of GDP and announced substantial additional consolidation measures to safeguard the new targets. It also backtracked on applying the FTT to the central bank.

A deal with the IMF/EU would be highly welcome to restore investor confidence, policy credibility and predictability. This would likely lead to a reduction in the country’s risk premium, thereby relieving fiscal pressures and improving financing conditions for households and corporates alike. Hungary slid into technical recession in the second quarter of 2012. The decline in consumption worsened sharply during the first half of 2012 compared with 2011, while investment activity contracted at roughly the same pace. Changes in inventories reduced the GDP growth rate further. The following factors acted as brakes on domestic demand: (1) declining real wages and employment, (2) increasingly contracting bank lending to both households and companies, (3) continued weak sentiment and low capacity utilization, (4) weak economic prospects and (5) the difficult predictability of the business environment. The growth rate of both exports and imports dwindled during the first two quarters compared with 2011 as both external and domestic demand slowed. Nevertheless, net exports remained the only engine of GDP growth during the first half of 2012.

Changes in the fiscal outlook for 2012–13, in the prospects for financial assistance by the IMF/EU and in the international financial market climate impacted Hungary’s risk premium over the reporting period, leading overall to a modest improvement in major financial market indicators. In August and September, Hungary’s central bank (MNB) cut interest rates by 25 basis points each, to 6.5%, as the Monetary Council’s four external members voted down the three internal members. The interest rate cuts were based on the view that the inflation target – despite a substantial upward revision in the central bank’s inflation forecasts for 2012 and 2013 – was still likely to be met. In this context, the respective Monetary Council members pointed to significant spare capacity and weak domestic demand as well as an expected fall in domestic risk premiums. Despite weak domestic demand and a negative output gap, inflation accelerated to 6% by August 2012 on the back of indirect tax hikes and a substantial acceleration of food price increases. Although energy price inflation slowed modestly during the reporting period, it was still substantially higher (around 9%) than the overall inflation rate. While demand-pull inflation pressure is expected to remain subdued over the next few quarters, supply-side effects (commodity price increases, increase in taxes and fees) and rising unit labor costs will likely slow down the deceleration of inflation.

IMF/EU deal would be beneficial to restore confidence more solidly

MNB cuts policy rate despite fragile market confidence and inflation risks

Table 6

## Main Economic Indicators: Hungary

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	-6.8	1.3	1.6	2.6	1.4	1.4	1.4	-0.7	-1.3
Private consumption	-6.2	-2.2	0.0	-0.6	0.2	0.3	0.1	-0.3	-0.3
Public consumption	-0.6	-2.1	-0.6	1.7	-1.3	-1.5	-1.1	-0.8	-5.5
Gross fixed capital formation	-11.0	-9.7	-5.5	-1.5	-7.6	-7.6	-4.5	-6.6	-4.5
Exports of goods and services	-10.2	14.3	8.4	14.1	8.6	6.7	4.9	1.9	2.1
Imports of goods and services	-14.8	12.8	6.3	14.2	6.7	3.8	1.7	-0.3	0.2
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-10.4	-0.5	-0.6	1.7	-0.7	-1.4	-1.5	-2.8	-3.1
Net exports of goods and services	3.6	1.8	2.2	0.9	2.1	2.8	2.9	2.2	1.8
Exports of goods and services	-8.4	11.1	7.3	12.4	7.4	5.7	4.2	1.9	1.9
Imports of goods and services	12.0	-9.3	-5.1	-11.5	-5.3	-3.0	-1.4	0.3	-0.2
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	2.7	-3.5	3.6	2.7	4.5	4.6	2.8	5.0	4.2
Unit labor costs in manufacturing (nominal, per hour)	9.2	-9.6	4.4	0.1	8.0	7.0	2.5	6.1	5.5
Labor productivity in manufacturing (real, per hour)	-4.8	10.2	1.5	6.8	-2.2	-1.5	3.2	-0.9	3.7
Labor costs in manufacturing (nominal, per hour)	3.3	0.0	6.0	6.9	5.7	5.5	5.8	5.2	9.4
Producer price index (PPI) in industry	4.6	6.3	2.6	5.2	0.0	-0.4	5.6	6.4	6.7
Consumer price index (here: HICP)	4.0	4.7	3.9	4.3	3.9	3.4	4.1	5.6	5.5
EUR per 1 HUF, + = HUF appreciation	-10.3	1.9	-1.4	-1.4	3.1	2.7	-9.1	-8.2	-9.4
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	10.1	11.2	11.0	11.7	10.9	10.8	10.7	11.8	10.9
Employment rate (%, 15–64 years)	55.4	55.4	55.8	54.6	55.8	56.4	56.5	55.7	57.2
Key interest rate per annum (%)	8.6	5.5	6.0	5.9	6.0	6.0	6.3	7.0	7.0
HUF per 1 EUR	280.5	275.4	279.3	272.5	266.4	275.0	303.4	296.8	294.0
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	4.4	3.0	5.9	1.5	-1.0	5.3	5.9	1.5	0.1
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	13.4	4.2	17.8	5.4	5.8	16.8	17.8	9.9	10.1
Domestic credit of the banking system	-3.3	6.4	-3.1	-1.5	-10.1	-6.5	-3.1	0.4	-3.5
<i>of which: claims on the private sector</i>	-3.7	3.7	-0.6	-2.3	-7.4	1.6	-0.6	-1.8	-6.4
<i>claims on households</i>	0.8	4.6	-0.5	0.8	-2.2	2.1	-0.5	-2.0	-4.9
<i>claims on enterprises</i>	-4.6	-0.9	0.4	-3.1	-5.3	0.0	0.4	0.7	-0.9
<i>claims on the public sector (net)</i>	0.4	2.7	-2.6	0.8	-2.6	-8.1	-2.6	2.3	2.9
Other assets (net) of the banking system	-5.7	-7.7	-8.7	-2.4	3.2	-5.0	-8.7	-8.9	-6.5
<i>% of GDP, ESA 95</i>									
General government revenues	46.9	45.4	53.9	..	..	..	..	..	..
General government expenditures	51.5	49.8	49.6	..	..	..	..	..	..
General government balance	-4.6	-4.4	4.3	..	..	..	..	..	..
Primary balance	0.1	-0.3	8.5	..	..	..	..	..	..
Gross public debt	79.8	81.8	81.4	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-20.4	20.3	9.1	20.9	10.2	6.3	0.8	0.4	3.4
Merchandise imports	-24.9	19.5	9.3	19.9	11.1	5.9	2.2	1.5	1.1
<i>% of GDP (based on EUR), period total</i>									
Trade balance	2.6	3.3	3.3	5.1	3.4	2.6	2.5	4.5	5.5
Services balance	2.2	3.0	3.2	2.0	4.2	3.8	2.7	2.7	3.6
Income balance (factor services balance)	-5.4	-5.6	-6.1	-6.3	-6.4	-5.9	-5.9	-6.4	-7.2
Current transfers	0.4	0.4	0.5	-0.2	0.4	0.8	0.8	-0.8	0.3
Current account balance	-0.2	1.1	0.9	0.7	1.5	1.3	0.1	0.0	2.2
Capital account balance	1.2	1.7	2.3	2.1	1.5	2.9	2.9	1.5	1.9
Foreign direct investment (net)	0.1	0.7	0.1	-0.2	-1.8	-2.2	4.7	1.9	-2.6
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	149.7	142.4	131.3	143.2	141.9	137.3	131.3	131.1	133.9
Gross official reserves (excluding gold)	33.4	34.6	37.5	36.4	37.0	38.0	37.5	34.8	36.3
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	5.5	5.2	5.4	5.3	5.4	5.5	5.4	4.9	5.0
<i>EUR million, period total</i>									
GDP at current prices	91,625	97,069	100,455	22,859	25,786	26,079	25,732	21,890	23,975

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

Fixed investment growth slows considerably, while export growth, albeit declining, outpaces import growth

## 7 Poland: Monetary Policy Council Adopts Easing Bias

Poland posted annual GDP growth of 2.8% in the first half of 2012, with larger contributions from foreign demand (about 2 percentage points) than from domestic demand (1.5 percentage points). The resulting import absorption reduced GDP growth by 0.7 percentage points, implying a net export contribution of 1.3 percentage points. Year-on-year growth decelerated considerably. Private consumption growth remained clearly below GDP growth. While employment growth slowed, the continuing increase in labor force participation supported consumption growth. Real wage growth turned negative, caused partly by fiscal consolidation measures. As a result, consumer confidence further deteriorated in the course of the year.

Fixed investment growth decelerated sharply, after reaching double-digit rates in the last quarter of 2011. This deceleration may be attributed to various factors: (1) falling, albeit still strong, profitability and liquidity positions of enterprises; (2) slower, albeit at a double-digit rate still high, growth of housing loans; (3) receding public nonresidential construction linked to the European Football Championship; and (4) an adverse outlook for foreign demand. Inventory change rendered a negative contribution to growth, as its buildup slowed markedly.

Export growth decelerated, too, but remained positive, while import growth turned even negative in the second quarter. The deficit in the goods and services balance declined. Stable manufacturing unit labor costs coupled with nominal currency depreciation (in year-on-year terms) supported exports and, in addition to slackening domestic demand growth, contained imports. However, given a higher deficit in the income balance, the current account deficit in the first half of 2012 was unchanged on a year earlier.

Disinflation expectations lead to easing bias

The zloty appreciated against the euro during the third quarter to the same extent as in the second quarter. In August, annual inflation was 3.8%, according to both the HICP and the national CPI, while core inflation amounted to 2.6% (HICP excl. energy and unprocessed food) and 2.1% (CPI excl. energy and food). Inflation has declined since June and, in the opinion of the Polish Monetary Policy Council (MPC), it will further decrease gradually over the coming months, as the statistical base effect wanes (given increases of tax rates and administered prices a year earlier) amid slowing demand in the economy. As the Polish MPC expected headline inflation to decelerate but to remain above the inflation target (2.5% CPI) until the end of 2012, it introduced an easing bias, but refrained from cutting the key interest rate (at 4.75%) in its session in early October. In early May, the Polish MPC had hiked the reference rate by 0.25 percentage points to 4.75%, on the basis of expectations that the slowdown would be only a mild one.

Authorities envisage continuing fiscal consolidation in 2013, albeit at a slower pace than in 2012

The Convergence Programme update submitted in April 2012 envisages a decline of the general government deficit from 5.1% of GDP in 2011 to 2.9% in 2012 and 2.2% in 2013, with consolidation in 2012 resulting equally from revenues and expenditures. The draft Budget Act 2013 adopted by the government for the central level is in line with these figures. In its end-May assessment, the Commission staff considered the general government deficit in 2012 and 2013 to come in at 3.0% and 2.5%, respectively. The cost of the systemic pension reform undertaken in 1999 (direct net cost estimated at 0.6% of GDP in 2012) is to be taken into account when the Commission and the Council will assess whether the correction of the excessive deficit (due in 2012) was successful, should the 2012 deficit (including the pension reform costs) come in at slightly above 3%.

Table 7

## Main Economic Indicators: Poland

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	1.6	3.9	4.3	4.1	4.4	4.1	4.6	3.7	2.0
Private consumption	2.0	3.1	2.5	2.8	3.4	2.5	1.4	1.7	1.1
Public consumption	2.1	4.1	-1.7	-0.4	-1.6	-5.0	0.1		-0.1
Gross fixed capital formation	-1.2	-0.4	9.0	5.6	7.6	9.0	10.9	5.4	2.2
Exports of goods and services	-6.8	12.1	7.7	11.2	6.0	8.9	5.2	4.0	1.9
Imports of goods and services	-12.4	13.9	5.5	10.3	5.8	5.3	1.2	1.7	-2.9
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-1.1	4.6	3.4	3.7	4.4	2.7	3.1	2.7	-0.3
Net exports of goods and services	2.7	-0.7	0.9	0.3	0.1	1.4	1.5	1.1	2.3
Exports of goods and services	-2.7	4.8	3.3	4.7	2.7	3.8	2.1	1.9	0.9
Imports of goods and services	5.5	-5.5	-2.4	-4.4	-2.6	-2.4	-0.5	-0.8	1.4
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	2.3	1.1	0.5	-0.3	0.5	1.7	0.2	1.6	1.0
Unit labor costs in manufacturing (nominal, per hour)	0.5	-9.2	0.6	0.5	1.5	2.4	-2.0	-0.4	-0.1
Labor productivity in manufacturing (real, per hour)	4.3	11.3	4.0	2.6	4.4	1.3	7.6	4.9	4.4
Labor costs in manufacturing (nominal, per hour)	4.6	1.3	4.6	3.1	6.0	3.7	5.5	4.6	4.3
Producer price index (PPI) in industry	3.9	2.3	7.5	7.7	7.1	7.1	8.2	5.8	4.6
Consumer price index (here: HICP)	4.0	2.7	3.9	3.6	4.0	3.7	4.2	4.2	4.0
EUR per 1 PLN, + = PLN appreciation	-18.8	8.4	-3.0	1.2	1.4	-3.4	-10.3	-6.8	-7.0
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	8.3	9.7	9.8	10.2	9.6	9.5	9.9	10.7	10.0
Employment rate (%, 15–64 years)	59.4	59.3	59.7	58.9	59.7	60.2	59.9	59.2	60.0
Key interest rate per annum (%)	3.8	3.5	4.2	3.7	4.2	4.5	4.5	4.5	4.6
PLN per 1 EUR	4.3	4.0	4.1	3.9	4.0	4.2	4.4	4.2	4.3
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	8.1	8.8	12.5	11.0	7.3	10.2	12.5	9.1	11.0
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	3.2	3.0	6.4	2.1	-3.7	2.5	6.4	1.9	8.6
Domestic credit of the banking system	9.2	10.3	14.0	12.2	8.1	14.1	14.0	13.1	10.5
<i>of which: claims on the private sector</i>	6.7	8.0	13.1	9.7	8.5	13.5	13.1	11.6	10.1
<i>claims on households</i>	6.8	8.3	7.4	7.9	5.9	9.0	7.4	6.0	4.8
<i>claims on enterprises</i>	-0.2	-0.2	5.7	1.8	2.6	4.5	5.7	5.6	5.3
<i>claims on the public sector (net)</i>	2.5	2.3	0.9	2.6	-0.5	0.6	0.9	1.5	0.4
Other assets (net) of the banking system	-4.3	-4.5	-7.9	-3.3	3.0	-6.4	-7.9	-5.9	-8.1
<i>% of GDP, ESA 95</i>									
General government revenues	37.2	37.6	38.5	..	..	..	..	..	..
General government expenditures	44.6	45.5	43.5	..	..	..	..	..	..
General government balance	-7.4	-7.9	-5.0	..	..	..	..	..	..
Primary balance	-4.8	-5.2	-2.3	..	..	..	..	..	..
Gross public debt	50.9	54.8	56.4	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-15.8	22.9	11.4	16.8	12.0	10.7	6.6	5.9	1.2
Merchandise imports	-24.4	25.0	11.4	17.5	16.0	9.5	4.0	6.2	-2.8
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-1.7	-2.5	-2.7	-2.1	-3.4	-2.6	-2.7	-2.4	-1.8
Services balance	1.1	0.7	1.1	1.1	1.6	1.2	0.7	1.2	1.7
Income balance (factor services balance)	-3.8	-3.6	-4.2	-3.3	-4.4	-5.0	-3.9	-4.5	-4.3
Current transfers	0.5	0.8	1.2	0.8	2.5	0.8	0.6	0.5	2.0
Current account balance	-3.9	-4.6	-4.5	-3.5	-3.6	-5.7	-5.3	-5.2	-2.4
Capital account balance	1.6	1.8	2.2	1.9	1.5	1.6	3.7	1.5	2.5
Foreign direct investment (net)	1.9	0.7	2.0	2.1	-0.1	3.9	2.0	-0.8	2.5
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	62.4	66.9	67.2	68.3	68.9	66.8	67.2	70.8	72.0
Gross official reserves (excluding gold)	16.9	18.7	19.4	19.8	19.5	18.8	19.4	19.2	20.9
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	5.1	5.1	5.0	5.3	5.2	4.9	5.0	4.9	5.3
<i>EUR million, period total</i>									
GDP at current prices	311,363	354,693	369,253	88,327	93,162	90,388	97,375	87,581	91,151

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

## 8 Romania: Achievements in Macroeconomic Stabilization Are Increasingly Being Challenged

Recovery loses momentum

Romania's economy continued to grow in the first half of 2012. Yet, economic growth decelerated to 0.8%. Exports fell more strongly than imports in the first half of 2012. The moderate growth of domestic demand kept imports at a comparatively high level, partly compensating for the dwindling export-related import demand. In the first half of 2012, private consumption grew modestly on the back of real wage growth and improving consumer sentiment, while construction activity boosted the brisk growth of gross fixed capital formation. Also during summer private consumption apparently held up well, as retail sales were supported by a public sector wage hike taking effect in June, and continued to grow despite weakening consumer sentiment. However, following strong growth until May, construction output posted negative yearly growth rates in June and July. Moreover, a severe drought will negatively impact economic growth in the second half of 2012.

Political quarrels weigh on financial markets, precautionary support program ongoing

Political disputes hit investor sentiment during summer: The government's attempts to consolidate power drew criticism from the European Commission (EC); an impeachment procedure against president Basescu finally failed as voter turnout fell short of the 50% threshold required by Romanian law. As a consequence, pressures on the Romanian leu increased and prompted central bank interventions on the foreign exchange market according to market participants. When the central bank started to restrict leu liquidity by capping the volumes allocated at weekly repo operations, the leu stabilized. A largely positive IMF/EC/World Bank review within the framework of the precautionary support program also helped calm down the situation on the foreign exchange market. The mission concluded that policy implementation remained broadly on track. Moreover, it said that the fiscal deficit target for the year as a whole (below 3% of GDP in ESA95 terms) was achievable, but would require continued spending restraint. The Romanian authorities currently do not intend to draw on the resources available under the precautionary arrangement. In August, Romania started to repay the principal of credit received under the 2009–11 Stand-By Arrangement.

After low inflation in the first half of 2012, food prices have driven up inflation more recently

Due to the negative output gap and decelerating dynamics in administered tobacco and fuel prices, inflation (CPI) temporarily dropped below the central bank's target band of 3%  $\pm$  1 percentage point in the second quarter. However, the Banca Națională a României (BNR) has left its key policy rate unchanged since March 2012, citing upside risks related to domestic and external factors. In particular, the BNR pointed to the possible impact of political tensions and international financial market turbulences on the exchange rate as well as to the impact of unfavorable weather conditions on food prices. The latter risk started to materialize over the summer months, with inflation climbing to 3.9% in August.

Current account deficit edges down; net FDI inflows still weak

In the first half of 2012, the current account deficit declined by 23% year on year, but still stood at 3.7% of GDP in the four quarters up to mid-2012. The improvement was mainly driven by the decrease in the income deficit, as well as by the increases in the current transfers surplus and in the services surplus. The sizeable trade deficit, however, stayed broadly unchanged, as external demand and rising unit labor costs in the manufacturing sector barred a reduction. Net FDI inflows remained subdued and covered only 37% of the current account deficit in the four quarters up to mid-2012. Thus, net FDI coverage did not improve markedly compared with 32% at end-2011.

Table 8

## Main Economic Indicators: Romania

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	-6.6	-1.7	2.5	1.7	1.4	4.4	1.9	0.3	1.1
Private consumption	-10.3	-0.4	1.3	-1.3	-0.7	3.6	2.7	0.5	2.2
Public consumption	2.9	-4.1	-3.6	-6.7	-2.8	-0.7	-4.0	-1.3	-2.4
Gross fixed capital formation	-28.1	-2.1	6.2	-2.1	-1.4	11.4	10.3	12.2	15.5
Exports of goods and services	-6.2	15.1	10.5	21.8	8.2	9.2	3.8	-2.7	-0.6
Imports of goods and services	-21.4	12.7	11.5	16.9	10.6	12.8	5.7	-0.7	0.2
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-13.6	-1.6	3.2	1.6	1.7	6.6	4.2	2.1	3.8
Net exports of goods and services	7.0	0.0	-0.8	-0.5	-3.7	-3.6	-1.3	-1.1	-0.4
Exports of goods and services	-1.9	4.3	3.5	11.0	3.6	3.5	1.3	-1.6	-0.3
Imports of goods and services	8.9	-4.3	-4.3	-11.4	-7.3	-7.0	-2.5	0.6	-0.2
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	3.1	7.5	1.9	1.0	2.6	4.1	0.2	4.3	4.3
Unit labor costs in manufacturing (nominal, per hour)	1.5	-8.3	4.3	-5.0	7.1	5.3	11.0	12.2	9.9
Labor productivity in manufacturing (real, per hour)	13.3	15.9	2.9	10.7	1.2	2.5	-1.7	-4.4	-1.5
Labor costs in manufacturing (nominal, per hour)	14.1	6.7	7.7	5.2	8.3	7.9	9.2	7.2	8.3
Producer price index (PPI) in industry	1.9	6.3	8.9	10.7	8.7	8.7	7.6	5.7	6.1
Consumer price index (here: HICP)	5.6	6.1	5.8	7.5	8.3	4.2	3.4	2.7	2.1
EUR per 1 RON, + = RON appreciation	-13.1	0.7	-0.7	-2.6	1.1	-0.1	-1.1	-3.0	-6.6
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	7.2	7.6	7.7	7.8	7.5	7.5	8.0	7.9	7.2
Employment rate (%, 15–64 years)	58.6	58.8	58.5	58.0	58.8	59.1	57.9	58.0	60.0
Key interest rate per annum (%)	9.1	6.5	6.2	6.3	6.3	6.3	6.1	5.6	5.3
RON per 1 EUR	4.2	4.2	4.2	4.2	4.1	4.3	4.3	4.4	4.4
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	9.0	6.9	6.6	3.3	2.5	6.8	6.6	10.2	8.5
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	5.0	0.8	-1.4	-7.1	-1.8	0.7	-1.4	5.7	-1.3
Domestic credit of the banking system	12.6	13.8	11.4	12.2	3.1	12.7	11.4	13.3	15.6
<i>of which: claims on the private sector</i>	1.2	5.2	6.8	2.6	1.7	7.1	6.8	10.4	6.7
<i>claims on households</i>	0.6	1.0	1.1	-0.2	-1.2	0.9	1.1	3.3	1.7
<i>claims on enterprises</i>	0.6	4.2	5.7	2.8	2.9	6.1	5.7	7.1	5.0
<i>claims on the public sector (net)</i>	11.4	8.6	4.7	9.5	1.4	5.7	4.7	2.9	8.9
Other assets (net) of the banking system	-8.7	-7.7	-3.4	-1.8	1.3	-6.6	-3.4	-8.9	-5.8
<i>% of GDP, ESA 95</i>									
General government revenues	32.1	33.3	32.3	..	..	..	..	..	..
General government expenditures	41.1	40.1	37.8	..	..	..	..	..	..
General government balance	-9.0	-6.8	-5.5	..	..	..	..	..	..
Primary balance	-7.5	-5.3	-4.0	..	..	..	..	..	..
Gross public debt	23.6	30.5	33.4	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-13.8	28.5	20.5	39.8	18.3	18.0	10.1	0.1	2.6
Merchandise imports	-31.9	20.4	21.4	30.9	21.1	21.5	14.2	1.8	0.2
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-5.8	-4.8	-5.5	-4.0	-8.0	-4.9	-5.2	-4.7	-7.2
Services balance	-0.2	-0.4	0.3	0.2	0.2	-0.1	0.7	-0.3	0.1
Income balance (factor services balance)	-1.6	-1.6	-1.6	-3.9	-3.9	-0.9	-1.8	-2.5	-2.5
Current transfers	3.5	2.8	2.4	2.3	2.7	2.0	2.7	4.6	2.7
Current account balance	-4.2	-4.0	-4.4	-2.5	-8.9	-3.9	-2.8	-2.3	-6.9
Capital account balance	0.5	0.2	0.5	1.1	0.5	0.1	0.6	1.8	1.8
Foreign direct investment (net)	3.1	1.9	1.3	0.6	1.1	1.1	2.2	0.1	1.3
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	68.7	74.7	72.5	75.7	76.7	74.6	72.5	73.1	73.3
Gross official reserves (excluding gold)	23.9	26.2	24.4	26.1	26.7	25.4	24.4	25.4	24.2
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	7.8	7.7	6.7	7.4	7.5	7.0	6.7	6.9	6.6
<i>EUR million, period total</i>									
GDP at current prices	118,189	123,737	136,192	24,905	31,551	37,318	42,417	25,146	31,215

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

## 9 Croatia: From Stagnation to Recession

Fall in economic activity accelerates in the second quarter of 2012

Following stagnation in 2011, GDP contraction started in the last quarter of 2011 and intensified in the course of 2012. GDP dropped by 1.7% in the first half of 2012. The decline in economic activity was essentially caused by a slump in domestic demand. In particular, private consumption shrank by 1.9% year on year, which was, inter alia, driven by: (1) ongoing poor labor market conditions with an unemployment rate of about 15.9% in the first half of 2012, (2) private households' restructuring needs and (3) subdued credit growth. In the public sector, fiscal consolidation continued depressing public consumption. Economic conditions also stayed weak for private investments, as indicated by the persistent negative contribution to GDP growth since 2009, which amounted to -0.9% in the first half of 2012. In contrast, the contribution of net exports to GDP growth had remained positive from mid-2011, equaling 0.5% in the first half of 2012.

Despite moderate current account deficit, fragile external position with high level of gross external debt

The current account position remained broadly unchanged in the first half of 2012 compared with the same period in 2011. The trade balance worsened slightly, whereas the positive services balance and the deficit in the income balance improved somewhat. On the financing side, FDI (net) inflows remained moderate. Overall, FDI flows (net) were noticeably under the average of 5% of GDP of the precrisis period 2000 to 2007.

Gross external debt has remained slightly above 100% of GDP since 2009. About 60% of debt is owed by nonfinancial private companies, 25% by banks and 15% by the public sector. Foreign exchange reserves, which decreased by 8% between April and July 2012, came to EUR 11 billion (25% of GDP) at the end of July and covered close to three-quarters of short-term external debt. To mitigate exchange rate pressures, Hrvatska narodna banka (HNB) intervened several times in the first half of 2012. In its latest foreign exchange intervention in September, the HNB purchased foreign currency from the market (worth EUR 58 million) after having sold foreign currency (totaling EUR 1.5 billion) between November 2011 and mid-2012.

Inflation remained at an elevated level

Inflation picked up in the spring of 2012 on the back of rising prices in the agricultural and energy sectors as well as a general hike of the main VAT rate of 2 percentage points in March 2012. In August, inflation ran at an elevated 4.0% (year on year).

Government sets ambitious budget targets

In mid-2012, the government revised this year's budget, which now envisages a deficit of 3.9% of GDP (in ESA 95 terms), only slightly up from the earlier target of 3.8%. The new target seems ambitious in view of worsening GDP dynamics and an expected deficit of 4.4% for 2012 according to the October 2012 IMF projections (WEO). Fiscal consolidation was mainly concentrated on revenue-enhancing measures during the first half of 2012 (i.e. VAT increase, new property tax). According to the fiscal responsibility law, future fiscal consolidation is set to focus more on the expenditure side, as has been urged by international institutions for some time.

Table 9

**Main Economic Indicators: Croatia**

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	-6.9	-1.4	0.0	-1.2	0.6	0.8	-0.4	-1.3	-2.2
Private consumption	-7.4	-0.9	0.2	0.0	0.6	0.1	0.2	-0.3	-3.3
Public consumption	0.4	-1.6	-0.3	-1.7	1.6	-0.3	-0.9	-1.5	-0.2
Gross fixed capital formation	-14.2	-15.0	-7.2	-6.9	-7.0	-8.6	-6.0	-2.8	-5.9
Exports of goods and services	-16.2	5.2	2.0	-3.5	4.8	6.8	-3.6	2.4	-1.8
Imports of goods and services	-21.4	-1.4	1.2	3.7	4.4	0.8	-3.6	1.1	-3.3
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-10.8	-3.8	-0.3	1.4	0.7	-2.6	-0.5	-1.1	-2.8
Net exports of goods and services	3.9	2.4	0.3	-2.5	0.0	3.2	0.1	0.3	0.7
Exports of goods and services	-6.8	1.9	0.8	-1.1	1.8	3.5	-1.3	0.7	-0.7
Imports of goods and services	10.7	0.6	-0.5	-1.5	-1.8	-0.3	1.5	-0.5	1.4
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	..	..	..	..	..	..	..	..	..
Unit wage costs in manufacturing (nominal, per hour)	12.3	2.0	1.5	4.6	-1.1	2.9	-0.5	9.5	0.0
Labor productivity in manufacturing (real, per hour)	-3.4	-3.3	1.4	-4.9	2.8	1.5	6.0	-5.1	3.7
Gross wages in manufacturing (nominal, per hour)	8.1	-1.1	2.7	-0.6	1.6	4.5	5.4	3.9	0.0
Producer price index (PPI) in industry	-0.4	4.3	6.4	6.3	6.5	6.3	6.4	6.1	6.8
Consumer price index (here: CPI)	2.4	1.0	2.3	2.2	2.3	2.0	2.4	1.5	3.4
EUR per 1 HRK, + = HRK appreciation	-1.6	0.7	-2.0	-1.6	-1.9	-2.8	-1.7	-2.0	-1.8
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	9.3	12.1	13.9	14.7	13.8	12.6	14.3	16.8	14.9
Employment rate (%, 15–64 years)	56.6	54.0	52.4	52.4	52.3	53.2	51.5	49.8	51.7
Key interest rate per annum (%)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
HRK per 1 EUR	7.3	7.3	7.4	7.4	7.4	7.5	7.5	7.6	7.5
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	-0.9	4.4	3.5	3.3	3.5	3.7	3.5	2.7	3.2
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	1.5	-0.4	-4.5	-0.5	-2.4	-5.2	-4.5	-4.1	1.6
Domestic credit of the banking system	-0.5	8.6	11.4	6.6	8.3	12.0	11.4	10.0	4.5
<i>of which: claims on the private sector</i>	-0.6	7.0	5.7	6.2	6.8	6.8	5.7	5.3	0.1
<i>claims on households</i>	-1.6	2.1	0.5	1.4	1.7	1.7	0.5	0.9	0.0
<i>claims on enterprises</i>	1.0	4.9	5.2	4.8	5.1	5.1	5.2	4.3	0.1
<i>claims on the public sector (net)</i>	0.1	1.6	5.7	0.4	1.5	5.2	5.7	4.8	4.5
Other assets (net) of the banking system	-1.8	-3.7	-3.4	-2.8	-2.4	-3.1	-3.4	-3.2	-2.9
<i>% of GDP, ESA 95</i>									
General government revenues	36.4	35.0	34.7	..	..	..	..	..	..
General government expenditures	40.5	39.9	39.7	..	..	..	..	..	..
General government balance	-4.1	-4.9	-5.0	..	..	..	..	..	..
Primary balance	-2.4	-2.9	-2.8	..	..	..	..	..	..
Gross public debt	35.1	41.2	45.7	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-21.3	18.1	7.8	10.2	11.0	13.3	-1.9	2.3	-7.5
Merchandise imports	-26.8	-0.2	7.3	13.8	11.1	5.4	-0.1	2.1	-2.7
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-16.6	-13.4	-14.2	-15.0	-14.8	-13.6	-13.5	-15.6	-15.8
Services balance	13.1	13.3	14.2	1.5	14.0	34.5	4.0	2.2	14.8
Income balance (factor services balance)	-4.0	-3.5	-3.6	-4.9	-4.9	-2.8	-1.8	-5.2	-3.5
Current transfers	2.3	2.4	2.6	2.4	2.5	2.4	3.0	2.8	2.7
Current account balance	-5.1	-1.1	..	-15.9	-3.2	20.4	-8.2	-15.9	-1.9
Capital account balance	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign direct investment (net)	3.4	0.9	2.3	0.4	2.5	4.5	1.5	2.3	1.2
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	101.9	103.6	101.9	105.9	105.4	103.7	101.9	102.8	104.7
Gross official reserves (excluding gold)	23.2	23.8	24.9	25.5	25.4	25.2	24.9	25.4	26.2
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	7.0	7.2	7.2	7.6	7.4	7.3	7.2	7.2	7.4
<i>EUR million, period total</i>									
GDP at current prices	44,784	44,867	44,888	10,243	11,306	12,181	11,159	10,020	11,078

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

## 10 Turkey: Economic Moderation Continues as External Imbalances Remain in Place

Contribution of domestic demand turns negative

Domestic demand contracted in the first half of 2012 due to strongly declining investments as well as stagnating private consumption. Likewise, credit growth receded further and reached roughly 23% in year-on-year terms at the end of July at an annualized rate (in contrast to the peak of almost 43% at the end of August 2011). Capacity utilization, despite having recovered moderately to 75% in April, also shows a negative trend. The slight rise in the employment rate to almost 50% in the second quarter of 2012 helped bring the unemployment rate down again after a temporary rise in the first quarter.

Expansion of exports to the Middle East reverses growth drivers

Real export growth abided at double-digit rates in the first half of 2012. Falling external demand from the euro area was more than offset by a shift toward serving markets in the Middle East. In combination with falling imports, the trade and current account deficit narrowed. In the second quarter of 2012, the current account deficit amounted to 8.3% of GDP (four-quarter moving sum). The reduction in external imbalances is, however, likely to be of a temporary nature, as export growth was strongly driven by gold exports to Iran in the summer and is thus unlikely to persist. Short-term capital inflows continue to be the main source of financing of the current account deficit; the annualized coverage of FDI remained mostly below 20% up to July. Thus, both the size and financing of the current account remained fairly unfavorable.

Inflation remains above target

In addition to the persistent current account deficit, inflation remained elevated at 8.9% in August. Food, energy and tobacco contributed most to inflation, while core inflation continued to trend downward. Expiring base effects from earlier tax adjustments in administered prices (tobacco and energy items) and from hikes in unprocessed food prices in the closing quarter of 2011 should bring inflation down somewhat in the second half of 2012. Nevertheless, the central bank's end-year inflation target of 5.5% will most likely be missed. The end-year inflation forecast of the Central Bank of the Republic of Turkey (CBRT) stood at 6.2% in early October.

The Turkish central bank continued to manage liquidity through adjustments of the interest rate corridor. In its latest MPC decision on September 18, the CBRT narrowed the corridor by lowering the overnight lending rate by 150 basis points to 10%. The unorthodox monetary policy mix helped reverse the appreciation of the Turkish lira which had taken place at the beginning of the year. As from April 2012, the lira remained relatively stable and was valued 2.3 against the euro at end-September (TYR/USD: 1.8).

Fiscal position deteriorates

The first months of 2012 still brought strong revenue growth, which alleviated some of the pressure of rising expenditure on the fiscal position. The primary surplus nevertheless deteriorated in the first half of 2012. Since May 2012, revenue growth slowed down considerably as a result of faltering domestic demand, while public expenditure growth remained strong, pushing the central budget deficit on a 12-month rolling basis to 2% of GDP at the end of August and thus below the end-year fiscal target of -1.5% of GDP. The authorities target the public debt stock (as defined by ESA 95) to decrease relative to GDP from 37% in 2012 to 35% in 2013 and 32% in 2014.

Table 10

**Main Economic Indicators: Turkey**

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	-4.8	9.2	8.5	12.1	9.1	8.4	5.0	3.3	2.9
Private consumption	-2.3	6.7	7.8	12.1	8.3	7.8	3.4	0.2	-0.5
Public consumption	7.8	2.0	4.5	7.0	9.0	10.3	-4.3	5.5	4.4
Gross fixed capital formation	-19.0	30.5	18.5	35.7	29.0	15.0	1.3	1.5	-7.4
Exports of goods and services	-5.0	3.4	6.4	8.7	0.5	10.2	6.6	11.9	19.8
Imports of goods and services	-14.3	20.7	10.9	28.0	18.9	6.8	-5.1	-6.0	-3.6
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-7.7	13.8	9.5	17.1	13.9	7.2	1.6	-2.1	-2.8
Net exports of goods and services	2.5	-4.0	-1.4	-5.1	-4.6	0.5	2.8	4.1	5.1
Exports of goods and services	-1.1	0.8	1.4	1.8	0.1	2.1	1.4	2.4	4.1
Imports of goods and services	3.6	-4.8	-2.8	-6.9	-4.8	-1.7	1.4	1.7	1.0
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	..	..	..	..	..	..	..	..	..
Unit wage costs in manufacturing (nominal, per hour)	11.0	1.3	6.9	1.8	7.5	8.2	10.3	17.7	11.8
Labor productivity in manufacturing (real, per hour)	-0.3	9.9	2.8	7.3	1.8	2.7	-0.1	-4.7	1.0
Gross wages in manufacturing (nominal, per hour)	10.0	11.8	10.0	9.2	9.5	11.2	10.2	12.2	12.9
Producer price index (PPI) in industry	1.0	6.2	12.3	10.1	10.0	13.8	15.3	9.9	8.0
Consumer price index (here: HICP)	6.3	8.6	6.5	4.3	5.9	6.4	9.2	10.5	9.6
EUR per 1 TRY, + = TRY appreciation	-11.8	8.3	-14.5	-3.3	-13.2	-20.2	-19.7	-8.4	-2.7
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	12.9	10.9	9.0	10.6	8.7	8.4	8.3	9.6	7.5
Employment rate (%, 15–64 years)	44.2	46.3	48.4	46.1	49.2	49.9	48.4	46.3	49.9
Key interest rate per annum (%) <sup>1</sup>	9.2	6.8	6.1	6.3	6.3	5.9	5.8	5.8	5.8
TRY per 1 EUR	2.2	2.0	2.3	2.2	2.3	2.5	2.5	2.4	2.3
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	13.0	18.6	15.2	20.4	20.7	22.1	15.2	10.3	9.3
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	-1.2	-7.5	0.6	-3.1	-1.6	-1.1	0.6	-2.7	-3.2
Domestic credit of the banking system	21.5	30.2	19.0	26.6	26.2	26.5	19.0	18.9	17.5
<i>of which: claims on the private sector</i>	9.9	27.9	25.0	29.0	30.3	31.8	25.0	21.6	18.0
<i>claims on households</i>	2.7	8.4	8.4	9.3	10.5	10.2	8.4	7.1	5.5
<i>claims on enterprises</i>	7.1	19.5	16.6	19.7	19.8	21.5	16.6	14.5	12.5
<i>claims on the public sector (net)</i>	11.6	2.4	-6.0	-2.4	-4.1	-5.3	-6.0	-2.7	-0.5
Other assets (net) of the banking system	-7.2	-4.2	-4.4	-3.1	-3.8	-3.2	-4.4	-5.9	-5.1
<i>% of GDP, ESA 95</i>									
General government revenues	33.5	36.7	46.4	..	..	..	..	..	..
General government expenditures	40.4	39.4	47.8	..	..	..	..	..	..
General government balance	-6.9	-2.6	-1.4	..	..	..	..	..	..
Primary balance	-1.8	1.6	2.6	..	..	..	..	..	..
Gross public debt	45.5	39.4	37.9	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-17.7	16.1	12.9	20.4	3.3	17.4	12.3	17.7	30.4
Merchandise imports	-26.7	39.4	24.6	47.8	27.5	21.3	9.2	5.0	8.3
<i>% of GDP (based on EUR), period total</i>									
Trade balance	-4.0	-7.7	-11.5	-11.2	-12.8	-11.5	-10.4	-9.1	-9.3
Services balance	2.7	2.1	2.3	0.8	2.0	4.4	2.0	1.0	2.5
Income balance (factor services balance)	-1.3	-1.0	-1.0	-1.5	-0.8	-0.9	-0.8	-1.1	-0.9
Current transfers	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Current account balance	-2.3	-6.4	-10.0	-11.7	-11.5	-7.9	-8.9	-8.9	-7.5
Capital account balance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Foreign direct investment (net)	1.1	1.0	1.8	1.8	1.1	2.1	2.0	1.2	1.8
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	42.5	39.7	42.7	37.3	37.9	41.1	42.7	42.6	45.0
Gross official reserves (excluding gold)	11.1	11.0	10.9	10.7	11.3	11.4	10.9	10.7	11.6
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	5.4	4.9	4.0	4.5	4.6	4.4	4.0	3.9	4.2
<i>EUR million, period total</i>									
GDP at current prices	440,371	551,485	555,453	134,035	140,590	143,029	137,799	139,268	150,906

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

<sup>1</sup> Until April 2010: overnight borrowing rate; from May 2010: 1-week repo (lending) rate.

## 11 Russia: Growth Continues – But Pressures Increase

Russian growth forged ahead, supported by strong domestic demand and high oil prices

Russian GDP growth forged ahead in the first quarter of 2012 and slowed only slightly in the second quarter, producing an economic expansion of 4.5% for the first six months of the year. The strongest contributions to growth came from household consumption (backed by strong public sector wage increases prior to the presidential election of March 2012, swift retail credit growth and rapidly receding inflation) and gross fixed investment (taking over from inventory restocking, which apparently made a pause). Thus, buoyant domestic demand once again caused export growth to be outpaced by import growth. In the first eight months of the year, the Russian economy benefited from average oil prices that were slightly higher (+1.7%) than in the corresponding period of the previous year. However, weakening export demand, rising capacity utilization and swelling inflation put pressure on economic expansion in recent months.

From a post-Soviet low, inflation moved back up in the summer

CPI inflation fell to a post-Soviet low of 3.6% in April and May 2012, before moving back up to 6.6% in September. The record low was due to a combination of factors: the moderation of food price rises carried over from the bountiful harvest of 2011, the deceleration of money supply growth due to increased capital outflows and federal budget surpluses, and the election-related six-month delay of the annual adjustment of municipal tariffs that usually takes place in January. The sharp uptick of inflation from June is traceable to (1) the implementation of the tariff hike in mid-year, (2) the depreciation of the ruble in May and June 2012 (from end-April to end-June the ruble nominally lost about 12% against the U.S. dollar and 6% against the euro), and (3) a lower base of comparison for food prices in the summer months topped by a poorer harvest in 2012. High credit growth may also have contributed to inflationary pressure by fueling consumption and investment.

Owing to upward pressures on inflation, the CBR raised its key interest rates slightly

Given prospects for inflation to rise further in the coming months and thus possibly to exceed the Bank of Russia's annual inflation objective of 5%–6%, the CBR raised its key interest rates by 0.25% to 8.25% in mid-September. The CBR had abstained from heavy intervention during the downward pressures on the Russian currency in April and May, and it even widened the ruble's fluctuation corridor slightly in mid-July to provide greater exchange rate flexibility. Both policy measures were in line with its intended piecemeal move to inflation targeting.

Russia is experiencing a credit boom and continues to boast twin surpluses

As at end-June 2012, credit to the private sector had grown 21% year on year in real terms (exchange rate-adjusted). Bank deposits had increased by 11%. The high oil price and robust economic growth kept the federal budget in surplus of 1.4% of GDP in January–August 2012. The draft federal budget for 2013 and the planned 2014–15 period, submitted to the State Duma in early October, provides for deficits of 0.8% of GDP in 2013, 0.2% in 2014 and for balanced books in 2015. Due to the further slight improvement of the terms of trade and to the depreciation of the ruble in the second quarter, Russia's current account surplus rose to 6.6% of GDP in the first half year.

However, capital outflows are unrelenting

Private capital outflows are estimated to have reached EUR 41.9 billion in January–September 2012. This high outflow – including outward FDI – appears to be partly linked to Russia's massive earnings on energy exports. The country seems unable to offer adequate investment opportunities for all its inflows of money. At 31.9% of rolling four-quarter GDP in mid-2012, Russia's gross external debt remains at a quite manageable level, and at 28.4% of GDP in mid-2012, the CBR's gross reserves (excl. gold) continue to cover most of the country's gross foreign debt.

Table 11

**Main Economic Indicators: Russia**

	2009	2010	2011	Q1 11	Q2 11	Q3 11	Q4 11	Q1 12	Q2 12
<i>Year-on-year change of the period total in %</i>									
GDP at constant prices	-7.8	4.3	4.3	4.0	3.4	5.0	4.8	4.9	4.0
Private consumption	-5.1	5.1	6.7	6.0	6.0	7.1	7.6	7.1	6.5
Public consumption	-0.6	-1.4	1.5	1.7	1.5	1.5	1.4	-0.5	0.0
Gross fixed capital formation	-14.4	5.8	8.0	-0.6	4.9	7.9	13.2	15.0	7.9
Exports of goods and services	-4.7	7.0	0.4	-0.4	2.0	-1.5	1.4	4.4	-1.4
Imports of goods and services	-30.4	25.8	20.3	28.7	23.7	17.9	14.9	10.2	2.9
<i>Contribution to GDP growth in percentage points</i>									
Domestic demand	-13.1	7.0	7.9	7.9	7.1	9.1	7.3	5.2	4.8
Net exports of goods and services	5.2	-2.0	-3.9	-4.8	-3.8	-4.4	-2.9	-0.5	-1.1
Exports of goods and services	-1.5	2.3	0.1	-0.1	0.7	-0.5	0.5	1.5	-0.5
Imports of goods and services	6.7	-4.3	-4.1	-4.7	-4.5	-3.9	-3.3	-2.1	-0.7
<i>Year-on-year change of the period average in %</i>									
Unit labor costs in the whole economy (nominal, per hour)	..	..	..	..	..	..	..	..	..
Unit labor costs in industry (nominal, per person)	4.8	2.2	9.3	9.0	10.2	8.6	9.4	9.2	8.8
Labor productivity in industry (real, per person)	0.3	11.8	4.1	4.9	4.1	4.7	3.0	5.5	3.7
Average gross earnings in industry (nominal, per person)	4.8	14.7	13.8	14.4	14.7	13.7	12.7	15.2	12.9
Producer price index (PPI) in industry	-6.6	12.3	19.0	21.4	19.3	18.6	16.6	10.8	7.0
Consumer price index (here: CPI)	11.8	6.9	8.6	9.6	9.6	8.2	6.8	3.9	3.9
EUR per 1 RUB, + = RUB appreciation	-17.5	9.6	-1.5	3.3	-4.4	-3.9	-0.8	1.2	1.1
<i>Period average levels</i>									
Unemployment rate (ILO definition, %, 15–64 years)	8.4	7.5	6.6	7.5	6.6	6.2	6.3	6.5	5.5
Employment rate (%, 15–64 years)	..	..	..	..	..	..	..	..	..
Key interest rate per annum (%)	11.4	8.0	8.1	7.8	8.2	8.3	8.2	8.0	8.0
RUB per 1 EUR	44.1	40.3	40.9	40.0	40.3	41.2	42.1	39.5	39.8
<i>Nominal year-on-year change in the period-end stock in %</i>									
Broad money (including foreign currency deposits)	17.3	24.6	21.1	22.4	19.0	20.5	21.1	20.2	20.3
<i>Contributions to the year-on-year change of broad money in percentage points</i>									
Net foreign assets of the banking system	10.7	5.8	9.9	6.3	3.8	11.2	9.9	6.7	10.5
Domestic credit of the banking system	19.4	22.1	20.0	18.4	15.3	17.0	20.0	21.2	22.7
<i>of which: claims on the private sector</i>	2.9	12.4	24.5	15.2	16.5	23.7	24.5	24.8	26.9
<i>claims on households</i>	-2.8	3.1	6.4	3.5	4.5	5.8	6.4	7.8	8.8
<i>claims on enterprises</i>	5.6	9.3	18.1	11.6	12.1	17.9	18.1	17.0	18.0
<i>claims on the public sector (net)</i>	16.5	9.7	-4.6	3.2	-1.3	-6.6	-4.6	-3.6	-4.2
Other assets (net) of the banking system	-12.8	-3.3	-8.7	-2.2	-0.1	-7.8	-8.7	-7.8	-12.8
<i>% of GDP, ESA 95</i>									
General government revenues	35.0	34.8	38.2	..	..	..	..	..	..
General government expenditures	41.4	38.3	36.6	..	..	..	..	..	..
General government balance	-6.3	-3.5	1.6	..	..	..	..	..	..
Primary balance	..	..	..	..	..	..	..	..	..
Gross public debt	8.3	8.6	9.2	..	..	..	..	..	..
<i>Year-on-year change of the period total (based on EUR) in %</i>									
Merchandise exports	-32.4	39.8	24.2	24.1	20.9	22.0	29.2	21.4	10.8
Merchandise imports	-31.3	37.4	23.7	44.0	26.0	13.8	19.3	16.4	10.8
<i>% of GDP (based on EUR), period total</i>									
Trade balance	9.0	10.2	10.7	12.1	10.9	9.1	10.9	13.2	10.7
Services balance	-1.6	-2.0	-1.9	-1.6	-1.8	-2.3	-2.0	-1.6	-1.8
Income balance (factor services balance)	-3.3	-3.3	-3.2	-2.5	-4.5	-2.9	-3.1	-2.4	-4.2
Current transfers	-0.2	-0.2	-0.2	-0.2	0.1	-0.3	-0.2	-0.2	-0.1
Current account balance	3.9	4.7	5.4	7.8	4.7	3.6	5.7	9.0	4.5
Capital account balance	-0.9	0.0	0.0	0.0	0.0	0.0	0.0	-1.1	0.0
Foreign direct investment (net)	-0.6	-0.6	-0.8	-0.2	-1.5	0.2	-1.7	0.3	-2.1
<i>% of GDP (rolling four-quarter GDP, based on EUR), end of period</i>									
Gross external debt	36.9	32.6	31.6	30.4	30.4	30.6	31.6	30.6	31.9
Gross official reserves (excluding gold)	32.9	29.6	26.3	27.7	27.3	27.4	28.7	27.6	28.4
<i>Months of imports of goods and services</i>									
Gross official reserves (excluding gold)	19.2	16.3	14.2	15.1	14.6	14.8	15.4	14.8	15.3
<i>EUR million, period total</i>									
GDP at current prices	879,525	1,121,860	1,333,135	291,975	323,641	350,066	367,453	341,122	365,667

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

# Outlook for Selected CESEE Countries: Renewed Slowdown Followed by Modest Recovery<sup>1,2</sup>

## 1 CESEE-7<sup>3</sup>: Weak Domestic and External Demand Is Denting Growth in 2012, a Gradual Pickup Is Expected for 2013 and 2014

Weak euro area growth in the first half of 2012 and dim prospects for the remainder of the year will deeply affect the CESEE-7 region. After two years of moderately strong growth between 2% and 3%, GDP in the region will expand by only 1.2% in 2012. The growth contribution of domestic demand is decreasing in all countries (apart from Bulgaria), and the contribution of net exports is shrinking in the Czech Republic, Hungary, Romania and Bulgaria (turning negative in the latter) but rising in Poland. Growth is projected to pick up slightly to 2.2% in 2013 and 2.8% in 2014, backed by a moderate revival of domestic demand. Domestic demand will, however, still remain constrained by ongoing consolidation plans and weak labor markets. The contribution of net exports will diminish further as a result of anemic growth in the euro area.

The projections for the CESEE-7 countries continue to hinge strongly on growth developments in the euro area. Based on simulation results undertaken in 2011, a further reduction of euro area growth by ½ percentage point in both 2012

Table 1

### GDP and Import Projections for 2012–14

	GDP				Imports			
	2011	2012	2013	2014	2011	2012	2013	2014
	Year-on-year growth in %							
CESEE-7	3.1	1.2	2.2	2.8	7.7	1.0	4.1	5.9
Bulgaria	1.8	0.8	1.6	2.1	9.0	3.8	5.1	6.3
Czech Republic	1.7	-0.7	1.5	2.3	7.5	2.7	5.4	6.3
Hungary	1.7	-1.2	0.5	1.1	6.3	0.5	2.1	3.3
Poland	4.3	2.5	2.8	3.4	5.6	-0.8	3.9	7.5
Romania	2.1	0.8	2.4	2.7	11.4	1.1	3.1	3.5
Croatia	-0.2	-1.8	0.5	1.4	1.2	-1.5	1.1	2.9
Russia	4.3	3.7	3.7	3.4	20.0	10.0	5.0	5.0

Source: OeNB-BOFIT October 2012 projections, Eurostat, Rosstat.

Note: Bulgaria, the Czech Republic, Hungary, Latvia, Lithuania, Poland and Romania (=CESEE-7); seasonally adjusted data for 2011.

<sup>1</sup> Compiled by Julia Wörz with input from Stephan Barisitz, Martin Feldkircher, Mariya Hake, Mathias Lahnsteiner, Thomas Reiningger, Katharina Steiner, Jarmila Urvová and Zoltan Walko.

<sup>2</sup> Cutoff date for these projections: October 4, 2012. The OeNB and the Bank of Finland Institute for Economies in Transition (BOFIT) compile semiannual projections of economic developments in selected CESEE countries (Bulgaria, the Czech Republic, Hungary, Poland, Romania, Russia and Croatia). The projections for Russia are prepared by the Bank of Finland based on a SVAR model. While not explicitly covered, Latvia and Lithuania are included in the CESEE-7 aggregate based on the IMF World Economic Outlook (WEO) of October 2011. The projections draw on a broad range of information, including country-specific time series models for Bulgaria, Croatia, the Czech Republic, Hungary, Poland and Romania (for details on the OeNB's FORCE model, see Crespo Cuaresma et al. 2009. *Simple but Effective: The OeNB's Forecasting Model for Selected CESEE Countries*. In: *Focus on European Economic Integration* Q4/09. 84–95).

<sup>3</sup> The CESEE EU Member States that have not yet introduced the euro: Bulgaria, the Czech Republic, Hungary, Latvia, Lithuania, Poland and Romania.

and 2013 (compared with our baseline) would most likely dampen CESEE-7 growth to about 1% in 2012 and slightly below 2% in 2013.

Growth dynamics will remain uneven within the region over the forecasting horizon. The two Baltic states and Poland will continue to outperform the CESEE-7 region, followed by Romania from 2013 onward. GDP in the Czech Republic and Hungary will contract in 2012. In 2013, the Czech Republic and Bulgaria are expected to show a pickup in GDP growth to about 1.5%, and to slightly above 2% in 2014. Hungary will continue to lag behind and is projected to show only a weak recovery from -1.2% this year to 0.5% in 2013 and 1.1% in 2014. GDP growth will accelerate noticeably in all countries in 2013 (apart from Latvia, where growth will decelerate from 4.5% to 3.5% according to the IMF forecast) and become positive throughout the region. For 2014 we expect a flattening of growth dynamics, with the region growing by 2.8% that year. Even though growth rates in CESEE-7 will remain well below those recorded before the 2009 crisis, all countries in the region, apart from Hungary and Latvia, will have reached their precrisis GDP levels by 2014.

Turning to the CESEE-5<sup>4</sup> in greater detail, external as well as internal factors will dampen GDP growth considerably in 2012. Compared with the first half of 2012, the contribution of domestic demand to growth is expected to decline in the second half of the year in all countries with the exception of the Czech Republic, where the negative contribution will diminish. Given a gradual improvement in net exports, which has been primarily driven by stagnating or even falling import demand rather than by (still moderate) export dynamics, we expect the trough in growth dynamics to have been reached in mid-2012 (see chart 1). However, growth will not pick up before the beginning of 2013.

Lackluster external demand as implied by the current assumptions of a slight recession in the euro area in 2012, coupled with domestic factors that hold back growth in the region (e.g. ongoing consolidation efforts, tight credit and slack labor markets and country-specific domestic factors) will halve GDP growth in most countries as compared with 2011. In the Czech Republic and Hungary, GDP will even contract. Fiscal consolidation will dampen domestic demand in all countries. In Hungary, we also expect some negative influence on private consumption through the income tax reform; similarly, domestic demand will be affected negatively by tax increases in the Czech Republic. Private consumption will generally be dampened by falling real wages, deteriorating business and consumer sentiment and tight credit conditions in the region. Low credit growth is mainly seen as a result of low demand; in Hungary, supply-side factors also pose considerable constraints. The severe drought this summer will primarily affect Bulgaria and Romania, where agriculture still plays an important role. In Hungary, we expect some negative indirect influence through higher food prices during the remainder of the year.

Given historically low levels of capacity utilization in most countries under review, no strong impetus is expected from gross fixed capital formation (GFCF) in 2012. However, prospective developments across countries are again rather

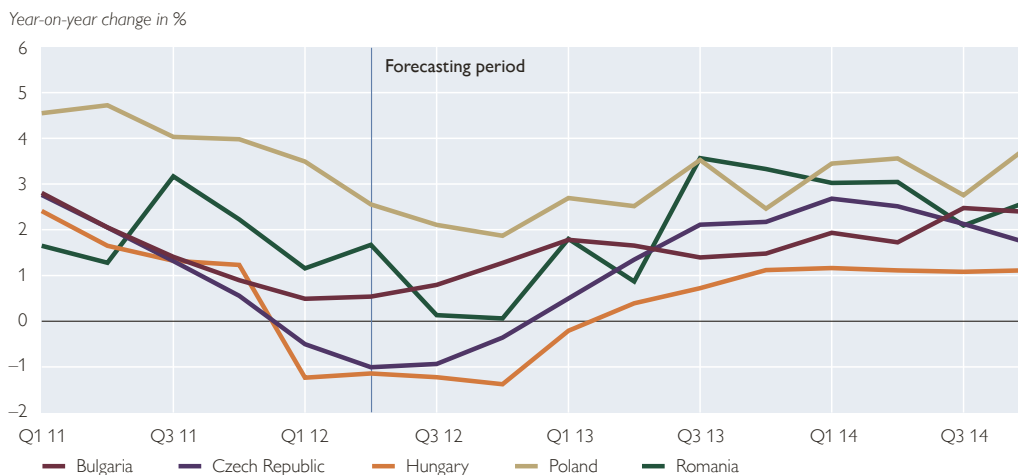
Different growth prospects for individual countries in the region prevail

Private demand still constrained by fiscal situation, tight credit and slack labor markets

EU-cofinanced investment will play an important role

<sup>4</sup> CESEE-5: Bulgaria, the Czech Republic, Hungary, Poland and Romania. Because these are the CESEE EU Member States for which we carry out our model-based forecasting, we present developments in this subregion in greater detail, both in a comparative perspective (in this section) and in country-by-country accounts in the subsequent section.

### CESEE-5: Quarterly Profile of GDP Projections



diverse: We expect GFCF to stagnate in Bulgaria and the Czech Republic, to fall further in Hungary and to expand at a lower rate than in 2011 in Poland. Romania is the only country that will show a pronounced rise in gross fixed capital formation in 2012, given the strong performance in the first half of the year. EU-cofinanced investment will play an important role in Romania and presumably also in Bulgaria. We expect the absorption of funds to increase significantly in both countries. Absorption of EU funds is low in Hungary, where such investment projects represent the only stable source of investments. In the Czech Republic, recently revealed problems concerning the use of EU funds will temporarily have a negative influence on absorption possibilities. In Poland, the 2012 European Football Championship kept up gross fixed capital formation growth in the first part of the year, but more recently a base effect has begun to kick in and will lead to a deceleration in 2013. Inventory restocking will also add to growth. In the Czech Republic, inventory restocking will continue to be subdued for lack of investments.

No growth impetus  
from external demand

Reflecting our external assumption about euro area growth in 2012, export and import growth rates are expected to fall markedly in 2012. The contribution of net exports is forecast to diminish in all countries except Poland, where imports are receding and slowing export growth remains in positive territory.

Domestic demand will  
revive growth again  
from the beginning of  
2013 onward

Growth rates will only rise again from the beginning of 2013, when domestic demand will start to slowly pick up and contribute positively to the growth rate of 2.2% for the CESEE-7 region as a whole. Growth drivers rest predominantly on domestic demand, in particular on private consumption. With no impetus from consumption or investments, Hungary will be the only country to rely practically exclusively on external demand, at least throughout 2013. Owing to the weak growth rate assumed for euro area imports in 2013 and 2014, exports and imports will recover modestly over the projection horizon. However, their joint growth contribution will decline further, turning more negative in Bulgaria and Romania and falling to zero in Poland in 2014.

Those currencies in the region that are floating are expected to continue their moderate nominal appreciation trend over the projection horizon. For Hungary, the conclusion of an agreement with the IMF will be crucial in this respect, as the forint is likely to weaken in the absence of such an arrangement.

The risks to this outlook continue to be tilted downward and result mainly from various spillover risks from the euro area crisis countries. For instance, direct spillovers from the euro area periphery to the CESEE-5 may occur through both the financial and the real channel. Alternatively, possible spillovers from the euro area periphery to the core may affect the CESEE-5 countries negatively through the trade channel. Finally, the risk of a turn in investor confidence remains, should the euro area crisis deepen, even if this does not seem imminent at the moment. Recent institutional steps within the euro area and improvements in the regulatory framework for the banking sector can be seen to reduce this risk. In addition to potential strains originating in the euro area, further negative repercussions could arise from the global economy. The possibility of a sharp fiscal correction in the U.S.A. (“fiscal cliff”) and the current slowdown of the recovery in Japan may dampen emerging countries’ growth on a global scale and thus create an environment for prolonged anemic growth in Europe.

On the other hand, swift political decisions leading toward the implementation of a European banking union, the avoidance of the fiscal cliff in the U.S.A. and a thus more favorable global economic development would pose upside risks to our projections.

Downside risks prevail

## 2 Bulgaria, the Czech Republic, Hungary, Poland and Romania – Developments Continue to Diverge

For 2012 and 2013, we forecast Bulgarian GDP to expand by 0.8% and 1.6%, respectively, on the back of recovering domestic demand. The downward revision in our forecast for 2012 stems from the meager recovery of investment activity (despite the substantial boost of changes in inventories during the first half of the year) and a slower-than-expected export performance. We expect fixed investment growth to enter positive territory in 2012 and to further accelerate in 2013 as a result of a base effect, but also on account of public infrastructure projects (cofinanced by EU funds) and slowly reviving credit growth and low interest rates. An additional stimulus could come from a better absorption of EU funds if the government’s efforts to improve Bulgaria’s low absorption rate are successful.

The fiscal restriction measures implemented by the Bulgarian government in 2011 (i.e. a freeze of public wages and lower public investment spending, aimed at lowering the public deficit to below 2% of GDP in 2012 and 2013) will keep public consumption growth negative in 2012. In contrast, public consumption may stagnate or even contribute positively in the parliamentary election year 2013. The recovery of private consumption in 2012 is still meager due to poor labor market conditions and weak consumer sentiment. However, the recent rise in public wages as well as the planned increase of minimum wages and pensions at the beginning of 2013 will provide a positive impetus. As a result of improved private consumption, import growth will outpace export growth, but both will slow down in 2012 compared with 2011. Provided that future developments of unit labor costs in the manufacturing sector do not dampen export growth, both exports and imports will pick up again in 2013 in line with the gradual revival of

Bulgaria: Rising wages  
will give a positive  
impetus

external demand. From 2012 onward, the contribution of net exports is projected to turn negative again.

In 2014, economic growth is expected to accelerate to 2.1%, with the composition of growth remaining broadly unchanged from 2013. On the back of the labor market recovery and increased EU funding, as well as the deferral of investments over the past few years, especially in the business sector, domestic demand will remain the main growth driver. Due to base effects, the growth of public consumption will be negative. Despite a modest improvement of external demand, the negative contribution of net exports will widen, as the moderate growth of domestic demand will keep imports comparatively high.

Czech Republic: Sharp downward revision of GDP growth

We revise our March forecast of Czech annual GDP growth for 2012 down to -0.7% from 0.3%. This revision is due to a larger-than-expected decline in all domestic demand components in the first half of 2012, most notably household consumption. As the factors affecting this decline – i.e. weak consumer sentiment and a contractionary fiscal stance – are currently even more pronounced than in March, we do not expect a reversal of this trend for the remainder of the year. For 2013 and 2014, we forecast a rebound in economic activity of 1.5% and 2.3%, respectively.

In 2012, net exports will represent the only positive growth contribution despite a substantially lower pace of both import (2.7%) and export (4.7%) growth than in the last two years. With growth in main export markets gradually reviving, exports will gain momentum in 2013 and 2014.

As the Czech Republic remains subject to the Excessive Deficit Procedure, fiscal consolidation will continue into 2013, weighing on public consumption and investment. In addition to fiscal austerity, a sluggish labor market and general uncertainty about further economic development – currently reflected in almost record-low levels of consumer confidence indicators and increasing saving rates – will continue to drag household consumption down. This trend will not start to reverse until 2013, with higher growth in 2014, which will push imports up as well.

A bank lending survey recently embarked on by the Czech National Bank revealed that banks expect both credit supply conditions and credit demand of nonfinancial corporations to worsen. Furthermore, declining demand for loans for financing fixed investment was observed, whereas demand for loans taken out to finance working capital increased. This, together with the slowdown in both external and domestic demand as well as cutbacks in public investments, will drive down gross fixed capital formation in 2012. In 2013 and 2014, along with a slowly reviving external environment and increased household consumption, fixed investment will enter positive territory.

Reflecting these domestic and external economic developments, the Czech koruna is expected to slightly appreciate in nominal terms against the euro over the next two and a half years, even though in a shorter term, temporary depreciation is likely.

Apart from external factors, growing political instability, which could potentially result in the government's failure to meet its consolidation targets, poses a downside risk to our projection through a further increase in uncertainty.

Hungary: No discernible growth impetus

We expect Hungarian GDP to contract by 1.2% in 2012 and to expand only by a minimal 0.5% in 2013. A somewhat stronger expansion of 1.1% is expected for 2014. The downward revision of our forecast for 2012 was motivated by a weaker-

than-originally-expected export performance, the unabated decline in investment activity and substantial destocking during the first half of the year. Private consumption has been dragged down by poor labor market conditions, decreasing net real wages, tight credit conditions and weak consumer sentiment, and has contracted despite the reduction of the personal income tax burden from the beginning of 2012 and the policy measures implemented to lower households' foreign currency debt service obligations, such as early repayment of foreign currency mortgage loans and a temporary exchange rate fixation scheme for foreign currency mortgage loans.

Net real exports are expected to remain the sole engine for growth both in 2012 and 2013. In both years, external demand and domestic import demand will be weaker than previously expected. While exports should benefit from the recovery of external conditions from 2013 onward, the recovery of domestic demand and appreciation of the real effective exchange rate will likely lead to a somewhat smaller contribution of net real exports.

A recovery of private consumption is expected for 2014 on the back of an improving labor market, modest increases in real wages and the gradual easing of tight lending conditions. Government consumption is expected to be adversely affected by the government's fiscal consolidation and public sector rationalization efforts throughout 2013, while it may stagnate in the election year 2014. Investment activity is likely to remain constrained by the weak domestic and international cyclical outlook, tight credit conditions and frequent changes in the business environment. Nevertheless, an improvement in external demand and credit conditions, increased funding from the EU and the postponement of investments over the past few years are likely to start supporting investment activity in 2014.

In Poland, we forecast GDP growth to reach 2.5% in 2012, after a substantial slowdown from the previous year's growth rate of 4.3%, and then to slightly accelerate to 2.8% in 2013 and 3.4% in 2014. In 2012, economic recession in the euro area, coupled with stagnating euro area imports, will lead to a slowdown of Polish exports. However, sizeable improvements in external price competitiveness (resulting from currency depreciations and reductions in manufacturing unit labor costs) in previous years will cushion the impact of stagnating foreign demand, some zloty appreciation against the euro during 2012 notwithstanding. Turning to domestic demand, the fading-out of public nonresidential construction in connection with the 2012 European Football Championship implies a negative base effect in the second half of 2012 (and in the first half of 2013) that will dampen GFCF growth. Mortgage lending for households' residential building continues to be a supporting factor for gross fixed capital formation, but considerably less so than before. Weak foreign demand will dampen both fixed investment and the buildup of inventories. As a result, the contribution of total capital formation to growth in 2012 will be even slightly negative, after it had amounted to about 2 percentage points in 2011. At the same time, slower employment growth and very small real wage growth as well as fiscal consolidation are dampening private consumption growth. As a result of the strong export-import link and weaker domestic demand growth, imports will probably contract slightly, leading to a doubling of net exports' positive contribution to GDP growth.

In 2013, the slight pickup of GDP growth to 2.8% will be driven primarily by the recovery of euro area demand. As a result of increased competitiveness, export

Poland: Gains in price competitiveness constrained by weak environment

growth will accelerate markedly. By contrast, GFCF growth will initially continue to suffer from the negative base effect mentioned earlier. It will, however, pick up speed in the second half of the year, on the back of revived foreign demand, further EU-cofinanced investments, strong liquidity positions and sufficient credit supply, which will in particular stimulate private corporate investment. In parallel, the decrease in inventory buildup will come to an end. However, consumption growth will hardly speed up, given further fiscal consolidation and the delay in the effects from foreign demand and fixed investment. Previously pent-up demand, the strong export-import link and the change in the inventory cycle linked to the improved outlook will increase imports to such an extent that net exports' positive contribution to growth will moderately decline despite substantially accelerated export growth.

Romania: Growth will be driven by strong domestic demand

In Romania, quarter-on-quarter GDP growth accelerated to 0.5% in the second quarter of 2012 from 0.1% in the first quarter. However, this year's severe drought will adversely impact agricultural output, the negative contribution being more sizeable than expected in our March 2012 projection. Against this background and given the weak external environment, the third quarter is likely to show a contraction in quarter-on-quarter terms, thus pushing GDP growth down to 0.8% for 2012 as a whole. Growth will revive in 2013 and 2014 to 2.4% and 2.7%, respectively.

With growth having been driven by private consumption and gross fixed capital formation in the first half of 2012, we expect the growth structure to remain broadly unchanged in the second half of 2012 and in 2013. Private consumption will be supported by recent and anticipated real wage increases. Public sector wages were hiked by 8% in June and will be increased by a further 7.4% in December. In summer, retail sales continued to grow despite weakening consumer sentiment. We also expect GFCF to continue its recovery. However, construction activity weakened in June and July, which may point to a deceleration of GFCF growth. The outcome of the parliamentary elections in December will be crucial for the further trajectory of economic developments. If political instability continues, this could result in a depreciation of the leu, which would negatively affect investor sentiment and investments as well as private consumption through the confidence channel and through balance sheet effects. Over the projection horizon, Romania will, however, increase its access to EU funds, which will have a positive impact on investments despite persistently tight credit conditions.

In the short term, weak external demand and unfavorable developments of unit labor costs in the manufacturing sector will impair export growth. In line with the gradual and modest revival of external demand over the projection horizon, we expect exports to pick up only slightly in the latter half of 2013. Due to the continued recovery of domestic demand, imports will show somewhat stronger growth but still remain weak in a historical perspective. In the coming years, the contribution of net exports is unlikely to become positive, as net FDI inflows have been low and hardly any export capacities have been built up in recent years.

### 3 Croatia: Sagging Domestic Demand Continues to Depress Economic Activity

Structural weaknesses cause renewed recession in 2012

In the second half of 2012, economic conditions in Croatia are expected to remain depressed in view of poor labor market conditions, the ongoing need to restructure

households' and companies' finances and weak economic sentiment. Following stagnation in 2011, we expect GDP to decline by 1.8% in 2012. In particular, private consumption will continue to recede due to persistent structural problems. Simultaneously, the necessary consolidation of public finances will put a strain on public consumption. Given the gloomy economic environment, investments will further decline. In combination with strongly falling private consumption, this will also bring down imports. As exports will decline more slowly than imports, the contribution of net exports to GDP growth will remain slightly positive in 2012.

In 2013, GDP growth is expected to remain subdued at 0.5% owing to depressed economic activity at the beginning of the year, followed by some positive signs of economic easing thereafter. Private consumption will remain weak due to ongoing structural problems, but will slightly pick up in the course of 2013 thanks to base effects due to the VAT hike and positive consumer sentiment related to EU accession on July 1, 2013. There will be no leeway for public consumption to strengthen GDP growth as consolidation needs remain. By contrast, investments in the private sector are expected to revive after having contracted for many years, whereas destocking will weigh on GDP growth in view of low industrial production and a slight recovery in domestic and external demand. The latter will additionally contribute to positive import growth, whereas exports will recover more slowly, resulting in a minor negative contribution of net exports to GDP growth in 2013.

In 2014, economic activity is expected to pick up, with GDP growth amounting to 1.4%. The main growth drivers will be private consumption, provided that structural problems are addressed by policymakers and that investments gain ground. Public consumption, on the other hand, will remain depressed. External demand is expected to improve modestly. However, the outlook for domestic consumption is also seen to improve, which will drive imports. The contribution of net exports to GDP growth will thus remain negative and prevent a more vivid recovery.

This forecast is subject to risks similar to those mentioned for the CESEE-7: Negative spillovers from the euro area as well as negative global repercussions (in case the fiscal cliff in the U.S.A. materializes) outweigh potential positive risks from a better-than-expected global recovery or from the benefits resulting from additional reforms in the euro area.

#### 4 Russia: Economic Expansion Affected by Weaker External Environment

GDP growth in Russia is anticipated to slow to 3.7% for 2012 as a whole. Downward effects stem from the heightened uncertainty in the global economy and trade, a leveling-off of the oil price,<sup>5</sup> and a drought-stricken harvest (following a 2011 bumper harvest). Upward effects emanate from increased government expenditure (mostly hikes of public sector wages and social spending in the run-up to the presidential election of March 2012). In 2013 and 2014, the downward impact of the slightly declining oil price will continue. However, economic growth

EU accession will only have a moderate impact on growth

Oil price stabilization attenuates growth in Russia

<sup>5</sup> Compared with the 2011 average, the oil price is expected to decrease by less than 10% until end-2014, based on oil futures.

in 2013 should keep up with the pace of 2012, as it is expected to be supported by a recovery of the global economy and by a normalization of Russian farm output. For 2014, we foresee no particular forces that might offset the further weakening of the oil price, which explains the expected slight dip in the growth rate (to 3.4%).

Private consumption (which accounts for about half of GDP) will remain the main driver of economic growth and import expansion. However, there are signs that rapid consumption growth is abating as households' expectations have become somewhat less optimistic. Corporate fixed investment is still at a level slightly below the precrisis peak of 2008, but a reinvigoration of capital formation is hampered by economic uncertainty. In 2013 and 2014 though, fixed investment growth should return as uncertainties in the global economy subside. Rising demand will also start calling for larger additions to capacity. The low growth of export volumes is projected to continue in the forecasting period. Exports of crude oil and petroleum products remain limited by constrained production growth, while domestic demand for these goods is growing briskly. Growth estimates of Russian gas exports have been revised down, given mounting competition from the production of shale gas and the transportation of gas in liquefied form.

Import growth will  
recede

We forecast import growth levels substantially below those experienced during the swift post-recession recovery (when the usual propensity of Russia's GDP growth to feed into imports was vastly surpassed). Still, due to the jump in imports early this year, import growth is expected to reach about 10% in 2012. In 2013 and 2014, it should settle to about 5%.

Our forecast for Russia is – like our projections for the CESEE-7 and Croatia – mostly saddled with downside risks. These risks mainly relate to uncertainty in the global economy. An aggravation of looming problems could affect global demand and depress oil prices and thereby the volume of Russian exports. However, global oil supplies are also tied to uncertainties that harbor the possibility of an oil price rise that would benefit Russia. A deterioration of the global economy could impair Russian consumer confidence and delay the anticipated strengthening of fixed investments.

Studies

# How Sustainable Are Public Debt Levels in Emerging Europe?

## Evidence for Selected CESEE Countries from a Stochastic Debt Sustainability Analysis

Markus Eller,  
Jarmila Urvová<sup>1,2</sup>

*To assess to which extent public debt positions in four CESEE economies (the Czech Republic, Hungary, Poland and Slovakia) are sustainable in the medium term, we apply a stochastic debt sustainability analysis (SDSA), building on Celasun, Debrun and Ostry (2007). In contrast to conventional debt sustainability analyses, this approach explicitly accounts for the risks surrounding medium-term debt dynamics, e.g. risks stemming from the interaction of (endogenously determined) fiscal and macroeconomic shocks. This is one of the first papers explicitly applying an SDSA to countries in emerging Europe. The baseline projections suggest that, on average, public debt would not get out of control in any of the four countries until 2016. However, when we also account for the risks around the median projection, the primary balance is apparently not responsive enough (with regard to public debt) so that increasing debt paths cover a considerable share of the overall frequency distribution. The probability of reaching, in 2016, a higher debt-to-GDP ratio than in 2011 is largest in the Czech Republic and Slovakia and less pronounced in Hungary and Poland. When confronting the baseline projections with alternative policy scenarios, we can confirm the importance of a timely and continuous response to debt developments; otherwise public debt will quickly get out of control. Furthermore, compliance with the defined Stability and Convergence Programme targets limits the overall risks to the debt outturns.*

*JEL classification: C54, E62, H63, H68, E62, P2*

*Keywords: Public debt sustainability, fiscal reaction function, fan charts, stochastic simulations, public debt forecast, Central and Eastern Europe*

### 1 Motivation and Background

In the face of the ongoing sovereign debt crisis in Europe, the sustainability of public finances has recently taken center stage in economics. The rapid buildup of government debt in an environment of financial instability and low growth has increased the need for a reliable and comprehensive assessment of government debt sustainability. This does not only hold for euro area countries, which are clearly the focus of today's policy discussion, but also for countries in Central, Eastern and Southeastern Europe (CESEE). Empirical literature shows that sovereign debt levels tolerated by – in particular foreign – investors are lower for emerging countries than for advanced countries. According to the IMF (2003), public debt was below 60% of GDP in every second sovereign default case recorded in emerging market economies in the past.

Conceptually, debt sustainability is given as long as debt does not accumulate at a rate considerably exceeding the government's capacity to service it (without

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implausibly large policy adjustments, renegotiating or defaulting; see Ostry et al., 2010). Thus, the accumulated government debt has to be serviced at any point in time, which requires governments to be both solvent and liquid. A country faced with increasing difficulties in accessing financial markets in the short term could encounter debt sustainability problems over the medium term, as higher bond yields will gradually increase the cost of servicing debt. Before the outbreak of the global financial crisis, debt levels of CESEE countries were indeed comparatively low and thus seemed manageable. Then, debt, however, quickly rose to unexpectedly high levels (see table A1 in the annex). As foreign investors changed their risk assessment in the wake of the collapse of Lehman Brothers, some CESEE countries, such as Hungary, Latvia or Romania, even lost market access and had to resort to the IMF and the EU for multilateral assistance (see Eller, Mooslechner and Ritzberger-Grünwald, 2012).

Depending on the chosen time horizon, the literature distinguishes between three different forward-looking approaches to measuring debt sustainability: (1) short-term approaches, where refinancing profiles are examined to assess liquidity and roll-over risks; (2) medium-term approaches, where both debt trajectories and changes in these trajectories under different scenarios are projected for about 5 to 15 years ahead; and (3) long-term approaches, where sustainability gaps are calculated for several decades ahead and the budgetary impact of demographic changes, such as aging societies (e.g. Balassone et al., 2011) is examined. For our analysis, we chose to implement a medium-term methodology.

Among the class of medium-term approaches, “conventional” (deterministic) debt sustainability analysis (DSA) has become a core element of enhanced country surveillance (contained in the IMF’s Article IV staff reports). This type of analysis is, however, mainly an accounting exercise based on the standard debt accumulation equation. As such it is subject to several limitations. For instance, the standard debt accumulation equation abstracts from interdependencies between its key determinants: GDP growth, interest rates and primary balances. This can lead to an underestimation of the risks to the projected debt path, as was also pointed out by the IMF (2008) itself.<sup>3</sup> Moreover, medium-term debt trajectories are surrounded by a high degree of uncertainty, which in the conventional DSA is usually not taken into account. Stochastic approaches, as developed by Celasun, Debrun and Ostry (2007), capture the interaction among the determinants of public debt dynamics and are meant to enhance the understanding of the risks and their magnitude surrounding medium-term debt projections. This way, the probabilistic nature of debt sustainability analysis exercises is explicitly acknowledged. Within a stochastic approach, the reference (baseline) scenario is illustrated in fan charts, which depict confidence bands for varying degrees of uncertainty around the median projection. The confidence bands are wider for countries for which uncertainty about medium-term debt developments is higher than for countries with a more muted risk of debt sustainability. In the same vein, fan charts make it possible to quantify the probability that the debt ratio will turn out higher or lower than a certain value.

<sup>3</sup> “It is important to emphasize that the results are not full-fledged scenarios, as there is no interaction among variables. [...] This implies the need to interpret the stress tests with a grain of salt.” (IMF, 2008, p. 6).

We believe that the stochastic debt sustainability analysis (SDSA) approach is especially suitable for the CESEE countries. Like other emerging market economies (see Alvarado, Izquierdo and Panizza, 2004), they are subject to a considerably volatile economic environment (e.g. due to sudden stops and goes of external financing). Such an environment has immediate consequences for the government budget (e.g. revenue windfalls during boom years) and translates into a higher degree of uncertainty of the public debt sustainability assessment. We thus build on the work by Celasun, Debrun and Ostry (2007) and produce an SDSA for four CESEE economies: the Czech Republic, Hungary, Poland and Slovakia. Except for Medeiros (2012), who provided some evidence for Poland, Slovakia and Slovenia, we have not yet found a paper with an application of the SDSA framework to CESEE economies.

In line with Celasun, Debrun and Ostry (2007), we combine the estimation of a fiscal reaction function (primary balance as a function of debt and output gap) with the estimation of an unrestricted VAR model for nonfiscal macroeconomic variables to come up with debt path projections. The baseline projection of the debt-to-GDP ratio is subject to both random fiscal and macro shocks. Thus, fiscal policymakers can react to macro shocks endogenously. Frequency distributions of the debt ratio can then be obtained for each year of projection and used to draw fan charts. Besides applying this framework to CESEE countries, we try to add to the existing literature by (1) confronting the baseline projections with various alternative policy scenarios (essentially different types of fiscal policy response), (2) experimenting with additional determinants in the fiscal reaction function and (3) carefully addressing, in the VAR model, the properties of the underlying time series, in particular their nonstationarity.

The remainder of this paper is structured as follows: Section 2 defines debt sustainability and delineates the building blocks of the chosen SDSA framework. Section 3 shows the empirical specification and the results for the estimation of the fiscal reaction function. Section 4 discusses the structure and the selection of the VAR model for the nonfiscal macroeconomic determinants of public debt dynamics. By means of fan charts, section 5 illustrates the core results of our paper: the projected public debt paths for the four CESEE economies until 2016 under different scenarios. Section 6 stresses some caveats related to the SDSA approach and points to the need for further research in the field. Finally, the basic findings and their implications for policymaking are summarized in section 7. Definitions and sources of the data used in sections 3 and 4 are shown in the annex (tables A2.1 and A2.2).

## **2 Definition of Debt Sustainability and Description of the Chosen Methodological Framework**

First of all, we need a definition of debt sustainability in our setting and a description of the building blocks of the applied SDSA framework to provide a methodological anchor for the results presented in the subsequent sections.

## 2.1 Definition of Debt Sustainability

Consider the following law of motion for the evolution of public debt over time:

$$D_t = (1 + i_t)D_{t-1} - PB_t + S_t \quad (1)$$

where  $D_t$  is the stock of public debt maturing at the end of period  $t$ ,  $i_t$  denotes the one-period nominal interest rate,  $PB_t = R_t - G_t$  is the primary balance (the difference between total government revenues and noninterest government spending), and  $S_t$  represents stock-flow adjustments (e.g. contingent liabilities or extra revenue stemming from privatizations).

Assuming that  $S_t = \theta^t$  and dividing equation (1) by nominal GDP (price level times real GDP) yields:

$$\frac{D_t}{P_t Y_t} = \frac{(1 + i_t)}{(1 + \pi_t)(1 + g_t)} \frac{D_{t-1}}{P_{t-1} Y_{t-1}} - \frac{PB_t}{P_t Y_t} = d_t = \frac{(1 + r_t)}{(1 + g_t)} d_{t-1} - p_t \quad (2)$$

where  $d_t$  is the debt-to-GDP ratio,  $p_t$  is the primary balance-to-GDP ratio,  $r_t$  is the real interest rate,  $\pi_t$  is the inflation rate and  $g_t$  is the real GDP growth rate. Under the assumption that  $r_t$ ,  $g_t$  and  $p_t$  remain constant over time, it is evident from equation (2) that the debt-to-GDP ratio remains stable as long as

$$\theta = \frac{(1 + r)}{(1 + g)} \leq 1.$$

If  $\theta > 1$ , i.e.  $r > g$  (the often-quoted positive interest-growth differential), a sufficiently positive primary balance-to-GDP ratio is needed to keep the debt ratio stable.<sup>5</sup> Because the assumption of constant variables over time is not very realistic, our approach allows for stochastic changes in these variables during the forecasting horizon.

Strict debt sustainability would require, first, that debt is repaid in the very end, i.e.

$$\lim_{t \rightarrow \infty} E(d_t) = 0$$

(no-Ponzi-game condition) and, second, that in a stochastic world the distribution of all possible realizations of  $d_t$  does not exceed any finite limit, i.e. the expected variance of  $d_t$  is asymptotically finite

$$\lim_{t \rightarrow \infty} E(\sigma_{d_t}^2) < \infty.$$

<sup>4</sup> Table A3 shows that stock-flow adjustments in the four CESEE countries under investigation are on average comparatively small. However, they are also rather erratic over time. It would thus be important to capture that in the debt projections as well (if respective data were available). In section 6, in an alternative policy scenario (Structural and Convergence Programme targets), we account for planned stock-flow adjustments in those countries for which we have the respective information.

<sup>5</sup> Interestingly, as can be seen from table A1, of the four countries under review, only Hungary managed to produce primary surpluses in years with a positive interest-growth differential. Despite the sizeable positive interest-growth differential, there was still a considerable primary balance deficit in the Czech Republic in the years 1997–99, 2002 and 2009, in Poland from 2001 until 2003 and in Slovakia in the years 1997–99 and 2009. It is also evident from table A1 that the debt-to-GDP ratio increased quite strongly during these years of a mismatch between  $p_t$  and  $r_t - g_t$ .

Unfortunately, these definitions are not very useful in empirical applications, as it is not possible to make forecasts over an infinite horizon. Ferrucci and Penalver (2003) thus proposed a weaker definition: Debt is sustainable as long as there is a reasonably high probability that  $d_t$  is *not* higher at the end of the forecast horizon than at the beginning. When interpreting our results in section 5, we follow this reasoning and show the probabilities of exceeding a given debt value by 2016.

## 2.2 Building Blocks of the SDSA Framework

The SDSA framework consists of three building blocks: a fiscal reaction function, a VAR model and the traditional debt accounting identity. The first and the last block use annual data, as reliable fiscal accrual variables and control variables in the fiscal reaction function (e.g. institutional variables) are more readily available on an annual basis. The VAR model, on the other hand, works with quarterly macroeconomic data, which are annualized before entering the debt identity. This feature makes the framework suitable for emerging market economies, as for these countries the available economic time series are often short. Utilizing higher-frequency data thus helps overcome this problem to a certain extent. In this section, we briefly discuss each of the three building blocks and follow the notation of Celasun, Debrun and Ostry (2007).

### 2.2.1 Debt-Deficit Stock-Flow Identity

To account for the considerable share of public debt denominated in foreign currency in the countries under investigation, we rewrite equation (2) for a sovereign issuing bonds in foreign currency:

$$d_t \equiv (1 + g_t)^{-1} \left[ (1 + r_t^f)(1 + \Delta z_t) d_{t-1}^f + (1 + r_t) d_{t-1}^d \right] - p_t \quad (3)$$

where, besides the notation already explained for equation (2),  $r_t^f$  denotes the real foreign interest rate,  $r_t$  the real domestic interest rate,  $\Delta z_t$  is the rate of depreciation of the (log of the) real effective exchange rate,  $d_{t-1}^f$  is the foreign currency-denominated debt-to-GDP ratio<sup>6</sup> and  $d_{t-1}^d$  captures debt denominated in domestic currency.

To come up with a projection of  $d_t$  for future periods (our forecasts run from 2012 to 2016), we first need to obtain projections of the underlying debt identity variables in equation (3). In the SDSA framework, forecasts of the primary balance are obtained through a fiscal reaction function and forecasts of the macroeconomic variables  $r_t^f, r_t, g_t, \Delta z_t$  are obtained through a VAR model.

### 2.2.2 Fiscal Reaction Function (FRF)

The fiscal reaction function endogenizes fiscal policy so that the policymaker reacts to the business cycle, past level of debt and a set of controls (e.g. inflation or the election cycle). Policy persistence is captured by the lagged primary balance term on the right-hand side. Fiscal policy thus becomes a source of uncertainty

<sup>6</sup> When generating the debt simulations, we take for each year in the forecasting period the average share of foreign currency-denominated public debt in total public debt in the years 2010 and 2011.

about the debt level, in as much as it deviates from the behavior predicted by the FRF. We estimate the reaction function as follows:

$$p_{i,t} = \alpha_0 + \delta p_{i,t-1} + \rho d_{i,t-1} + \sum_{k=0}^1 \gamma_k og_{i,t-k} + X_{i,t} \beta + \eta_i + \varepsilon_{i,t} \quad (4)$$

$$t = 1, \dots, T, \quad i = 1, \dots, N$$

where  $p_{i,t}$  is the ratio of the primary balance to GDP in country  $i$  and year  $t$ ,  $d_{i,t-1}$  is the public debt-to-GDP ratio observed at the end of the previous year,  $og_{i,t}$  is the output gap,  $\eta_i$  is an unobserved country fixed effect,  $X_{i,t}$  is a vector of control variables and  $\varepsilon_{i,t} \sim iid(0, \sigma_\varepsilon^2)$ .

### 2.2.3 Simulated Forecasts of the Primary Balance

The estimated FRF is used to generate forecasts of the primary balance for the period 2012 to 2016, which are obtained as follows:

$$\hat{p}_{i,t+\tau} = A_{i,t+\tau} + \hat{\delta} p_{i,t+\tau-1} + \hat{\rho} d_{i,t+\tau-1} + \sum_{k=0}^1 \hat{\gamma}_k og_{i,t+\tau-k} + \varphi_{i,t+\tau} \quad (4.1)$$

$$\tau = 1, \dots, 5$$

$$A_{i,t+\tau} = \hat{p}_{i,t} - \hat{\delta} p_{i,t-1} - \hat{\rho} d_{i,t-1} - \sum_{k=0}^1 \hat{\gamma}_k og_{i,t-k} = \hat{\alpha}_0 + X_{i,t} \hat{\beta} + \hat{\eta}_i \quad (4.1.1)$$

$$\varphi_{i,t+\tau} = \sigma_{(\eta_i + \varepsilon_{i,t})}^2 v_{t+\tau} \quad (4.1.2)$$

$$v_{t+\tau} \sim N(0, 1) \text{ and } \varphi_{i,t+\tau} \sim N\left(0, \sigma_{(\eta_i + \varepsilon_{i,t})}^2\right) \quad (4.1.3)$$

$A_{i,t+\tau}$  captures the impact of all determinants of the primary surplus other than the lagged primary balance, lagged debt and the output gap and represents a country-specific constant component of the primary balance.

$\varphi_{i,t+\tau}$  is a random draw from a set of 1,000 shocks with a mean-zero normal distribution and a variance equal to the country-specific variance of the FRF residuals ( $\eta_i + \varepsilon_{i,t}$ ).<sup>7</sup> A set of 1,000 forecasts of the primary balance, in line with these stochastic shocks, is generated from equation (4.1).

Note that the primary balance forecasts also depend on future realizations of the output gap, which, in turn, are affected by the macroeconomic shocks obtained with the VAR model. This implies that the fiscal policymaker responds to macro shocks during the forecasting horizon; in contrast to the deterministic DSA, we therefore allow for an endogenous fiscal policy.

<sup>7</sup> If stock-flow adjustments materialized in the past, they are captured as part of  $\varepsilon_{i,t}$  and thus affect the variability of the fiscal shocks. This implies that past stock-flow adjustments still translate to a certain extent into projected primary balances and thus projected debt levels.

### 2.2.4 Unrestricted VAR Model for Nonfiscal Determinants of Public Debt Dynamics

For each country, a VAR model with the macroeconomic determinants of the debt dynamics is estimated based on quarterly data:

$$Y_t = \gamma_0 + \sum_{k=1}^p \gamma_k Y_{t-k} + \xi_t \quad (5)$$

where  $Y_t = (r_t^f, r_t, g_t, \Delta z_t)$ ,  $\gamma_k$  is a vector of coefficients and  $\xi_t \sim N(0, \Omega)$  is a vector of well-behaved error terms with a variance-covariance matrix  $\Omega$ .

### 2.2.5 Simulated Forecasts of the Macroeconomic Variables from the VAR Model

Based on the variance-covariance matrix  $\Omega$  of the VAR model, a sequence of 1,000 random vectors  $\xi_t$  is generated in a similar vein as in the FRF simulations. Thus, the sequence of random vectors corresponds to  $\xi_{t+\tau} = Wv_{t+\tau}$ ,  $\forall \tau \in [t+1, T]$ , where  $v_{t+\tau} \sim N(0, I)$  and  $\Omega = W'W$  ( $v_{t+\tau}$  is a random draw from a standard normal distribution and  $W$  is the Choleski factorization of  $\Omega$ ). Consequently, a set of 1,000 forecasts of the macroeconomic variables is generated by the VAR model such that a joint dynamic response of the variables is warranted.

$$\widehat{Y}_{t+\tau} = \widehat{\gamma}_0 + \widehat{\gamma}_1 Y_{t+\tau-1} + \widehat{\xi}_{t+\tau} \quad (5.1)$$

$\tau=1, \dots, 5$

The projections of the macroeconomic variables that contain the stochastic shocks are then annualized and – together with the primary balance forecasts containing fiscal stochastic shocks – enter the debt-deficit stock-flow identity to generate the debt projections.

## 3 Average Fiscal Policy Patterns: Fiscal Reaction Function

The main goal of estimating the fiscal reaction function (equation (4)) lies in obtaining a prediction of the primary budget balance-to-GDP ratio. We estimate the FRF for a panel of eight CESEE countries (CESEE-8: Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia) and a maximum of 17 years (1995–2011).<sup>8</sup> For the FRF estimation, we use a – compared with the whole SDSA exercise – broader sample of rather homogeneous countries (in line with Staehr, 2008; Abiad and Ostry, 2005; or Ostry et al., 2010) to address the lack of sufficiently long fiscal time series in the countries under consideration.

### 3.1 Empirical Specification of the Fiscal Reaction Function

The fiscal reaction function shows the response of the primary budget balance-to-GDP ratio<sup>9</sup> to a set of macroeconomic and institutional variables, of which the

<sup>8</sup> To account for the problem of data outliers, we corrected the 2011 primary balance of Hungary for one-off measures, which – according to the Convergence Programme submitted to the European Commission – amounted to 9.4% of GDP.

<sup>9</sup> In line with the existing literature (e.g. Bohn, 1998, or Ostry et al., 2010), we use the overall primary balance, and not the cyclically adjusted one, as dependent variable given that the unadjusted primary balance is relevant for calculating the debt evolution. This has, of course, the drawback that we cannot disentangle the policymaker's direct reaction – i.e. discretionary part – from budgetary items changing automatically due to business cycle fluctuations (automatic stabilizers).

debt-to-GDP ratio and the output gap are the most important ones. A positive response of the primary balance to lagged debt can be expected if buoyant debt dynamics are corrected. If the primary balance were related positively to the output gap, favorable economic developments would improve the budgetary position of a country (e.g. via boom-induced revenue windfalls) – indicating a countercyclical fiscal response. By contrast, a negative coefficient would indicate a procyclical, and an insignificant coefficient an acyclical fiscal response. We included lagged output gaps to account for any persistent impact of recessions and booms.

To better explain the evolution of – and thus to improve – the fit of the primary balance ratio, we experimented with the inclusion of various additional explanatory variables, which might induce a reaction by the fiscal policymaker or determine the surplus-generating capacities of a country. Obvious candidates are: (1) the lagged primary balance to account for policy persistence; (2) the inflation rate; (3) the quality of fiscal institutions, existing fiscal rules; (4) political events like elections: different types of election dummies<sup>10</sup>; (5) foreign business cycle shocks (either via trade openness or via the growth differential vis-à-vis the main trading partners); or (6) other factors such as revenue windfalls, natural disasters, large-scale infrastructure investments, social security reforms. We included a variety of these control variables in several robustness checks. (1) and (2) remained robust across various specifications. For (3) to (5) we included several indicators, which, as they did not turn out to be significant, are not included in the final estimations (e.g., elections showed the expected negative sign but were only significant at the 80% level). Ideally, one would also include data or proxies for (6), but due to data constraints, we had to abstain so far from doing so.

We depart from Celasun, Debrun and Ostry (2007) by including the lagged primary balance, lagged output gaps or the inflation rate. On the other hand, several additional explanatory variables, which they had found significant for a broad set of emerging economies, including the Latin American countries, turned out to be insignificant for our set of CESEE countries (e.g. institutional variables). This suggests that fiscal policy in the CESEE countries is, to a certain extent, determined by factors that differ from those of their emerging peers. Moreover, we experimented with different output gap definitions: based on trend GDP and on potential GDP (both from the European Commission) and based on a Hodrick-Prescott-filtered GDP series (with a smoothing parameter of 6.25 as recommended by Ravn and Uhlig (2002) for annual figures). The latter definition was favored in our benchmark regression.

The lagged primary balance was included to appropriately account for the autocorrelation of the residuals, i.e. to get a dynamic version of the panel. As it is well established in the literature (e.g. Nickell, 1981), estimates of the lagged dependent variable are likely to be biased in short- $T$  samples. Moreover, there are also reasonable arguments that the output gap and the lagged debt ratio are endogenous regressors (e.g. IMF, 2003). Therefore, we work – besides the fixed effects panel specification (FE) – also with GMM techniques designed for dynamic panels (system GMM estimator of Blundell and Bond, 1998). Despite the theo-

<sup>10</sup> To address the potential endogeneity bias from reverse causation or from shocks affecting both the election date and the fiscal balance, we separate out those elections whose timing is predetermined (in line with Shi and Svensson, 2006) and distinguish between pre- or early election years and full-blown election years (see table A2.1).

retical advantages of the system GMM estimator, we eventually opted for the panel fixed effects estimator (column (2) in table 1) as our baseline for the subsequent calibrations.

The following considerations guided our choice: First, in the GMM setting, the minimal number of required instruments turns out to be large relative to the number of observations (although we collapsed instruments and used only a limited number of lags of the endogenous variables as instruments). Roodman (2009) stressed that instrument proliferation can overfit endogenous variables, fail to expunge their endogenous components and weaken the power of the Hansen instrument validity test (a telltale sign is the perfect Hansen  $p$ -value of 1.0). Second, as also elaborated in Roodman (2009), reliable estimates of the true parameter (of the lagged dependent variable) should lie in or near the “credible” range between pooled OLS and the panel fixed effects estimator. As can be seen in table 1, the system GMM estimator for  $\delta$  still comprises, in its 95% confidence interval, the pooled OLS estimator and thus is not too far away from the credible range. Moreover, considering again a 95% confidence interval around the estimates, the pooled OLS and the fixed effects estimator cannot really be distinguished from each other. Therefore, at least in statistical terms, we cannot argue that the coefficients estimated with the three different methodologies are really different from each other; the bias due to endogeneity in the favored FE specification should thus be limited.

### 3.2 Estimation Results

The results of the baseline specification are shown in table 1. The primary balance shows a great deal of persistence. If the primary balance-to-GDP ratio improves by 1% of GDP in year  $t$ , it improves by a further 0.3% of GDP in year  $t+1$ .

The positive coefficient for the debt-to-GDP ratio implies that the primary balance improves when last year’s debt ratio increased. If debt increases by, say, 10 percentage points of GDP, one year later the primary balance strengthens by about 0.5% of GDP (if the debt ratio increases from, for instance, 60% to 70% in year  $t$ , the primary deficit ratio will shrink from, for instance,  $-3.0\%$  to  $-2.5\%$  in year  $t+1$ ). Later we also experiment with a stronger response and examine its impact on the evolution of future debt paths.

Several scholars have investigated potential nonlinearities between the primary balance and the debt ratio. An obvious prior would be that the responsiveness of the primary balance is stronger at high than at low debt ratios. Apparently, this hypothesis can only be verified for advanced economies (where the responsiveness is stronger once debt surpassed 80% of GDP, see IMF, 2003), while in emerging markets the marginal responsiveness of the primary balance to high debt levels decreases (see Abiad and Ostry, 2005, or IMF, 2003). Possible reasons are limited fiscal consolidation capacities in emerging economies at high debt levels, weak revenue bases (lower yields, higher volatility) due to tax evasion as well as less effectiveness at controlling government spending during boom times (limited fiscal space). We experimented with a threshold of 40% in column (7) and with a squared debt ratio in column (8) of table 1. Based on these results, we cannot verify that nonlinearities are present in our sample. At least the negative sign for the 40% debt threshold is in line with the evidence mentioned for emerging economies.

Table 1

**Estimates of the Fiscal Reaction Function**

Dependent variable: primary balance in % of GDP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Pooled OLS	Fixed effects	Fixed effects	Fixed effects	Fixed effects	Fixed effects	Fixed effects	Fixed effects	Fixed effects	System GMM
		baseline							year dummies	
First lag primary balance ratio	0.498*** [0.083]	<b>0.301***</b> [0.045]	0.257*** [0.072]	0.375*** [0.067]	0.315*** [0.064]	0.297*** [0.049]	0.300*** [0.049]	0.302*** [0.043]	0.285** [0.098]	0.626*** [0.092]
Second lag primary balance ratio										0.038 [0.097]
First lag debt ratio	0.026** [0.012]	<b>0.053**</b> [0.020]	0.059** [0.020]	0.037* [0.016]	0.051** [0.016]	0.055** [0.021]	0.060 [0.040]	0.027 [0.069]	0.056*** [0.015]	0.033 [0.033]
Lagged debt spline (40%)							-0.011 [0.082]			
Lagged squared debt ratio								0.000 [0.001]		
Output gap (Hodrick-Prescott)	0.295*** [0.095]	<b>0.322**</b> [0.097]					0.324** [0.107]	0.318** [0.105]	0.043 [0.300]	0.350** [0.109]
First lag output gap (Hodrick-Prescott)	-0.247*** [0.091]	<b>-0.156*</b> [0.080]					-0.150** [0.051]	-0.165** [0.059]	-0.082 [0.129]	-0.350* [0.179]
Output gap (trend based)			0.259** [0.086]							
First lag output gap (trend based)			-0.154* [0.073]							
Output gap (potential GDP)				0.308** [0.107]						
First lag output gap (potential)				-0.220** [0.069]						
Absolute value of output gap (trend based)					0.244** [0.089]					
First lag absolute output gap (trend based)					-0.209** [0.065]					
Positive output gap (Hodrick-Prescott)						0.486* [0.211]				
First lag positive output gap (Hodrick-Prescott)						-0.234* [0.103]				
Negative output gap (Hodrick-Prescott)						-0.003 [0.176]				
First lag negative output gap (Hodrick-Prescott)						-0.094 [0.226]				
CPI inflation	0.047* [0.025]	<b>0.083*</b> [0.040]	0.110** [0.042]	0.076** [0.026]	0.080 [0.042]	0.082* [0.040]	0.084* [0.037]	0.081* [0.034]	0.089 [0.052]	-0.000 [0.027]
Crisis dummy	-0.889** [0.346]	<b>-1.089*</b> [0.489]	-0.934 [0.524]	-0.575 [0.455]	-0.967* [0.482]	-1.235** [0.411]	-1.087* [0.501]	-1.106** [0.464]		-0.916** [0.337]
Constant	-1.841*** [0.578]	<b>-3.305**</b> [0.987]	-3.829*** [0.961]	-2.770*** [0.665]	-3.299** [0.989]	-3.562** [1.218]	-3.489** [1.175]	-2.796* [1.222]	-5.132*** [0.832]	-1.590 [1.661]
Observations	116	116	116	99	116	116	116	116	116	108
R-squared	0.556	0.501	0.509	0.561	0.481	0.512	0.501	0.502	0.575	
Adjusted R-squared	0.531									
Number of id		8	8	7	8	8	8	8	8	8
Overall R-squared		0.503	0.485	0.598	0.496	0.508	0.498	0.512	0.541	
Joint significance, F-Test (p-value)										0.000
Hansen test of overidentifying restrictions (p-value)										1
Arellano-Bond test for AR(1) in differences (p-value)										0.038
Arellano-Bond test for AR(2) in differences (p-value)										0.570
No. of collapsed instruments										15

Source: Authors' calculations.

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Robust standard errors are given in brackets.

While the contemporaneous output gap shows a positive sign (irrespective of the method used for calculating the output gap), the first lag shows a negative sign. This indicates that the primary budget has a countercyclical effect in the year the business cycle position changes (probably due to a predominant impact of built-in automatic stabilizers), while in the following year we can observe a procyclical response (probably due to delayed discretionary fiscal policy responses). These results do not change when different output gap definitions are used (see columns (3) to (5)). Interestingly, the results are particularly pronounced for boom periods, while during economic downturns there seems to be no impact (see column (6), where we distinguished between periods with positive and negative output gaps).

One might take the view that the set of countries contained in this panel estimation is already too heterogeneous in terms of fiscal policymaking, given that two of them (Slovakia and Slovenia) already joined the euro area or that debt-to-GDP ratios are fairly different across countries. To address the issue of panel heterogeneity, we reran the FRF by excluding each country one by one.<sup>11</sup> The resulting coefficients still lied within a 95% confidence interval around the CESEE-8 baseline estimates. Bulgaria and Hungary are outliers in the sense that the coefficients without Bulgaria are in most cases systematically larger and without Hungary systematically smaller than in the baseline (reflecting the fact that the debt ratio in both countries differs substantially from the average debt ratio in the CESEE-8). Nonetheless, when we excluded both Hungary and Bulgaria at the same time, the resulting coefficients still lied within the 95% confidence interval around the CESEE-8 estimates. For this reason, we believe that the subsequent calibration of the primary balance projections for the Czech Republic, Hungary, Poland and Slovakia is appropriate.<sup>12</sup>

#### 4 Nonfiscal Determinants of Public Debt Dynamics: VAR Model

The aim of the VAR model in the SDSA framework (equation (5)) is to provide a forecast of the macroeconomic determinants of public debt, so that they are contemporaneously correlated and persistent. The SDSA also captures the uncertainty related to this forecast and the resulting debt path. This is achieved by generating not one, but many (in our case 1,000) possible sets of projections of growth, the exchange rate and the domestic and foreign interest rates. These projections incorporate shocks drawn from the joint distribution of the variables, whose mean and variance-covariance matrix were estimated from the historical data with the VAR model.

For each country, we estimate a VAR model with quarterly macroeconomic data (1995Q1–2011Q4 for Slovakia and the Czech Republic, and 1996Q1–2011Q4 for Poland and Hungary<sup>13</sup>). The length of the available time series imposes a limit on the number of lags in the VAR model we can realistically use; therefore we restrict our analysis to models with one lag only, similarly to Celasun, Debrun and Ostry (2007). Moreover, it has been argued (e.g. Hafer and Sheehan, 1989) that short-lagged VAR models tend to be more accurate, on average, when used for

<sup>11</sup> Results are available from the authors upon request.

<sup>12</sup> For Hungary, one could opt for somewhat larger parameter values than the CESEE-8 baseline results would suggest. Nevertheless, there is no straightforward approach to determining such a markup.

<sup>13</sup> The different sample lengths are due to data availability.

forecasting, than longer-lagged models. However, adding one or two lags in a robustness check exercise did not substantially change the results, except in the case of Hungary, where one additional lag brought the baseline median debt projection down by 4 percentage points.

Output, interest rates and exchange rates are often found to be nonstationary. We therefore test each time series used in the model for the presence of a unit root with an Augmented Dickey-Fuller test, supplemented by the Phillips-Perron test.<sup>14</sup> We cannot reject the null hypothesis of nonstationarity of the foreign real interest rate and of the Hungarian domestic real interest rate. These results hold for various sample periods, e.g. when the observations at the beginning or at the end of the sample are cut off based on the consideration that the transformation period still under way at the end of the 1990s or the current crisis may distort the results. Differenced series exhibit no unit root, therefore we conclude that they are integrated of order one (I(1)). After similar considerations (i.e. accounting for the effects of the crisis and/or transformation period), we decided to treat the Slovak, Polish and Czech domestic interest rates as stationary, as we did not find strong enough evidence of the presence of a unit root at the 99% confidence level. The GDP and real effective exchange rate variables enter the models as differences and these differences are found to be stationary, in line with our expectations.

In a next step, we test each of the models (in levels) for cointegration, using the Johansen procedure. We do not find evidence for the presence of one or more cointegrating relationships both according to the maximum eigenvalue and the trace test statistics. Therefore, we proceed by estimating an unrestricted VAR(1) model for each country, whereby the variables, which were found to be integrated of order one, are differenced. Even though a regression of an interest rate in differences on an interest rate in levels is not derived from economic theory, it is crucial to address the nonstationarity of the data, which is done by differencing. However, differencing also means losing part of the information contained in the data, and to avoid “overdifferencing,” we only differenced those variables which were found to be I(1).

As a kind of a robustness check, we also estimate the VAR models for shorter time-series samples (e.g. starting in 1998, due to the above-mentioned transformation period and possible structural break considerations). Their results have to be treated with caution, though, as by doing so, we also lose a considerable number of degrees of freedom. We find that the median projection and the range of the projections remain broadly unchanged for all the countries, except for the Czech Republic, where a shorter sample raises the median projection by about 5 percentage points. This is possibly due to the sensitivity of the Czech model to the pronounced crisis period at the end of the sample.

The detailed estimation output for the chosen VAR models is shown in the annex (tables A4.1 to A4.4). While the explanatory power of the regressors for GDP growth and the domestic interest rate is in most of the cases very satisfactory, it is rather limited for the foreign interest rate and partly also for the real effective exchange rate. This is, however, not very surprising given that these variables depend more on economic developments abroad and our small VAR

<sup>14</sup> Available from the authors upon request.

model is not able to account for that. Keeping the VAR model small is necessary owing to the limited number of observations. At the same time, as can be seen from table A5, it produces simulations which show a reasonable size and variation (given historical values and comparable data from the IMF's Article IV staff reports) and this is the most important issue for the subsequent debt projections.

## 5 Projected Public Debt Paths and Risks to Debt Sustainability

In this section, we put all the ingredients from section 3 (endogenous fiscal policy) and section 4 (description of the nonfiscal macroeconomic environment) together to generate, by means of stochastic simulations, a large sample of debt paths for a five-year-ahead forecasting horizon for the Czech Republic, Hungary, Poland and Slovakia. Different debt paths are generated by two types of shocks: macro shocks (drawn from a joint distribution) stem from the VAR model and fiscal shocks from the estimated fiscal reaction function.

The fan charts shown in this section (charts 2 to 6) summarize the frequency distribution of the projected debt paths and serve to illustrate the overall range of risks to the debt dynamics in our sample. The median projection (black line in the center of the fan) connects the median values of the frequency distributions for each year in the forecasting period (i.e. in a given year, 50% of the debt projections lie below and 50% above this reference value). Stepwise shaded areas capture different deciles of the frequency distribution. For instance, the darkest shaded area reflects debt paths located in the 5<sup>th</sup> and 6<sup>th</sup> deciles of the distribution, thus representing a 20% confidence interval around the median projection. The overall colored cone, in turn, reflects the 2<sup>nd</sup> to 9<sup>th</sup> deciles of the distribution and depicts a confidence interval of 80% around the median projection.

For each country we experiment with five different policy scenarios, which basically correspond to different calibrations of the estimated fiscal reaction function. In charts 2 to 5, from the upper left-hand corner to the lower right-hand corner, we start with the baseline scenario, where the primary balance is calibrated in line with the favored FRF estimates (column (2) in table 1). In the second scenario, we only set the output gap coefficients  $\hat{\gamma}_k$  in equation (4.1) to zero, i.e. we examine a situation where the primary balance does not react to business cycle fluctuations (acyclical behavior). In a similar vein, in the third scenario, we only set the coefficient for lagged debt  $\hat{\rho}$  to zero. An increase in the primary balance is thus no longer the case when debt increases, i.e. we examine a situation where the government does not react timely and continuously to rising debt levels. In contrast, in the fourth scenario, we assume a coefficient for lagged debt which is twice as high as in the baseline ( $\hat{\rho} = 0.1$ ). Finally, in the fifth scenario, we replace in equation (4.1) the fit for the primary balance with the governments' yearly primary balance targets for 2012 to 2015 (for 2016 we assume the same value as in 2015), still allowing for unexpected, stochastic shocks originating from the fiscal reaction function<sup>15</sup>, i.e.

<sup>15</sup> We still allow the residuals of the FRF to enter the debt-deficit stock-flow identity, i.e. the debt evolution is subject to stochastic fiscal shocks, which cannot be traced back to the variables that were included as regressors in equation (4). An example would be erratic policy actions or one-off events, such as natural disasters, that trigger an unexpected change in the primary balance.

$$\widehat{pb}_{i,t+\tau} = SCP\ target_{i,t+\tau} + \varphi_{i,t+\tau} \cdot \quad (6)$$

Whenever available, also the planned stock-flow adjustments are included (based on the Stability and Convergence Programmes (SCPs) submitted to the European Commission in April 2012; for more details, see table 2). Uncertainty around the median debt projection is triggered in this scenario mainly by the macro shocks and not by systematic fiscal policy deviations. This scenario gives information about how effectively the defined targets contribute to the stabilization of debt levels until 2016.

First of all, let us focus on the preferred *baseline scenario*. When we draw our attention to the median projections, we can observe an increasing median debt path in the Czech Republic and Slovakia, whereas that in Hungary and Poland shows a downward sloping trend. Altogether, these median projections do not indicate that public debt gets out of control until the end of the forecasting horizon and can thus be qualified to be sustainable over the period from 2012 to 2016. However, when we also take the risks around the median projection into account, we get a more differentiated picture. The fiscal reaction function is apparently not responsive enough (with regard to public debt) to prevent increasing debt paths from covering a considerable share of the overall frequency distribution. Chart 1 illustrates (analogously to Medeiros, 2012) for each country the empirical probabilities of exceeding a given debt value by 2016. The probability of having in 2016 a higher debt ratio than in 2011 is largest in the Czech Republic (76%) and in

Table 2

### Target Primary Balances of Individual Countries (2012–2015) Used in the Stability and Convergence Programmes

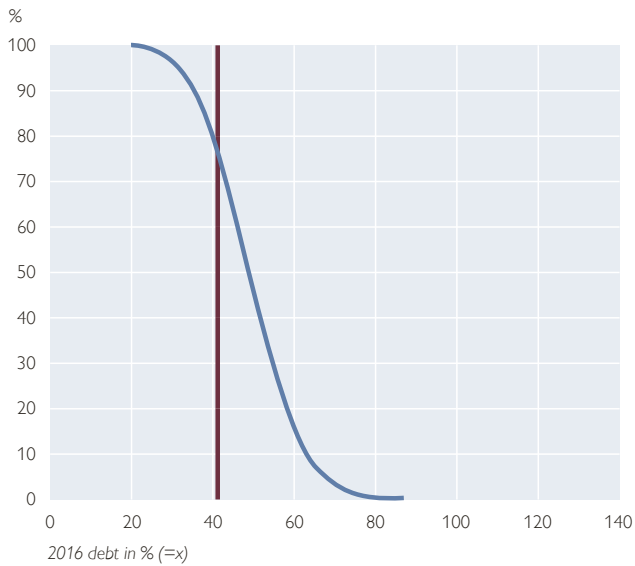
	2012	2013	2014	2015	Average
	% of GDP				
<b>Czech Republic</b>					
Target primary balance	-1.5	-1.3	-0.1	0.8	-0.5
Planned stock-flow adjustment (SFA) <sup>1</sup>	0.7	-0.7	-0.5	-0.5	-0.3
Primary balance adjusted for the SFA	-2.2	-0.6	0.4	1.3	-0.3
<b>Hungary</b>					
Target primary balance	1.6	2.0	2.2	2.2	2.0
Planned stock-flow adjustment (SFA) <sup>1</sup>	–	–	–	–	–
Primary balance adjusted for the SFA	1.6	2.0	2.2	2.2	2.0
<b>Poland</b>					
Target primary balance	-0.2	0.5	1.0	1.6	0.7
Planned stock-flow adjustment (SFA) <sup>1</sup>	–	–	–	–	–
Primary balance adjusted for the SFA	-0.2	0.5	1.0	1.6	0.7
<b>Slovakia</b>					
Target primary balance	-2.9	-2.5	-2.1	-1.5	-2.3
Planned stock-flow adjustment (SFA) <sup>1</sup>	3.6	1.3	1.6	0.6	1.8
Primary balance adjusted for the SFA	-6.5	-3.8	-3.7	-2.1	-4.0

Source: *Stability and Convergence Programmes 2012, Commission Staff Working Documents – Assessments of the 2012 National Reform Programmes and Stability Programmes 2012.*

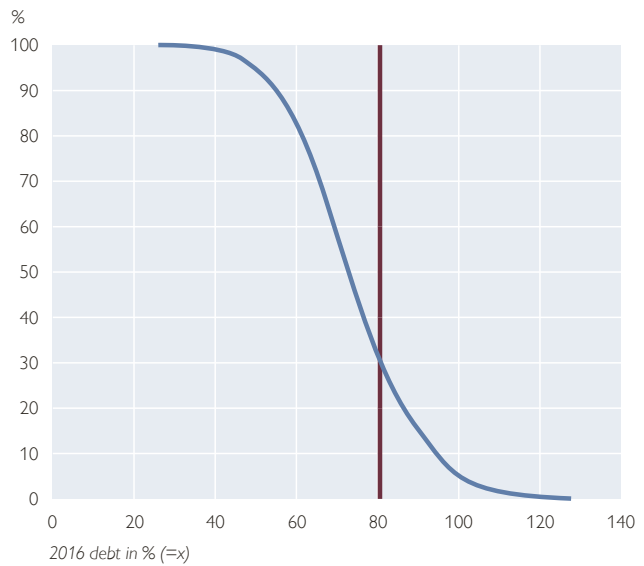
<sup>1</sup> Does not include revaluation effects due to exchange rate movements, as the exchange rate revaluation effects are factored into the debt simulations. For Hungary and Poland, no detailed information about what fraction of the SFA is due to exchange rate movements was available in the Stability and Convergence Programmes, which is why we did not include the SFA in our primary balance calculations for these countries.

**Empirical Probability of Exceeding a Given Debt Value by 2016 (Baseline Scenario)**

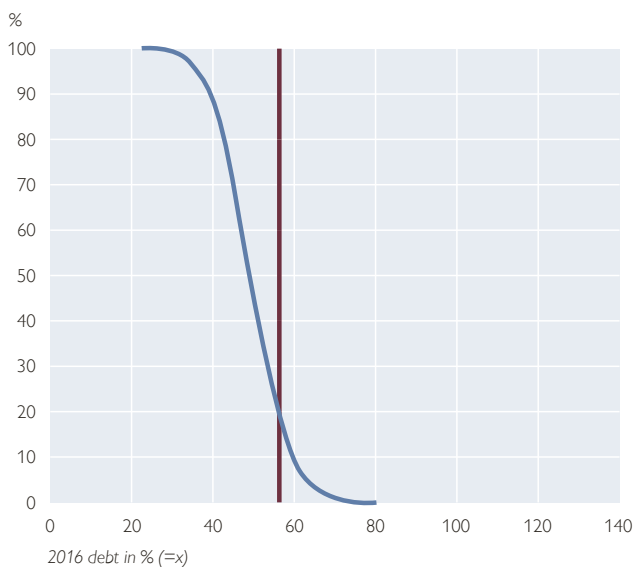
**Czech Republic**



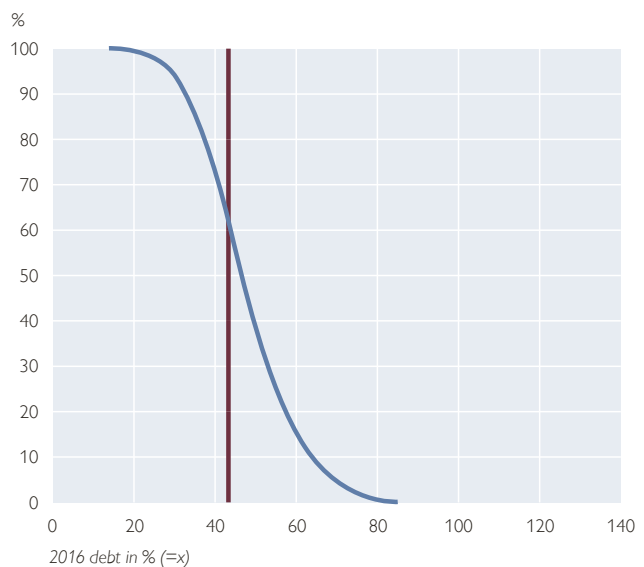
**Hungary**



**Poland**



**Slovakia**



— Probability of a debt ratio higher than x in 2016    — 2011 debt

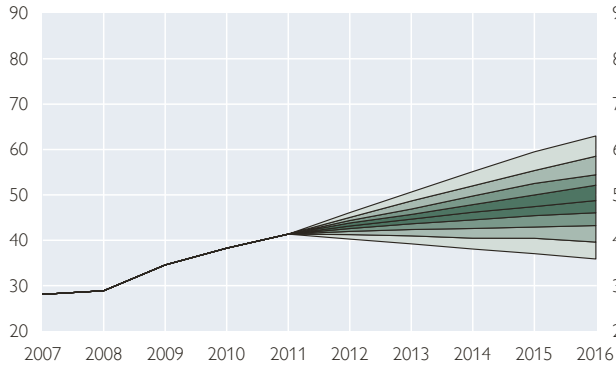
Source: Authors' calculations, Eurostat.

Slovakia (62%). Although Hungary shows a decreasing median debt path, there is a probability of 31% that the debt ratio increases from 2011 until 2016 and it could even reach more than 90% (with a probability of 15%). The upside risks in Poland are less pronounced than in Hungary; the probability of exceeding the 2011 debt value by 2016 is 19% in Poland. When referring to the 60% debt-to-GDP threshold, there is a considerably high probability (83%) that public debt in Hungary will stay beyond 60% of GDP until 2016, whereas there is only a small

### Fan Charts for the Czech Republic

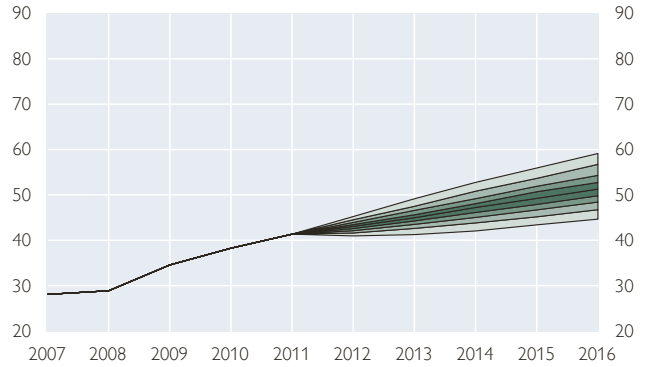
#### Czech Republic: Baseline Scenario

Public debt in % of GDP



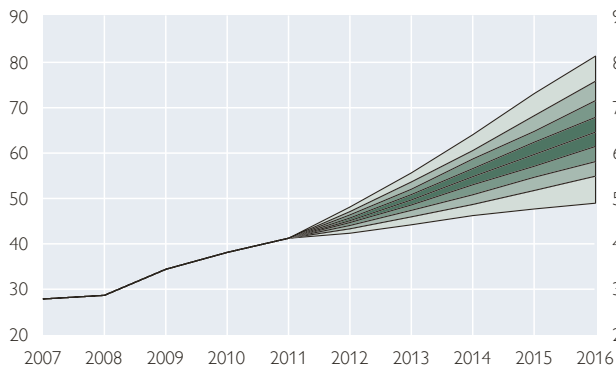
#### Czech Republic: No Reaction to Output Gap Scenario

Public debt in % of GDP



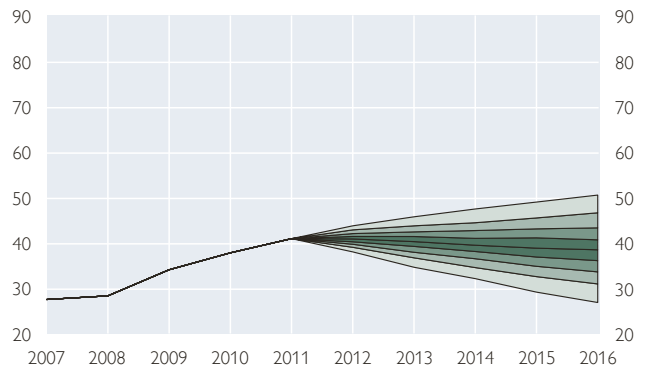
#### Czech Republic: No Reaction to Debt Scenario

Public debt in % of GDP



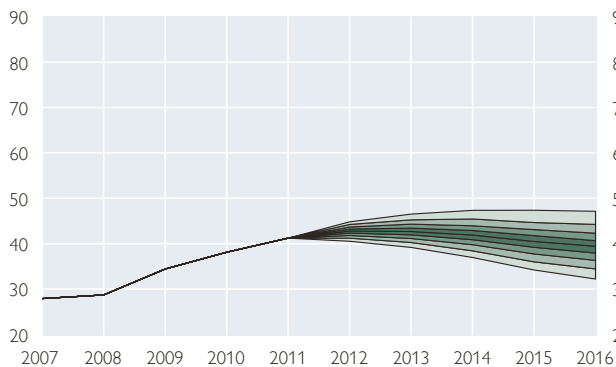
#### Czech Republic: Stronger Reaction to Debt Scenario

Public debt in % of GDP



#### Czech Republic: Stability and Convergence Programme Targets Scenario

Public debt in % of GDP



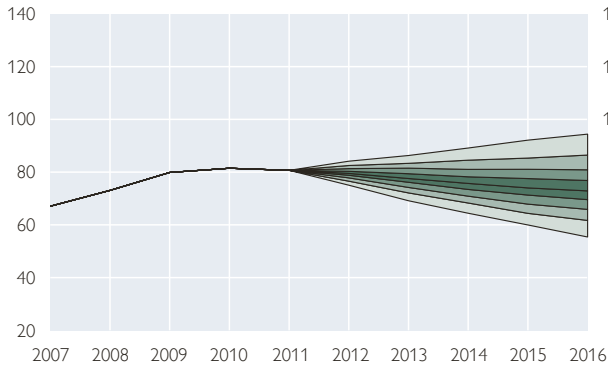
Deciles of the frequency distribution: 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> 6<sup>th</sup> 7<sup>th</sup> 8<sup>th</sup> 9<sup>th</sup>

Source: Authors' calculations, Eurostat.

**Fan Charts for Hungary**

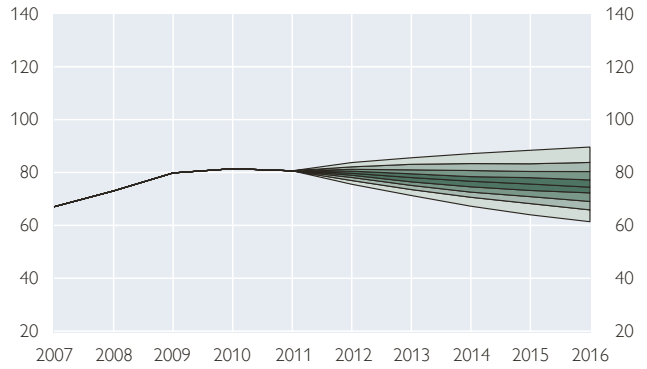
**Hungary: Baseline Scenario**

Public debt in % of GDP



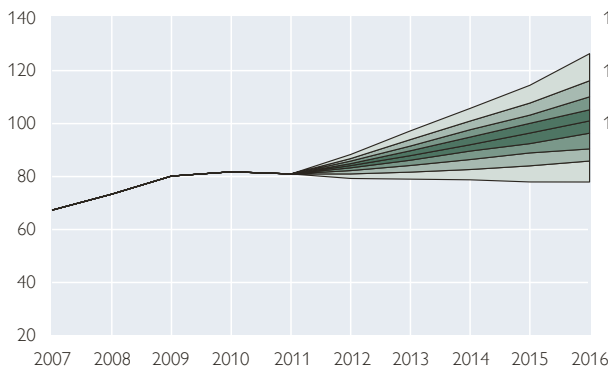
**Hungary: No Reaction to Output Gap Scenario**

Public debt in % of GDP



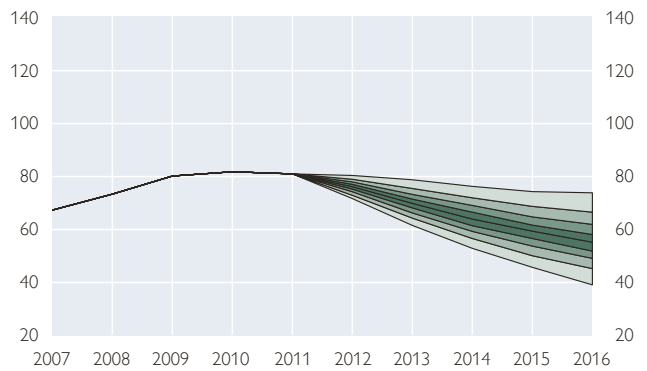
**Hungary: No Reaction to Debt Scenario**

Public debt in % of GDP



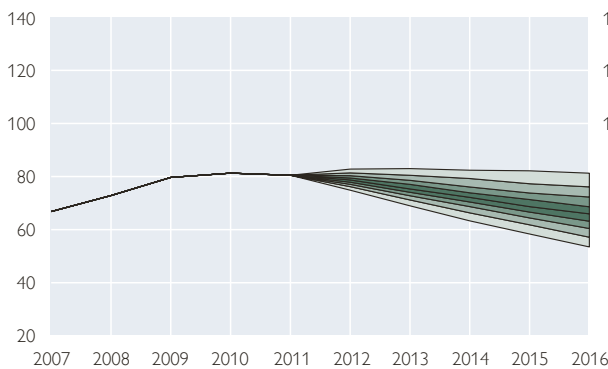
**Hungary: Stronger Reaction to Debt Scenario**

Public debt in % of GDP



**Hungary: Stability and Convergence Programme Targets Scenario**

Public debt in % of GDP



Deciles of the frequency distribution: 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> 6<sup>th</sup> 7<sup>th</sup> 8<sup>th</sup> 9<sup>th</sup>

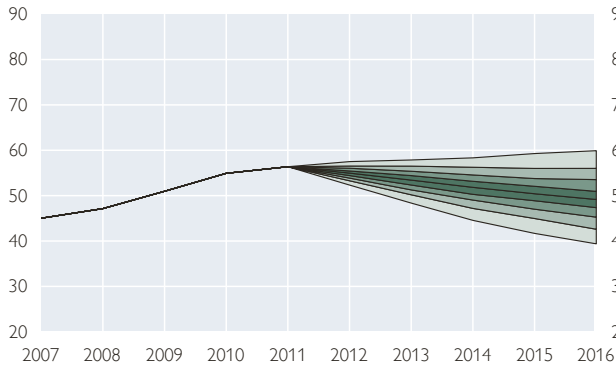
Source: Authors' calculations, Eurostat.

Chart 4

**Fan Charts for Poland**

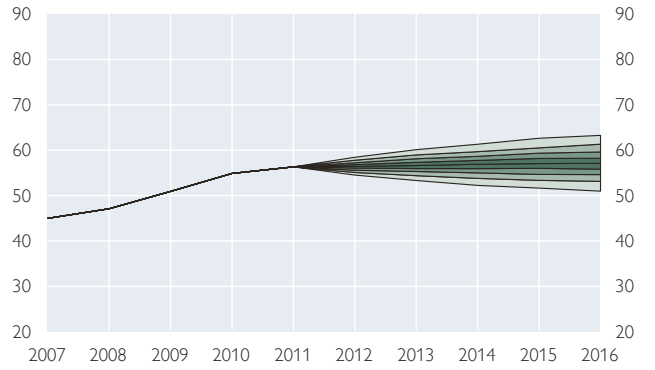
**Poland: Baseline Scenario**

Public debt in % of GDP



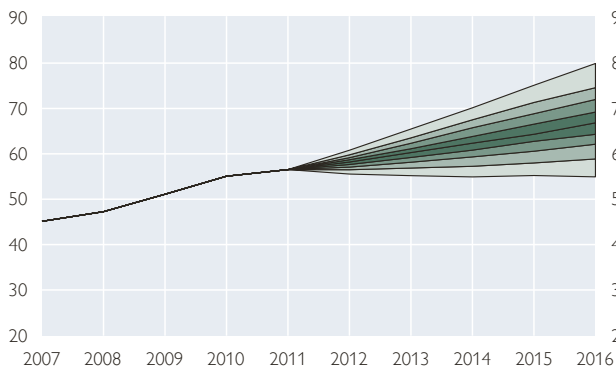
**Poland: No Reaction to Output Gap Scenario**

Public debt in % of GDP



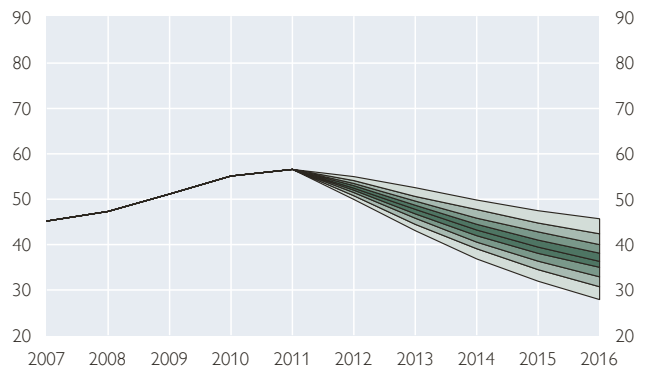
**Poland: No Reaction to Debt Scenario**

Public debt in % of GDP



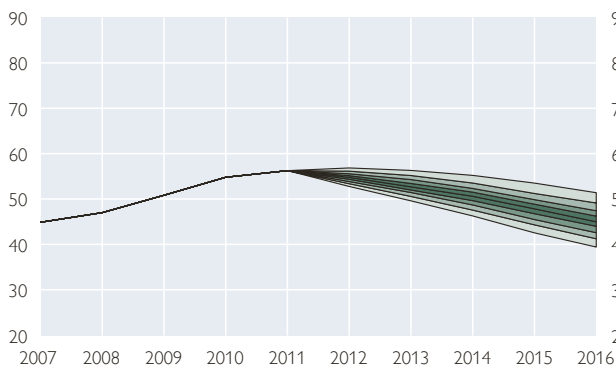
**Poland: Stronger Reaction to Debt Scenario**

Public debt in % of GDP



**Poland: Stability and Convergence Programme Targets Scenario**

Public debt in % of GDP



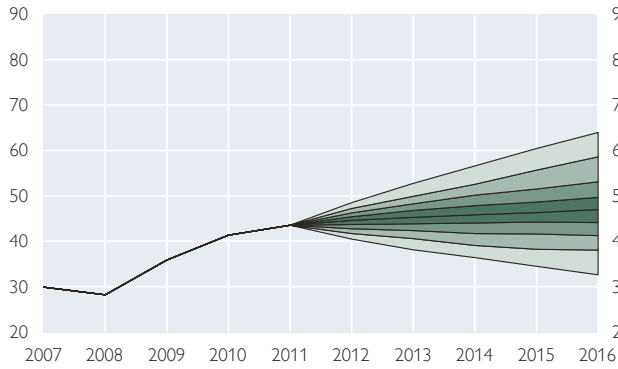
Deciles of the frequency distribution: 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> 6<sup>th</sup> 7<sup>th</sup> 8<sup>th</sup> 9<sup>th</sup>

Source: Authors' calculations, Eurostat.

**Fan Charts for Slovakia**

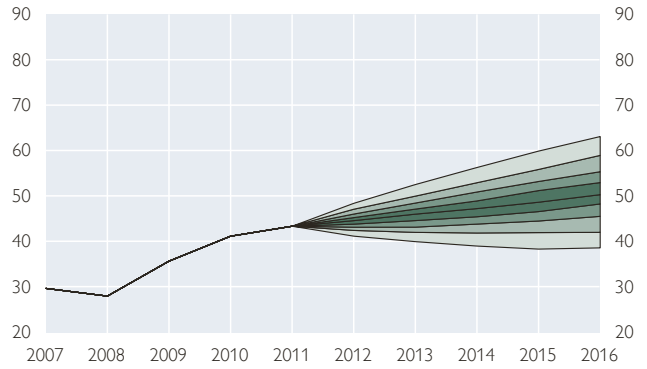
**Slovakia: Baseline Scenario**

Public debt in % of GDP



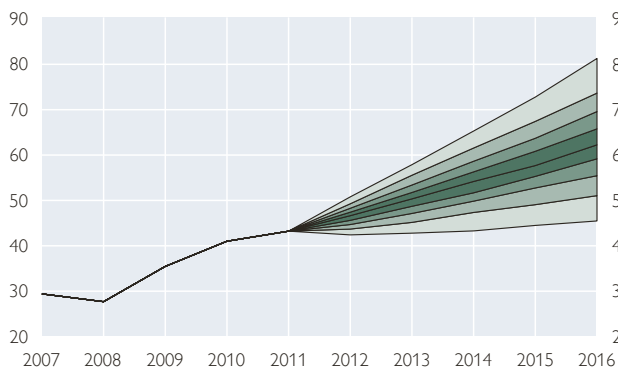
**Slovakia: No Reaction to Output Gap Scenario**

Public debt in % of GDP



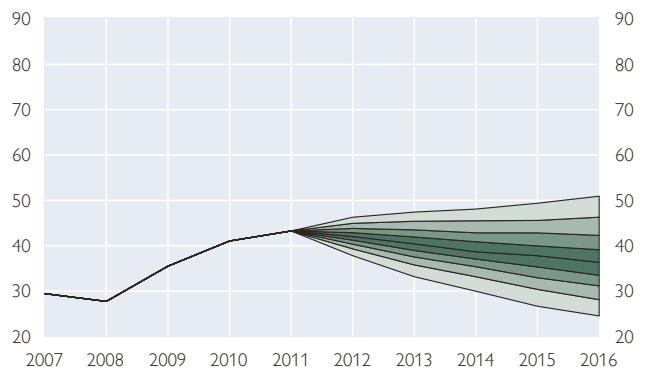
**Slovakia: No Reaction to Debt Scenario**

Public debt in % of GDP



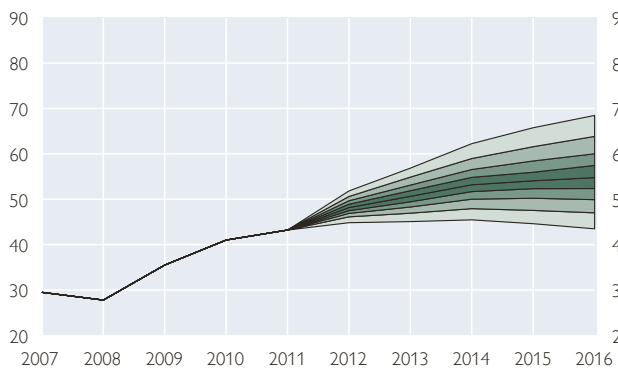
**Slovakia: Stronger Reaction to Debt Scenario**

Public debt in % of GDP



**Slovakia: Stability and Convergence Programme Targets Scenario**

Public debt in % of GDP



Deciles of the frequency distribution: 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> 6<sup>th</sup> 7<sup>th</sup> 8<sup>th</sup> 9<sup>th</sup>

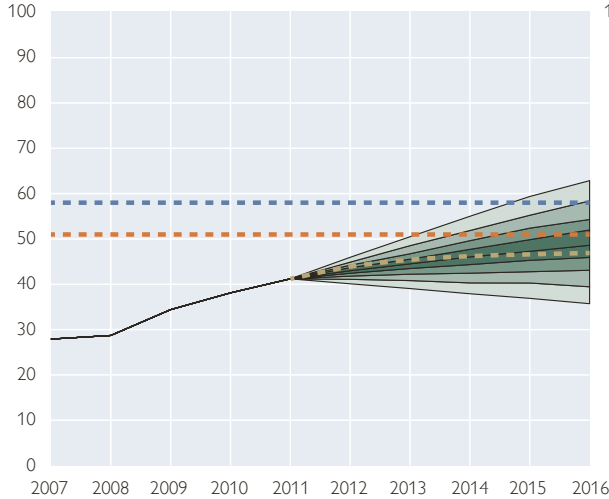
Source: Authors' calculations, Eurostat.

Chart 6

**Comparison of the Baseline Projections with the IMF Projections**

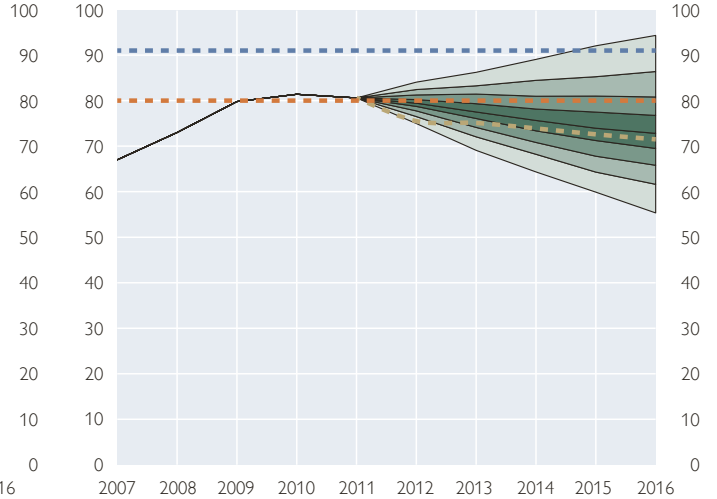
**Czech Republic**

Public debt in % of GDP



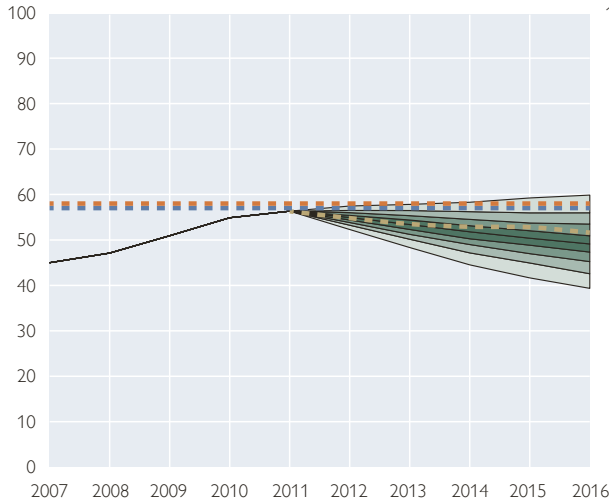
**Hungary**

Public debt in % of GDP



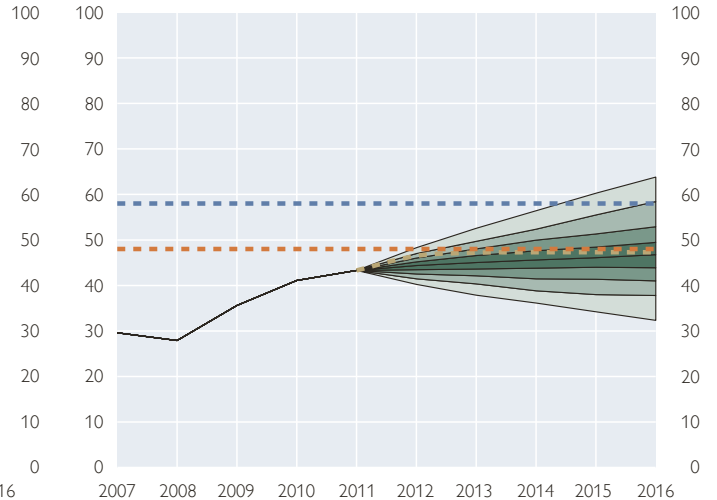
**Poland**

Public debt in % of GDP



**Slovakia**

Public debt in % of GDP



Deciles of the frequency distribution: 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> 6<sup>th</sup> 7<sup>th</sup> 8<sup>th</sup> 9<sup>th</sup>

IMF baseline IMF growth shock scenario (upper debt limit) IMF combined shock scenario (upper debt limit)

Source: Authors' calculations, Eurostat.

probability that the other three countries will surpass this threshold by 2016 (ranging from 10% in Poland to 17% in Slovakia).

Next, let us compare the baseline scenario results with those of the *alternative policy scenarios*. First, the overall risks to future debt dynamics are larger (wider fan) in the baseline than in the SCP scenario across all the four countries. This indicates that target-based fiscal policy behavior, which potentially limits systematic discretionary fiscal actions, helps minimize risks to debt outcomes. In most countries, the SCP scenario delivers a smaller median projection than in the baseline. A notable exception is Slovakia, where the SCP target of a considerable

primary deficit from 2012 to 2015 (the other countries target, on average, a primary surplus, see table 2) together with the planned stock-flow adjustments induce a higher median debt projection and the probability of surpassing the 60% threshold in 2016 increases to 30%. Second, the “no reaction to output gap” scenario yields, in all four countries, a higher median debt projection but also less uncertainty around it than in the baseline. This can be explained as follows: When taking the output gap coefficients of the FRF together, countercyclical fiscal policy dominates the baseline scenario. While countercyclical fiscal policy should produce approximately balanced fiscal outcomes over the cycle, this might not necessarily be the case in the situation of acyclical fiscal policy, which could even have a bias toward a budget deficit both in times of a recession and a boom. As a result, it can indeed be the case that the debt dynamics are more buoyant with acyclical than with countercyclical fiscal policy. The lower uncertainty in this scenario can simply be explained by the fact that the fiscal policy response is the same, irrespective of the business cycle situation of the economy. Third, the two debt scenarios illustrate that not reacting timely and continuously to rising debt levels leads to a clearly larger probability of increasing debt paths: In the “no reaction to debt” scenario, the median debt in 2016 exceeds the baseline projections by 15.4 (Slovakia) to 27.7 (Hungary) percentage points. In contrast, if countries put more weight on debt stabilization than in the baseline (e.g. to capture stronger-than-expected primary balance adjustments because of approaching constitutional debt limits), risks are clearly reduced and governments can reduce their mean debt ratios rather quickly to moderate levels.

Finally, when we compare our results with alternative methodologies for assessing debt sustainability, the best benchmark are the IMF’s projections based on its deterministic DSA framework (regularly reported in the IMF’s Article IV staff reports). Chart 6 compares our baseline results with the respective IMF projections and shock scenarios. On the one hand, the IMF’s baseline projections come very close to our median projection (except for Poland, where the IMF’s baseline projection falls in the 7<sup>th</sup> decile of the frequency distribution) at the end of the forecasting horizon. On the other hand, our results confirm (see the discussion in section 1) that the deterministic bound tests<sup>16</sup> do not fully capture the overall magnitude of risks identified by the SDSA approach. This holds especially for the combined shock scenario, which delivers a debt ratio in 2016 that only falls within the 20% (the Czech Republic and Slovakia) and within the 40% (Hungary) confidence interval. Even the IMF’s growth shock scenario, which delivers the highest debt ratios in 2016 compared with other shocks to individual parameters, does not fully capture the SDSA-based dispersion of risks to future debt dynamics.

## 6 Caveats Related to the SDSA Approach

The above-mentioned advantages notwithstanding, we also want to stress a few shortcomings of the SDSA approach, which offer room for further research and improvements. First, the SDSA framework still does not completely solve the

<sup>16</sup> Bound tests are stress tests to the baseline parameters. The growth shock scenario applies a permanent shock equal to one-half standard deviation (based on historical data) to the baseline projection of GDP growth. The combined shock scenario (simultaneously) applies a one-quarter standard deviation shock to the interest rate, GDP growth and the primary balance.

problem with limited data availability for emerging markets. To a certain extent, this is dealt with by combining annual data in the FRF and the debt identity with quarterly data in the VAR model. However, both the FRF and the VAR are still relatively sensitive to model specification and the choice of variables. This might be overcome by trying to employ more robust models (e.g. by expanding the sample by additional emerging market economies), or by including additional variables in the VAR, which may help explain the variation in the macroeconomic debt determinants (such as GDP growth abroad). Theoretically, the VAR model could be replaced by any other econometric model that generates jointly estimated forecasts of the relevant macroeconomic variables. Therefore, the possibility of employing other models – such as the OeNB’s FORCEE forecasting model (see Crespo Cuaresma et al., 2009) – could be investigated.

A second drawback of the SDSA approach is – even though there is interaction between the individual macroeconomic debt determinants and a reaction of fiscal policy to their development – the lack of feedback from fiscal policy to the macro environment (e.g. fiscal multipliers are not accounted for; the risk premiums as part of the interest rates do not react to prudence or credibility of fiscal policy). The SDSA approach shares this drawback with the traditional DSA. A possible solution would be the inclusion of a fiscal variable in the VAR model (analogously to Penalver and Thwaites, 2006), which is, however, not really feasible given the questionable quality and availability of fiscal data at quarterly frequency; a VAR model with annual data, in turn, would suffer from the limited number of observations for the countries under investigation.

A third possibly problematic issue is that, in the SDSA, macroeconomic and fiscal shocks are drawn from a joint normal distribution. This is only a broad approximation of the state of the world, because, in reality, shocks can be asymmetric, or extreme events can occur more frequently under certain circumstances (e.g. in times of a crisis). Both of these features (asymmetry and fat tails) of macroeconomic shocks are not in line with the normality assumption of the frequency distribution. There have been attempts to address this problem with bootstrapping techniques to draw the shocks directly from their empirical distributions (Frank and Ley, 2009). However, making a choice between using the simplifying normality assumption and using the empirical distribution also means deciding between the relative simplicity and usability of the framework versus getting a more realistic shape of the fan chart and the risks it depicts. A possible compromise might be to use a more realistic distribution instead of the normal one, e.g. a distribution with fatter tails (such as the Student’s t-distribution).

Fourth, while the shown fan charts depict the risks around the median projection that stem from macroeconomic and fiscal shocks, other – more model-inherent – sources of uncertainty have not yet been addressed. For instance, the calibration of the fiscal reaction function is subject to the selection of the estimator (panel fixed effects vs. system GMM) and to the uncertainty around the point estimate (represented by the standard errors). The nonconsideration of model and parameter uncertainty might artificially shrink the bands in the presented fan charts. A series of sensitivity checks could elaborate the respective impact on the probability distribution of the debt projections.

Finally, let us stress that we implicitly assumed in the setup of our projections that the parameters of the FRF and the VAR model, which we estimated for the

period 1995–2011, continue to be valid during the forecasting period 2012–16. This assumption might not necessarily be appropriate for countries with frequent structural breaks. While, in general, this caveat applies to all out-of-sample forecasts, one also has to consider that the period 1995–2011 does not cover the initial transition shock of the early 1990s but captures, instead, rather nicely different stages of the business cycle (see also table A1): an admittedly long boom period from the early 2000s until 2008, but also the incisive economic crisis from 2008 onward and other country-specific periods of bank recapitalization and financial sector restructuring, e.g. in the Czech Republic and Slovakia around the turn of the millennium.

## 7 Summary and Concluding Remarks

In this paper, we assess to which extent public debt positions in four CESEE economies (the Czech Republic, Hungary, Poland and Slovakia) are sustainable in the medium term. For this purpose, we employ a stochastic debt sustainability analysis (SDSA), which allows us to project a distribution of debt paths until 2016 under jointly determined shock configurations. The resulting median projections together with a confidence interval around them (depicted in the fan charts) illustrate the risks associated with the projected debt paths.

A number of results ensue from this setting. First of all, let us turn to the estimated fiscal reaction function, which is not the core part of the sustainability assessment, but a necessary step to characterize the responsiveness of fiscal policy to debt dynamics. The primary balance in the CESEE countries under consideration is highly persistent and responds in a corrective manner to increasing public debt and in a countercyclical manner to business cycle fluctuations (in line with Staehr, 2008). Nevertheless, the results cannot be traced back to discretionary policy measures or the functioning of automatic stabilizers, as we only use the headline primary balance and not the cyclically adjusted one. Therefore, it might still be the case that discretionary fiscal policy acts procyclically (as found e.g. by Eller, 2009).

Moving on to the question in the paper's title, we arrive at the following answers: The median debt projections in our baseline specification suggest that public debt will not get out of control in all the four countries until 2016. However, when also accounting for the risks around the median projection (stemming from both fiscal and macro shocks), we can conclude that the primary balance is apparently not responsive enough (with regard to public debt) to avoid that increasing debt paths cover a considerable share of the overall frequency distribution. The highest probability of reaching a debt ratio in 2016 which is larger than in 2011 is recorded for the Czech Republic and Slovakia (with 76% and 62%, respectively). Although Hungary and Poland show a decreasing median debt path, the probability of exceeding the 2011 debt value by 2016 is still 31% in Hungary and a bit less elevated in Poland (19%).

Our results confirm that compliance with the Stability and Convergence Programme targets (even when they are comparatively less ambitious) helps limit the overall risks to the debt outturns and reduces debt ratios in most countries. We also find that an acyclical fiscal policy (i.e. a situation where the primary balance does not react to business cycle fluctuations) has a similar effect in that it reduces uncertainty, while, nevertheless, leading to somewhat larger central debt projections than in the baseline. This may be due to some deficit bias, as high-

lighted by the persistence of the (negative) primary balance in the FRF, which is present irrespective of the business cycle.

Several sensitivity assessments show that policymaking that does not respond to debt developments in a timely and continuous fashion quickly leads to a larger probability of debt paths getting out of control. In contrast, if countries put more weight on debt stabilization than in the past, risks are clearly reduced and their mean debt ratios can be cut rather quickly to moderate levels.

Comparing our results with those of the traditional DSA approach of the IMF, it becomes apparent that the baseline central debt projections do not differ significantly. However, the plausibility of the traditional approach suffers from the fact that there is no interaction among the macroeconomic determinants being shocked in each stress test. This drawback can be overcome by utilizing the stochastic approach chosen in this paper, which provides a wider, but more realistic, probability distribution of future debt realizations.

To sum up, the SDSA approach provides a clear value added when used for assessing public debt sustainability in emerging market economies characterized by intrinsic economic volatilities. The probability distribution of future debt outturns captures interactions among the macroeconomic and fiscal variables being shocked, informs about the plausible range of risks associated with the projected debt paths and thus prepares policymakers for a better-informed policy reaction should such risks materialize.

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## Annex

Table A1

## Evolution of Key Fiscal and Macroeconomic Variables

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<i>Fiscal variables in % of GDP, other variables in % or percentage points</i>																	
<b>Czech Republic</b>																	
Headline balance	-12.8	-3.1	-3.6	-4.8	-3.6	-3.6	-5.6	-6.5	-6.7	-2.8	-3.2	-2.4	-0.7	-2.2	-5.8	-4.8	-3.3
Primary balance (p)	-11.8	-1.9	-2.5	-3.7	-2.6	-2.8	-4.6	-5.4	-5.6	-1.7	-2.1	-1.3	0.4	-1.1	-4.5	-3.4	-1.9
Public debt (d)	14.0	11.9	12.6	14.5	15.8	17.8	23.9	27.1	28.6	28.9	28.4	28.3	27.9	28.7	34.2	37.8	40.8
Real GDP growth (g)	12.5	7.2	-0.9	-0.2	1.7	4.2	3.1	2.1	3.8	4.7	6.8	7.0	5.7	3.1	-4.7	2.7	1.7
Real long-term interest rate (r)	1.8	3.3	5.5	5.8	4.5	2.7	1.9	4.4	3.5	2.3	1.6	1.8	-0.1	-0.1	4.3	2.1	0.8
r-g	-10.7	-3.9	6.4	6.0	2.8	-1.5	-1.2	2.3	-0.3	-2.4	-5.1	-5.2	-5.8	-3.2	9.0	-0.7	-0.8
<b>Hungary</b>																	
Headline balance	-8.8	-4.4	-6.0	-8.0	-5.5	-3.0	-4.1	-9.0	-7.3	-6.5	-7.9	-9.4	-5.1	-3.7	-4.6	-4.2	4.3
Primary balance (p)	0.1	4.8	2.9	-0.5	1.6	2.3	0.6	-4.9	-3.2	-2.1	-3.8	-5.5	-0.9	0.5	0.1	-0.1	8.4
Public debt (d)	85.6	72.4	62.9	60.9	60.8	56.1	52.7	55.9	58.6	59.5	61.7	65.9	67.1	73.0	79.8	81.4	80.6
Real GDP growth (g)	-	0.2	3.1	4.1	3.2	4.2	3.7	4.5	3.9	4.8	4.0	3.9	0.1	0.9	-6.8	1.3	1.6
Real long-term interest rate (r)	-11.4	-6.0	-4.4	-1.1	-0.3	-1.5	-0.2	2.0	1.7	1.9	3.3	1.7	-0.7	3.2	4.4	2.9	3.4
r-g	-	-6.1	-7.5	-5.1	-3.5	-5.7	-3.9	-2.5	-2.1	-2.9	-0.7	-2.2	-0.8	2.3	11.2	1.6	1.7
<b>Poland</b>																	
Headline balance	-4.4	-4.9	-4.6	-4.3	-2.3	-3.0	-5.3	-5.0	-6.2	-5.4	-4.1	-3.6	-1.9	-3.7	-7.4	-7.8	-5.1
Primary balance (p)	-	-	-	-	-	0.0	-2.2	-2.1	-3.2	-2.6	-1.3	-0.9	0.4	-1.5	-4.8	-5.1	-2.4
Public debt (d)	49.0	43.4	42.9	38.9	39.6	36.8	37.6	42.2	47.1	45.7	47.1	47.7	45.0	47.1	50.9	54.8	56.3
Real GDP growth (g)	-	6.2	7.1	5.0	4.5	4.3	1.2	1.4	3.9	5.3	3.6	6.2	6.8	5.1	1.6	3.9	4.3
Real long-term interest rate (r)	-1.8	-0.6	3.8	5.6	2.2	2.4	5.8	6.1	4.7	2.8	3.7	3.7	2.2	2.1	2.1	3.0	1.9
r-g	-	-6.8	-3.3	0.6	-2.3	-1.9	4.6	4.7	0.8	-2.6	0.1	-2.6	-4.6	-3.1	0.5	-0.9	-2.4
<b>Slovakia</b>																	
Headline balance	-3.4	-9.9	-6.3	-5.3	-7.4	-12.3	-6.5	-8.2	-2.8	-2.4	-2.8	-3.2	-1.8	-2.1	-8.0	-7.7	-4.8
Primary balance (p)	-1.0	-7.4	-3.9	-2.8	-4.0	-8.2	-2.5	-4.6	-0.3	-0.2	-1.1	-1.7	-0.4	-0.9	-6.6	-6.4	-3.2
Public debt (d)	22.1	31.1	33.7	34.5	47.8	50.3	48.9	43.4	42.4	41.5	34.2	30.5	29.6	27.9	35.6	41.1	43.3
Real GDP growth (g)	7.9	6.9	4.4	4.4	0.0	1.4	3.5	4.6	4.8	5.1	6.7	8.3	10.5	5.8	-4.9	4.2	3.3
Real long-term interest rate (r)	-1.1	5.8	16.2	13.6	2.7	-1.1	1.3	2.7	-3.3	-1.0	0.4	0.6	2.2	1.0	4.3	2.3	0.2
r-g	-9.0	-1.2	11.7	9.3	2.7	-2.5	-2.1	-1.9	-8.1	-6.0	-6.3	-7.7	-8.3	-4.7	9.3	-1.9	-3.1

Source: Eurostat, Oxford Economics, IMF IFS.

Note: - = value not available.

**Annual Variables Used in the Estimation of the Fiscal Reaction Function**

Variable	Description	Unit (range)	Source
General government primary balance	General government net lending/borrowing excluding interest (EDP definition)	% of GDP	Eurostat; AMECO for Croatia
General government consolidated gross debt	General government consolidated gross debt (EDP definition)	% of GDP	Eurostat; AMECO for Croatia
Output gap (Hodrick-Prescott)	Deviation of actual real GDP from an HP-filtered trend (with smoothing parameter of 6.25)	% of trend GDP	AMECO; authors' calculations
Output gap (deviation from potential)	Deviation of actual real GDP from potential output based on a production function (European Commission approach)	% of potential GDP	AMECO; not available for Croatia
Real GDP	GDP at 2005 market prices (chain-linked values)	million of local currency units	Eurostat; IMF for Romania
Real GDP year-on-year growth	Year-on-year growth of GDP at 2005 market prices (chain-linked values)	%	Eurostat; IMF for Romania
Output growth differential vis-à-vis Germany	Difference between annual real GDP growth in the respective country and in Germany	percentage points	Eurostat; IMF for Romania; authors' calculations
HICP inflation	All-items harmonized index of consumer prices (2005=100), average annual change	%	Eurostat
GDP deflator	Annual change of implicit price deflator index based on GDP 2005 chain-linked values	%	Eurostat
CPI inflation	Annual change of the nationally defined consumer price index	%	wiiw
Trade openness	Sum of the shares of exports and imports in GDP	% of GDP	Eurostat; authors' calculations
TI corruption perception index	Transparency International Corruption Perception Index	0 [high corruption] to 10 [no corruption]	Transparency International Corruption Perception Index annual reports
WB governance index	Simple average of all six World Bank Governance Indicators	-2.5 [weak governance] to +2.5 [strong governance]	World Bank
EC fiscal rule index	European Commission fiscal rule index; higher values indicate "better" fiscal rules	across EU-27 and 1990–2010 takes values from -1.02 to +2.32	European Commission
Elections indicator variable 1	The variable takes on the value 1 in an election year and 0 otherwise.	{0,1}	Comparative political data set III ( <a href="http://www.ipw.unibe.ch/content/team/klaus_armingeon/comparative_political_data_sets/index_ger.html">http://www.ipw.unibe.ch/content/team/klaus_armingeon/comparative_political_data_sets/index_ger.html</a> ), <a href="http://psephos.adam-carr.net">http://psephos.adam-carr.net</a> , <a href="http://www.parties-and-elections.de/">http://www.parties-and-elections.de/</a>
Elections indicator variable 2	In an election year, the variable takes on a value that equals a fraction of 1, corresponding to the fraction of the year preceding the elections; 0 otherwise. For elections in March 1997, for instance, the variable takes on the value 0.25 in 1997 and 0 otherwise.	[0,1]	
Elections indicator variable 3	In an election year, the variable takes on a value that equals a fraction of 1, corresponding to the fraction of the year preceding the elections; in the pre-election year, the variable takes on the value of the remaining fraction of 1; 0 otherwise. For elections in March 1997, for instance, the variable takes on the value 0.25 in 1997 and 0.75 in 1996 and 0 otherwise.	[0,1]	
Elections indicator variable 4	The variable takes on the value 1 in an election year and 0 otherwise; early elections are not included.	{0,1}	
Elections indicator variable 5	In an election year, the variable takes on a value that equals a fraction of 1, corresponding to the fraction of the year preceding the elections; 0 otherwise. Early elections are not included. For elections in March 1997, for instance, the variable takes on the value 0.25 in 1997 and 0 otherwise.	[0,1]	
Elections indicator variable 6	In an election year, the variable takes on a value that equals a fraction of 1, corresponding to the fraction of the year preceding the elections; in the pre-election year, the variable takes on the value of the remaining fraction of 1; 0 otherwise. Early elections are not included. For elections in March 1997, for instance, the variable takes on the value 0.25 in 1997 and 0.75 in 1996 and 0 otherwise.	[0,1]	
IMF program indicator variable	The variable takes on the value 1 if the country took part in any IMF program in the given year; 0 otherwise.	{0,1}	IMF, history of lending arrangements by country

Source: Authors' compilation.

Table A2.2

**Quarterly Variables Used in the VAR Models**

Variable	Description	Unit (range)	Source
Real foreign interest rate	German nominal long-term government bond yield (p.a.) adjusted for CPI inflation	% p.a.	Eurostat, IMF (CPI)
Real domestic interest rate	Domestic nominal long-term government bond yield (p.a.) adjusted for CPI inflation	% p.a.	Oxford Economics (these data, which were used due to the best, i.e. longest, availability, are almost perfectly correlated to Eurostat long-term government bond yield series, where available), iwiw (CPI)
Real GDP growth rate	Year-on-year growth of GDP at 2005 market prices (chain-linked values)	percentage points	Eurostat
Real effective exchange rate	Real effective exchange rate (CPI deflated)	difference of the log of index (2005=100)	IMF IFS

Source: Authors' compilation.

Table A3

**Stock-Flow Adjustments, 2002–11**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Mean 2000–11	Standard deviation
	% of GDP											
Czech Republic	-2.3	-3.8	-0.1	-2.5	-0.7	1.3	-0.1	-0.8	-0.8	0.4	-1.0	1.4
Hungary	0.8	0.4	0.0	-2.0	-0.8	-0.5	6.1	-0.4	0.8	7.5	1.2	2.9
Poland	2.0	1.0	-2.9	-0.2	0.1	0.1	1.9	-1.2	-1.3	0.3	-0.0	1.4
Slovakia	-9.2	-0.7	1.0	-6.6	-3.6	0.5	-1.5	-2.1	-0.6	-0.6	-2.3	3.1

Source: Eurostat.

Note: Positive values are debt increasing and vice versa. The stock-flow adjustment (SFA) is the difference between the change in government debt and the government deficit/surplus for a given period. It contains e.g. net acquisition of financial assets, effects of currency depreciation/appreciation on foreign currency-denominated debt, or statistical discrepancies.

Table A4.1

**VAR Coefficients, Czech Republic**

	Difference of foreign interest rate	Domestic interest rate	Growth	DlogREER
Difference of foreign interest rate (-1)	-0.147 (-0.125) [-1.177]	0.535 (-0.314) [1.706]	-0.478 (-0.525) [-0.910]	-0.142 (-0.638) [-0.223]
Domestic interest rate (-1)	-0.062 (-0.035) [-1.802]	0.843 (-0.087) [9.710]	-0.084 (-0.145) [-0.580]	-0.316 (-0.177) [-1.792]
Growth (-1)	-0.008 (-0.019) [-0.402]	-0.004 (-0.048) [-0.079]	0.701 (-0.080) [8.815]	-0.023 (-0.097) [-0.239]
DlogREER (-1)	-0.027 (-0.025) [-1.102]	0.094 (-0.062) [1.515]	0.141 (-0.104) [1.357]	0.260 (-0.127) [2.047]
Constant	0.001 (-0.002) [0.811]	0.004 (-0.004) [0.966]	0.009 (-0.007) [1.329]	0.016 (-0.008) [1.977]
Adjusted R-squared	0.022	0.646	0.627	0.094

**Residuals correlation matrix:**

	Difference of foreign interest rate	Domestic interest rate	Growth	DlogREER
Difference of foreign interest rate	1.000			
Domestic interest rate	0.335	1.000		
Growth	-0.220	-0.219	1.000	
DlogREER	0.152	-0.026	0.022	1.000

Source: Authors' calculations.

Note: Standard errors are given in round brackets and t-statistics in square brackets.

Table A4.2

**VAR Coefficients, Hungary**

	Difference of foreign interest rate	Difference of domestic interest rate	Growth	DlogREER
Difference of foreign interest rate (-1)	-0.181 (-0.130) [-1.385]	-0.123 (-0.301) [-0.408]	-0.610 (-0.333) [-1.831]	-0.833 (-0.817) [-1.019]
Difference of domestic interest rate (-1)	0.042 (-0.056) [0.754]	0.255 (-0.130) [1.967]	-0.103 (-0.144) [-0.716]	-0.506 (-0.353) [-1.435]
Growth (-1)	0.021 (-0.022) [0.917]	0.065 (-0.052) [1.271]	0.883 (-0.057) [15.454]	-0.026 (-0.140) [-0.188]
DlogREER (-1)	0.003 (-0.023) [0.115]	0.090 (-0.052) [1.742]	0.078 (-0.058) [1.352]	0.232 (-0.141) [1.643]
Constant	-0.002 (-0.001) [-1.783]	-0.001 (-0.002) [-0.539]	0.002 (-0.002) [0.974]	0.005 (-0.005) [0.907]
Adjusted R-squared	-0.014	0.053	0.798	0.070

**Residuals correlation matrix:**

	Difference of foreign interest rate	Difference of domestic interest rate	Growth	DlogREER
Difference of foreign interest rate	1.000			
Difference of domestic interest rate	0.138	1.000		
Growth	-0.238	-0.178	1.000	
DlogREER	0.075	-0.326	0.102	1.000

Source: Authors' calculations.

Note: Standard errors are given in round brackets and t-statistics in square brackets.

Table A4.3

**VAR Coefficients, Poland**

	Difference of foreign interest rate	Domestic interest rate	Growth	DlogREER
Difference of foreign interest rate (-1)	-0.154 (-0.131) [-1.173]	-0.224 (-0.253) [-0.885]	-0.188 (-0.442) [-0.425]	-2.987 (-1.036) [-2.883]
Domestic interest rate (-1)	-0.014 (-0.039) [-0.359]	0.806 (-0.074) [10.827]	-0.079 (-0.130) [-0.605]	-0.146 (-0.305) [-0.478]
Growth (-1)	-0.022 (-0.032) [-0.689]	-0.103 (-0.062) [-1.651]	0.596 (-0.109) [5.457]	0.309 (-0.256) [1.205]
DlogREER (-1)	0.008 (-0.015) [0.528]	0.072 (-0.030) [2.423]	0.028 (-0.052) [0.546]	0.180 (-0.122) [1.478]
Constant	0.000 (-0.002) [0.196]	0.011 (-0.005) [2.305]	0.020 (-0.008) [2.439]	-0.009 (-0.019) [-0.490]
Adjusted R-squared	-0.029	0.721	0.389	0.138

**Residuals correlation matrix:**

	Difference of foreign interest rate	Domestic interest rate	Growth	DlogREER
Difference of foreign interest rate	1.000			
Domestic interest rate	0.211	1.000		
Growth	0.142	-0.190	1.000	
DlogREER	0.023	0.028	0.016	1.000

Source: Authors' calculations.

Note: Standard errors are given in round brackets and t-statistics in square brackets.

Table A4.4

**VAR Coefficients, Slovakia**

	Difference of foreign interest rate	Domestic interest rate	Growth	DlogREER
Difference of foreign interest rate (-1)	-0.189 (-0.125) [-1.513]	1.085 (-0.531) [2.043]	-0.546 (-0.789) [-0.693]	0.047 (-0.551) [0.085]
Domestic interest rate (-1)	0.004 (-0.012) [0.369]	0.915 (-0.052) [17.754]	-0.081 (-0.077) [-1.056]	-0.085 (-0.053) [-1.585]
Growth (-1)	0.001 (-0.015) [0.060]	0.066 (-0.065) [1.026]	0.629 (-0.096) [6.568]	0.131 (-0.067) [1.954]
DlogREER (-1)	0.055 (-0.028) [1.973]	0.037 (-0.118) [0.316]	-0.152 (-0.176) [-0.865]	0.220 (-0.123) [1.787]
Constant	-0.002 (-0.001) [-1.680]	0.001 (-0.005) [0.119]	0.020 (-0.007) [2.857]	0.005 (-0.005) [1.140]
Adjusted R-squared	0.024	0.838	0.406	0.106

**Residuals correlation matrix:**

	Difference of foreign interest rate	Domestic interest rate	Growth	DlogREER
Difference of foreign interest rate	1.000			
Domestic interest rate	-0.008	1.000		
Growth	-0.185	0.228	1.000	
DlogREER	0.086	-0.181	-0.268	1.000

Source: Authors' calculations.

Note: Standard errors are given in round brackets and t-statistics in square brackets.

Table A5

**Average Size of Simulations of the VAR Model and of the Fiscal Reaction Function**

	Foreign real interest rate	Domestic real interest rate	GDP growth	Rate of appreciation of the real effective exchange rate	Primary balance
	% p.a.	% p.a.	% year on year	% year on year	% of GDP
Czech Republic	0.03 (1.17)	1.90 (1.87)	2.71 (2.60)	1.26 (1.69)	-2.19 (1.82)
Hungary	-0.37 (1.13)	1.67 (4.06)	2.78 (2.64)	0.75 (1.71)	0.97 (2.60)
Poland	-0.77 (1.34)	2.94 (1.62)	4.31 (1.75)	0.21 (2.60)	0.11 (1.36)
Slovakia	-0.99 (1.37)	2.01 (4.27)	4.50 (3.18)	1.19 (1.39)	-1.82 (2.86)

Source: Authors' calculations, Eurostat.

Note: Simulations are obtained by using equation (4.1) for the primary balance and (5.1) for all other variables. A positive value of the rate of appreciation of the exchange rate denotes appreciation. Standard deviations are given in percentage points in parentheses.

# The Impact of Memories of High Inflation on Households' Trust in Currencies

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*Many Central, Eastern and Southeastern European (CESEE) economies experienced periods of hyperinflation during transition. Given the importance of trust for households' financial decision making, we analyze how memories of high inflation influence people's trust in currencies. Individuals who have lived through periods of economic turbulence are more likely to perceive the euro as more trustworthy than the local currency. Individuals who have experienced hyperinflation retain an inclination for a safe haven currency and remain more alert to economic turbulence and prone to distrust currencies in general.*

*JEL classification: D03, D14, D83, D84, G01*

*Keywords: Trust in currencies, euroization, financial crisis, survey data; Central, Eastern and Southeastern Europe*

## 1 Introduction

A large body of research is concerned with resolving the causes and short-term implications of the global financial crisis. The long-run impact, by contrast, may only be inferred from previous economic crises and how they affected the beliefs and behavior of economic agents.

A growing literature sheds light on the long-run effect of crises and finds that differences in economic agents' experiences correlate with differences in subjective expectations and behavior: For the United States, Giuliano and Spilimbergo (2009) show that individuals who grew up during a recession are, among other things, (1) more likely to believe in luck rather than effort as a fundamental driver of success in life, (2) more likely to support government redistributions and (3) less confident in public institutions. Malmendier and Nagel (2011) investigate whether experience of macroeconomic shocks affects financial risk taking and find that individuals who experienced low stock market returns are less likely to invest in the stock market. Studying immigrants to the U.S.A., Osili and Paulson (2009) find that individuals who lived through banking crises in their country of origin are less likely to use banks in the U.S.A. More generally, Malmendier and Nagel (2012) show that differences in life-time experiences strongly predict differences in subjective inflation expectations. In contrast to existing models of adaptive learning, individuals put a higher weight on realizations experienced over their life-times than on other "available" historical data. Learning from experience explains the substantial disagreement between young and old individuals in periods of high surprise inflation, such as the 1970s. Ehrmann and Tzamourani (2009) examine whether memories of high inflation are likely to fade, because over time larger parts of the population have never experienced high inflation. Using micro data from the World Values Survey for 23 industrialized countries for the period 1981–2000, they find that the memories of individuals who experienced hyperinflation are there to last, whereas the memories of those who experienced less drastic inflation tend to erode after around 10 to 15 years.

Against the background of still elevated levels of currency and asset substitution in some Central Eastern and Southeastern European (CESEE) economies, the

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long-run impact of crises on economic behavior is of particular importance: Research suggests that, during transition, periods of hyperinflation as well as banking and currency crises acted as a trigger for euroization. At the same time, euroization exhibits a high level of persistence (hysteresis), which *inter alia* has been explained by network externalities and individuals' memories of economic turbulence. Studying Bulgaria, Mudd et al. (2010) provide evidence that Bulgarians who incurred losses during the 1996 crisis are more likely to expect a new crisis. Analyzing ten CESEE countries, Stix (2012) shows that memories of banking turbulence have a long-lasting effect on households' portfolio choices and lead to a preference for saving in cash.

In this study, we focus on the history of inflation in CESEE countries during and after transition and provide descriptive evidence on who remembers periods of high inflation. We then examine how such memories affect trust in the respective local currency and in the euro. We do not attempt to disentangle the complex mechanism of how past economic crises affect euroization as such; we focus on expectations rather than actual economic behavior. Our analysis is based on micro data from the OeNB Euro Survey.<sup>2</sup>

We found that memories of high inflation have a significant impact on trust in the local currency and in foreign currencies. Personal experience of a period of high inflation raises the probability of a more positive assessment of the stability of both the local currency and the euro over the short run. At the same time, memories of high inflation result in a relatively better assessment of the euro compared with the local currency. We interpret this as the long-run impact of personal hyperinflation experiences: While individuals who have experienced hyperinflation regard the current macroeconomic environment as relatively stable compared with previous crises, they still inherently distrust the domestic economy and lean toward a safe haven currency. They are also more sensitive to current economic turbulence. The sovereign debt crisis has triggered a larger decline in trust in the euro among individuals who have experienced hyperinflation than among those who have not.

The next section provides a brief overview of previous economic crises in the CESEE region in particular with regard to hyperinflation. In section 3, we introduce our dataset and present descriptive evidence. In section 4, we analyze the impact of memories of high inflation on trust in currencies. We present robustness analyses in section 5 before concluding in section 6.

## 2 Overview of Previous Periods of High Inflation

Macroeconomic crises arising before, during or after the transition from planned economies to market economies triggered a significant deterioration of trust in the local currencies in almost all CESEE countries (Ritzberger-Grünwald and Scheiber, 2012).

The nature of macroeconomic crises differed across countries. In their overview of banking crises, Laeven and Valencia (2008) show that such crises occurred in almost all CESEE countries, with the earliest banking crisis in Hungary in 1991 and the last in Croatia in 1998. Serbia is an exception as it did not experience a

<sup>2</sup> For further details, see section 3. Detailed information on the survey and recent results are available at [ceec.oenb.at](http://ceec.oenb.at).

Table 1

**Overview of Hyperinflation and High Inflation**

	Last period of hyperinflation	Last year of annual average inflation of 20% or higher	Average annual inflation rate in %			
			1995–99	2000–04	2005–09	2011
Czech Republic	x	1993	7.9	2.5	2.7	2.1
Hungary	x	1996	18.9	7.2	5.1	3.9
Poland	1989–91	1995	16.4	4.3	2.8	3.9
Bulgaria	1996–97	1998	295.0	6.4	7.1	3.4
Romania	1992–93	2002	66.9	26.2	6.8	5.9
Albania	x	1998	15.2	2.7	2.7	3.5
Bosnia and Herzegovina	1992–93	1995	10.7 <sup>1</sup>	2.2	3.4	3.7
Croatia	1992–93	1994	3.8	3.3	3.6	2.3
FYR Macedonia	1992–93	1994	4.0	2.8	2.7	3.9
Serbia	1992–94	2002	56.6	51.9	11.0	11.2

Source: *wiiw database, national central banks.*

<sup>1</sup> This value refers to 1998 and 1999.

banking crisis as such. Instead, Serbia suffered from repeated currency crises, which also beset Bulgaria, Romania and Albania. Furthermore, periods of hyperinflation afflicted Bulgaria, Poland and Romania as well as the countries of former Yugoslavia. The severest hyperinflation was seen in the constituent Republic of Serbia between 1992 and 1994.

As a consequence, households resorted to using a safe haven currency (Feige and Dean, 2004), which in many countries initially was the Deutsche mark or the Austrian schilling. In 2002, such cash holdings were largely directly exchanged for euro cash holdings (Stix, 2002).

In the meantime, countries have successfully pursued policies of macroeconomic stabilization and have brought down inflation significantly.<sup>3</sup> In all countries, 10 years – in some, almost 20 years – have passed since inflation was above 20%. Still, Serbia and Romania recorded relatively high inflation rates over the last decade (see table 1).<sup>4</sup> Nevertheless, currency substitution and deposit euroization persist, in particular in Southeastern European countries. The overall degree of euroization – the share of euro cash and foreign currency deposits over total currency in circulation and total deposits of the household sector – is as high as 90% in Serbia, above 50% in FYR Macedonia and Croatia and around 40% in Bulgaria, Bosnia and Herzegovina, Albania and Romania.<sup>5</sup>

Research suggests that one reason for the persistence of euroization is that households do not forget economic crises and consider the risk of recurrence to be rather high (Mudd et al., 2010). Hence, trust in the local currency will only be restored very slowly. In the next section, we present the survey data and descriptive evidence we used to investigate this issue.

<sup>3</sup> *Backé et al. (2003) present a thorough analysis of inflation and disinflation dynamics in Central and Eastern Europe between 1990 and 2001.*

<sup>4</sup> *To a lesser extent this is also true for Bulgaria and Hungary.*

<sup>5</sup> *For details, see Scheiber and Stix (2009).*

### 3 Households' Trust in Currencies and Experience with Previous Periods of High Inflation: Data and Descriptive Statistics

Our data are taken from the OeNB Euro Survey, which has been carried out on commission of the OeNB in Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, FYR Macedonia, Hungary, Poland, Romania and Serbia on a semiannual basis since fall 2007, with the latest survey in spring 2012. Each of the ten survey waves polled a representative sample of 1,000 households in each country. The survey collects information on households' loan and saving decisions as well as their economic sentiments and expectations.

The central variables of our analysis are households' trust in the stability of the local currency and trust in the stability of the euro. All respondents were asked whether they agreed or disagreed on a scale from 1 (strongly agree) to 6 (strongly disagree) with the following statements:

- *Over the next five years, the local currency will be very stable and trustworthy.*
- *Over the next five years, the euro will be very stable and trustworthy.*

The euro outperformed the local currencies in all CESEE countries in terms of relative trust levels over time (see charts A1 and A2 in the annex). This lead in trust shrank substantially since fall 2011, except for Serbia, where it declined only marginally. The relative assessment thus turned to the disadvantage of the euro in spring 2012. But trust in the euro still exceeded trust in the local currencies in 7 out of the 10 countries, with the exceptions being the Czech Republic, Bosnia and Herzegovina and FYR Macedonia. This fits in well with the fact that the Czech koruna appreciated against the euro, while FYR Macedonia maintained a stable exchange rate. The currency boards in Bosnia and Herzegovina and in Bulgaria seem to have had a different effect: While trust in the local currency remained stable over time in Bosnia and Herzegovina, it continually increased in Bulgaria.

#### 3.1 What Does Trust in Currencies Measure?

The survey questions are rather broad in their design and could measure a range of factors influencing households' trust in the respective currency. As a first step,

Table 2

#### Correlation of Trust in the Local Currency/Euro and Other Measures of Economic Expectations and Trust

	Trust in LC	Trust in EUR	Expected appreciation	Expected inflation	Expected change in economic situation	Trust in government	Trust in EU
Trust in LC	1						
Trust in EUR	0.21	1					
Expected appreciation	0.22	-0.04	1				
Expected inflation	-0.13	0.11	-0.12	1			
Expected change in economic situation	0.51	0.19	0.13	-0.2	1		
Trust in government	0.25	0.1	0.07	-0.16	0.35	1	
Trust in EU	0.17	0.25	-0.02	-0.05	0.23	0.37	1

Source: OeNB Euro Survey.

Note: The figures show the Spearman correlation coefficient. For an explanation of the variables, see table A1 in the annex.

table 2 shows the correlation of trust in the stability of the local currency and the euro with various measures of expectations and trust. Trust in the stability of the local currency is positively correlated with expectations of local currency appreciation against the euro and negatively correlated with expectations of inflation. It is highly correlated with expectations about the overall economic situation and also captures trust in the local government.

Perhaps, somewhat surprisingly, trust in the local currency and trust in the euro are positively correlated, which probably reflects an overall propensity to trust or distrust. As one would expect, trust in the euro is also positively correlated with trust in the EU.

### 3.2 Memories of High Inflation

Regarding the long-term impact of previous economic crises, we use evidence from a question about respondents' memories:

- *I remember periods of high inflation during which the value of the local currency depreciated sharply.*

Respondents were asked whether they agreed or disagreed with this statement on a scale from 1 to 6. Table 3 presents the percentage of respondents who remember periods of high inflation. The share of respondents generally agreeing (column 1) is rather high even in countries which did not see periods of hyperinflation during the transition process. In these countries, the share of respondents who "strongly agree" (column 2) is much lower, however. As our sample includes respondents aged 15 years and older, we compute the age of the respondents at the time of hyperinflation. Less than 1% of respondents who were five years or younger at the time of hyperinflation claim to remember periods of high inflation. It seems reasonable that memories of hyperinflation are passed on to a small percentage of respondents who did not live through this period themselves. Importantly, the share of respondents remembering periods of high inflation (an average 61% of all respondents) is consistent across survey waves, which lends

further support to the robustness of our measure. In particular, we can be reasonably confident that our results do not suffer from memory bias, i.e. the recent crisis does not seem to have an influence on reported memories.

### 4 Impact of Crisis Experiences on Trust in the Local Currency

We focus on identifying the effect of memories of inflation on trust in the local currency versus the euro.

#### 4.1 Empirical Specification

Our analysis of trust in the local currency versus the euro is a general specification including sociodemographic variables that have been shown to have some explanatory power regarding over-

Table 3

#### Memories of High Inflation

	Agree	Strongly agree
	%	
Czech Republic	47	4
Hungary	68	19
Poland	62	15
Bulgaria	80	51
Romania	68	11
Albania	61	11
Bosnia and Herzegovina	38	5
Croatia	41	9
FYR Macedonia	68	26
Serbia	79	43

Source: OeNB Euro Surveys.

Note: The figures denote averages from fall 2007 to fall 2011. The column "Agree" comprises respondents answering "Strongly agree," "Agree," and "Somewhat agree." Respondents answering "Don't know" and "No answer" are excluded.

all trust levels<sup>6</sup> (e.g. Knell and Stix, 2009). Our baseline specification is as follows:

$$trust_i = \beta_0 + \beta_1 X_i + \beta_2 Y_i + \beta_3 memories_i + \gamma_{ct} + \mu_c + \tau_t + \varepsilon_i$$

where  $trust_i$  indicates the response of respondent  $i$  to the questions about trust in the stability of the local currency and the euro and a relative measure of trust discussed below. Answers on the ordinary scale were mapped into a binary variable which takes the value 1 for respondents who trust the respective currency.  $X_i$  are sociodemographic controls; in particular, we included education, income, household size and whether or not the respondent is the head of the household.  $Y_i$  are controls for the respondent's economic situation and attitudes, and  $memories$  is a dummy variable that takes the value 1 if respondents remember periods of high inflation. We included country and time effects ( $\mu_c$ ,  $\tau_t$ ) as well as interacted time and country fixed effects ( $\gamma_{ct}$ ) to control for spurious correlation between country-specific characteristics and  $trust$  as well as for a recent common national and global history which could influence  $trust$ . For a detailed explanation of the variables and descriptive statistics, see the annex. We estimated the model by applying a probit-estimator with standard errors adjusted for clustering at the country level.<sup>7</sup>

#### 4.2 Memories of High Inflation: Determinants of Trust in the Local Currency or the Euro and Relative Trust

Table 4 shows the results of our baseline estimation. Sociodemographic controls overall do not have a significant impact on trust in the local currency, trust in the euro or relative trust. Interestingly, respondents with a higher income are more likely to trust both the local currency and the euro. This is in line with expectations. In addition, respondents with a higher education are less likely to trust the euro and more likely to have more faith in the local currency than the euro. This could be related to a higher level of financial literacy and better sources of information. Regarding trust in the euro, our result that individuals with a higher income are more likely to trust the euro ties in with Osińska and Torój (2012). Respondents who have a bank account are more likely to trust the euro. Interestingly this is not true for the local currency – perhaps because in highly euroized countries deposits are denominated in foreign currency. We included “trust in deposit safety” as a measure of the respondents' overall propensity to trust and found that those who place higher trust in the financial system are more likely to trust both the local currency and the euro.<sup>8</sup>

Regarding memories of high inflation, interestingly, the results show a significant positive effect on trust in the local currency. Respondents who experienced

<sup>6</sup> However, for our particular estimation, age and employment status (retired and student) are likely to be correlated with “memory.” Results do not change when we include or exclude these variables. To avoid multicollinearity, we exclude these variables from our estimation.

<sup>7</sup> For the estimations, we used data from fall 2007 to fall 2011, as the spring wave 2012 did not include the question on memories of high inflation.

<sup>8</sup> One could argue that this variable is endogenous. Excluding it from the estimation does not change results. As an alternative measure we employ “trust in police,” which is a more general measure of trust. Including this in the estimation instead of trust in deposit safety does not change results. Unfortunately, however, trust in police is not available for all survey waves.

Table 4

**Determinants of Trust in Currencies**

	Trust in LC	Trust in EUR	Relative trust
Memory of high inflation	0.041 *** (0.016)	0.089 *** (0.017)	-0.014 * (0.008)
Trust in deposit safety	0.286 *** (0.023)	0.199 *** (0.016)	0.000 (0.007)
Bank account	0.011 (0.008)	0.020 *** (0.007)	-0.009 (0.006)
Female	-0.009 (0.006)	-0.003 (0.005)	-0.006 * (0.003)
Two-person household	-0.012 (0.008)	-0.001 (0.005)	-0.004 (0.005)
Larger household	-0.011 (0.01)	0.011 (0.011)	-0.004 (0.008)
Head of household	-0.016 * (0.009)	-0.021 *** (0.006)	0.003 (0.005)
Children	-0.009 (0.009)	0.015 * (0.009)	-0.011 (0.007)
Income high	0.046 *** (0.018)	0.025 * (0.013)	0.002 (0.004)
Income medium	0.023 ** (0.009)	0.022 ** (0.01)	0.004 (0.005)
Income no answer	0.001 (0.015)	-0.015 (0.016)	0.005 (0.009)
Education high	-0.007 (0.01)	-0.027 ** (0.012)	0.011 * (0.006)
Education medium	-0.019 * (0.011)	-0.029 *** (0.008)	0.009 ** (0.004)
Log-L	-40,070.2	-34,366.3	-25,328.2
N	66,111	65,383	62,069
P(DepVar=1)	0.45	0.72	0.15
Country, time and interacted effects	Yes	Yes	Yes

Source: Authors' estimations.

Note: Marginal effects from probit model, standard errors (adjusted for clustering at the country level in parentheses). \*\*\*, \*\*, \* denote significance at the 1%, 5% and 10% level. For a definition of the main variables, see the annex. P(DepVar=1) denotes the unconditional sample probability of the respective dependent variable.

Directly including these measures in our estimations would introduce endogeneity issues. Respondents expecting positive economic developments are likely to trust the local currency and the euro. However, the causality may also go in the opposite direction. Positive expectations about currency stability may improve expectations about overall economic developments. We used two ways to estimate the impact of the recent crisis. First, we included two dummy variables:<sup>10</sup> The *global crisis* dummy takes the value 1 for the surveys from October/November 2008 to October/November 2009 and zero otherwise. The *sovereign debt crisis* dummy takes the value zero in the surveys before April/May 2010 and 1 otherwise. We found that the global financial crisis exhibits an impact on trust in the euro, but

<sup>9</sup> For an explanation of how the dummy variable is derived from the two questions, see table A2 in the annex.

<sup>10</sup> As an alternative, we defined the dummy variables so that the time span overlaps, i.e. *global crisis* takes the value 1 from fall 2008 onward and *sovereign debt crisis* takes the value 1 from spring 2010 onward and zero otherwise. This does not affect results.

periods of high inflation are 4 percentage points more likely to expect the local currency to be stable and trustworthy over the next five years. Relative to previous periods of high inflation the local currency is perceived as very stable and trustworthy over the next five years. As to trust in the euro, memories of high inflation likewise have a significant positive effect. This is in line with the expectation that respondents who experienced high inflation tend to trust a safe haven currency. In column 3 of table 4, we look at the relative assessment of the local currency versus the euro. For that purpose, we constructed a binary dependent variable which combines the results for the two questions.<sup>9</sup>

Interestingly, memories of high inflation have a significant negative impact on this relative measure of trust. In other words, respondents who experienced high inflation are more likely to view the euro as more stable than the local currency.

### 4.3 Impact of the Global Crisis and the Sovereign Debt Crisis

Trust in the stability of the local currency and the euro is highly correlated with the assessment of the current general economic situation (see table 2).

the effect on the local currency is only significant at the 10% level. The effect of the global crisis on trust is very likely to differ across countries, though. The global crisis does not increase the probability that the euro is trusted more than the local currency (see table 5). By contrast, the sovereign debt crisis does not affect trust in the local currency, but lowers trust in the euro by 15 percentage points, which is equal to one-fifth of the unconditional sample probability of 72%. Furthermore, the sovereign debt crisis increases the probability that the local currency is trusted 6 percentage points more than the euro.

Second, we split the sample at fall 2008 and at spring 2010 (results not shown). Up to fall 2008, the impact of memories on trust remains largely unchanged. After the outbreak of the global financial crisis, the results on absolute trust also remain unchanged, but the impact of memory on relative trust becomes insignificant. Up to the sovereign debt crisis in spring 2010, the results remain largely unchanged. As from spring 2010, the impact of memory on relative trust is, again, insignificant.

By including country, time and interacted fixed effects, the focus of our analysis is on interpersonal differences regarding the impact of memories on trust. However, in the context of the current crisis, it is worth investigating differences in trust in the local currency across exchange rate regimes. In particular, both Bosnia and Herzegovina and Bulgaria have been operating a currency board. Preliminary results show that the currency board in Bosnia and Herzegovina has a positive and significant effect on trust in the local currency throughout the analyzed period. For Bulgaria, we see that trust in the local currency increased around the crisis (see chart A1 in the annex). This is confirmed in preliminary estimations: While the currency board effect for Bulgaria was negative up to the crisis, thereafter the effect on trust turned positive and significant. This suggests that (1) in surviving the global financial crisis, the currency board passed an important test in the eyes of those who had previously distrusted the lev and (2) memories of hyperinflation are beginning to wear off and trust is being rebuilt, with the time span of around 15 years being close to other research (e.g. Ehrmann and Tzamourani, 2009). These results are preliminary, however, and could point out a line for future research.

#### 4.4 Memories of High Inflation and the Recent Crises

The percentage of respondents who remember periods of high inflation is consistent across survey waves. In particular, there is no sign that recent events have influenced reported memories, i.e. our results do not seem to be driven by memory bias. Those who remember previous crises might, however, perceive the global financial crisis and the sovereign debt crisis differently. To investigate this, we interacted the dummies for *global crisis* and for *sovereign debt crisis* with the dummy for *memory of high inflation*. Table 5 reports the results.

The results concerning memories of inflation as such remain unchanged. Respondents who remember periods of high inflation are more likely to assess the local currency and the euro as stable over the next five years and they trust the euro relatively more than the local currency. The global crisis does not seem to have had a different impact on respondents previously exposed to high inflation than on those who were not. Trust levels decreased in general, but there is no

Table 5

**Memories of High Inflation and Recent Crises**

	Trust in LC	Trust in EUR	Relative trust
Memory of high inflation	0.049 ** (0.023)	0.115 *** (0.017)	-0.029 ** (0.013)
Global crisis	-0.042 * (0.022)	-0.050 *** (0.018)	-0.012 (0.012)
Sovereign debt crisis	-0.039 (0.030)	-0.151 *** (0.020)	0.056 ** (0.022)
Global crisis*memory of high inflation	0.008 (0.016)	0.003 (0.018)	0.010 (0.011)
Sovereign debt crisis*memory of high inflation	-0.020 (0.027)	-0.053 ** (0.022)	0.025 (0.019)
Log-L	-40,667.9	-34,948.6	-25,759.0
N	66,111	65,383	62,069
P(DepVar=1)	0.45	0.72	0.15
Other controls	Yes	Yes	Yes
Country effects	Yes	Yes	Yes
Time effects	No	No	No

Source: Authors' calculations.

Note: Marginal effects from probit model, standard errors (adjusted for clustering at the country level in parentheses). \*\*\*, \*\*, \* denote significance at the 1%, 5% and 10% level. For a definition of the main variables, see the annex. "Other controls" comprises all control variables used in the baseline estimation (table 4). P(DepVar=1) denotes the unconditional sample probability of the respective dependent variable.

differential impact on respondents who remember previous crises. This is probably due to the global nature of the crisis.

By contrast, respondents who remember economic crises reacted more strongly to the sovereign debt crisis. After the outbreak of the sovereign debt crisis, they are 5 percentage points less likely to trust the euro compared with those who do not remember high inflation.<sup>11</sup> At the same time, though, this loss of trust is not compensated for by an increase in trust in the local currency.

## 5 Robustness Checks

We checked the robustness of our results by repeating the estimations, using the assessment of the current stability of the local currency and the euro as a dependent variable. This did not change the results qualitatively.

We also checked the robustness of the

results by exclusively applying a strict definition of memories, i.e. by defining the dummy variable only for those who strongly agree that they remember periods of high inflation. We found that strong memories of hyperinflation significantly increase the probability of trust in the euro, while not impacting trust in the local currency or relative trust. However, when we dropped countries from the analysis which did not experience hyperinflation, strong memories of high inflation exerted a significant impact on trust in the local currency and relative trust in currencies. In further robustness checks, we dropped young respondents from the analysis. We also dropped one country at a time from our sample to ensure that the results were not driven by a particular country. None of these modifications changed our results qualitatively.

## 6 Conclusions

We examined how personal experiences of high inflation in CESEE affect trust in the local currency and trust in the euro. We found that memories of high inflation have a significant positive impact on trust in the local currency as well as in the euro. Respondents with memories of high inflation probably perceive stabilization relative to their prior experience and are more likely to trust that the local currency will be stable over the next five years.

Regarding trust in the euro, we found that those who remember periods of high inflation are more likely to expect the euro to be stable and trustworthy. In

<sup>11</sup> The positive coefficient of the memory of high inflation (0.115) outweighs the negative coefficient of the interacted sovereign debt crisis effect (-0.053).

fact, up to the sovereign debt crisis, memories of high inflation resulted in a relatively more positive assessment of the euro compared with the local currency. We interpret this as the long-run impact of hyperinflation: Even though respondents who experienced hyperinflation are aware of recent macroeconomic stabilization, they nevertheless lean toward a safe haven currency. In addition, they appear to be especially sensitive in their overall perception of economic turbulence. The sovereign debt crisis has eroded trust in the euro in particular among those who remember hyperinflation. However, the relative assessment of the local currency versus the euro, even for those who remember hyperinflation, at present does not seem to be affected by the sovereign debt crisis. It would be interesting to see whether their perception of the euro as less trustworthy actually makes them turn to a different safe haven currency. Such data are not available, however.

Overall, we showed that living through periods of high inflation has a long-lasting impact on trust in currencies and expectations about their stability. Once a currency has lost its purchasing power, it is difficult to restore trust in this currency: Even if it is perceived as relatively stable at present, individuals will nevertheless lean to a safe haven currency. We cannot show the mechanism behind this effect, but posit that respondents are more uncertain in their expectations about the stability of currencies. In addition, our results suggest that there is a spillover effect between currencies. Past exposure to high inflation shapes individuals' susceptibility to crises affecting other currencies.

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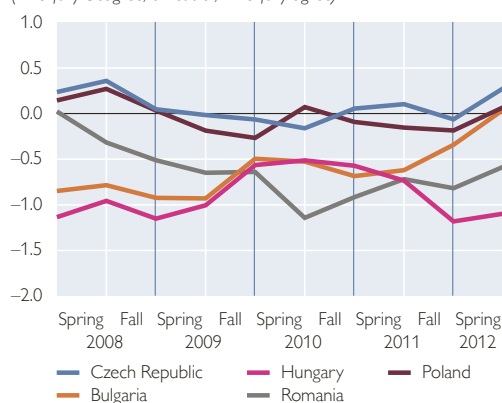
## Annex

Chart A1

### Consent to the Statement: Over the Next Five Years, the Local Currency Will Be Very Stable and Trustworthy

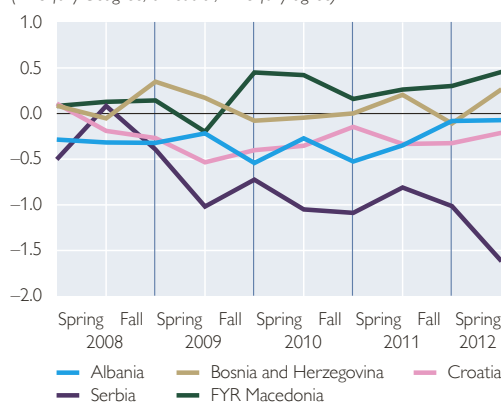
#### EU Member States

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



#### (Potential) Candidate Countries

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



Source: OeNB Euro Survey.

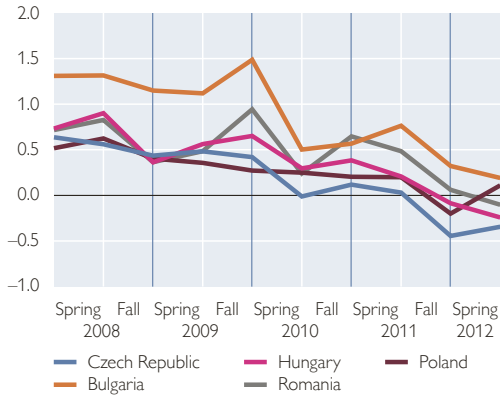
Note: Respondents were asked whether they agreed or disagreed on a scale from 1 (strongly agree) to 6 (strongly disagree) to the statement above.

Chart A2

### Consent to the Statement: Over the Next Five Years, the Euro Will Be Very Stable and Trustworthy

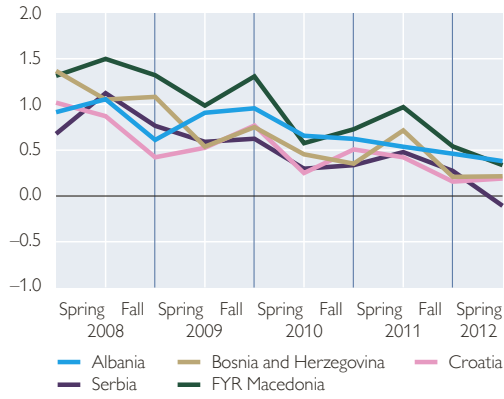
#### EU Member States

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



#### (Potential) Candidate Countries

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



Source: OeNB Euro Survey.

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

Table A1

**Variable Description**

Variable	Description
Bank account	Dummy variable; 1 if a respondent possesses savings deposits and/or transaction accounts (including wage cards).
Children	Dummy variable that takes the value 1 if there are children in the household.
Education (high, medium, low)	Dummy variables; degree of education (university level, medium level, and basic education). Omitted category: education low.
Expected appreciation	Categorical variable derived from the question "How do you think the exchange rate of the [LOCAL CURRENCY] against the euro will develop over the next five years?" Reply options range from 1 "The local currency will lose value" to 2 "Will stay the same" to 3 "Will gain value." Respondents answering "Don't know" and "No answer" are excluded.
Expected change in economic situation	Categorical variable derived from the statement "Over the next five years, the economic situation of [MY COUNTRY] will improve." Respondents may agree on a scale from 1 (strongly disagree) to 6 (strongly agree). Respondents answering "Don't know" and "No answer" are excluded.
Expected inflation	Categorical variable derived from the statement "Over the next year, prices will strongly increase in [MY COUNTRY]." Respondents may agree on a scale from 1 (strongly disagree) to 6 (strongly agree). Respondents answering "Don't know" and "No answer" are excluded.
Female	Dummy variable that takes the value 1 if respondents are female.
Income (high, medium, low, no answer)	Dummy variables that take the value 1 for each net household income tercile (high, medium, low). Sample values are used to construct terciles. An additional dummy variable (no answer) is defined for respondents who skipped this question. Omitted category: income low.
Head of household	Dummy variable that takes the value 1 if the respondent is the head of the household.
Size of household (two-person household and large household)	Size of household: 1 person, 2 persons, 3 or more persons. Omitted category: one-person household.
Memory of high inflation	Dummy variable derived from the statement "I remember periods of high inflation during which the value of the [LOCAL CURRENCY] dropped sharply." Respondents may agree on a scale from 1 (strongly agree) to 6 (strongly disagree). Answers from 1 to 3 are coded as 1, from 4 to 6 as 0. Respondents answering "Don't know" and "No answer" are excluded.
Trust in deposit safety	Dummy variable derived from the statement "Currently, depositing money at banks is very safe in my country." Respondents may agree on a scale from 1 (strongly agree) to 6 (strongly disagree). Answers from 1 to 3 are coded as 1, from 4 to 6 as 0. Respondents answering "Don't know" and "No answer" are excluded.
Trust in EU / government	Categorical variable derived from the question "I would like to ask you a question about how much trust you have in certain institutions. For each of the following institutions, please tell me if you tend to trust it or tend not to trust it." 1 means "I do not trust at all," 2 means "I somewhat distrust," 3 means "I neither trust nor distrust," 4 means "I somewhat trust," 5 means "I trust completely": (a) the EU and (b) the government. Respondents answering "Don't know" and "No answer" are excluded.
Trust in EUR	Dummy variable derived from the statement "Over the next five years, the euro will be very stable and trustworthy." Respondents may agree on a scale from 1 (strongly agree) to 6 (strongly disagree). Answers from 1 to 3 are coded as 1, from 4 to 6 as 0. Respondents answering "Don't know" and "No answer" are excluded.
Trust in LC	Dummy variable derived from the statement "Over the next five years, the local currency will be very stable and trustworthy." Respondents may agree on a scale from 1 (strongly agree) to 6 (strongly disagree). Answers from 1 to 3 are coded as 1, from 4 to 6 as 0. Respondents answering "Don't know" and "No answer" are excluded.

Table A2

**Coding of Relative Trust Dummy**

Over the next five years, the local currency will be very stable and trustworthy

	1	2	3	4	5	6
1 = strongly agree						
6 = strongly disagree						
Over the next five years, the euro will be very stable and trustworthy	1	0	1	1	1	1
	2	0	0	1	1	1
	3	0	0	0	1	1
	4	0	0	0	0	1
	5	0	0	0	0	1
	6	0	0	0	0	0

Table A3

**Descriptive Statistics**

Dependent variables	Min/max	CZ	HU	PL	BG	RO	AL	BA	HR	FYR Macedonia	RS	Total
Trust in LC	0/1	0.56 (0.5)	0.26 (0.44)	0.53 (0.5)	0.37 (0.48)	0.34 (0.47)	0.42 (0.49)	0.55 (0.5)	0.49 (0.5)	0.61 (0.49)	0.32 (0.47)	0.45 (0.5)
Trust in EUR	0/1	0.64 (0.48)	0.71 (0.46)	0.65 (0.48)	0.8 (0.4)	0.72 (0.45)	0.77 (0.42)	0.73 (0.44)	0.73 (0.44)	0.83 (0.38)	0.68 (0.47)	0.73 (0.45)
Relative trust	0/1	0.23 (0.42)	0.08 (0.28)	0.23 (0.42)	0.1 (0.3)	0.11 (0.31)	0.15 (0.36)	0.18 (0.38)	0.14 (0.35)	0.15 (0.36)	0.11 (0.31)	0.15 (0.36)
<b>Explanatory variables</b>												
Bank account	0/1	0.64 (0.48)	0.39 (0.49)	0.69 (0.46)	0.45 (0.5)	0.46 (0.5)	0.63 (0.48)	0.44 (0.5)	0.56 (0.5)	0.61 (0.49)	0.44 (0.5)	0.53 (0.5)
Children	0/1	0.36 (0.48)	0.29 (0.45)	0.31 (0.46)	0.52 (0.5)	0.25 (0.43)	0.5 (0.5)	0.36 (0.48)	0.3 (0.46)	0.48 (0.5)	0.42 (0.49)	0.38 (0.48)
Education high	0/1	0.11 (0.32)	0.17 (0.38)	0.23 (0.42)	0.25 (0.43)	0.26 (0.44)	0.2 (0.4)	0.1 (0.3)	0.12 (0.33)	0.16 (0.37)	0.18 (0.38)	0.17 (0.38)
Education medium	0/1	0.8 (0.4)	0.6 (0.49)	0.67 (0.47)	0.62 (0.49)	0.53 (0.5)	0.58 (0.49)	0.68 (0.47)	0.72 (0.45)	0.55 (0.5)	0.59 (0.49)	0.64 (0.48)
Female	0/1	0.5 (0.5)	0.53 (0.5)	0.52 (0.5)	0.49 (0.5)	0.53 (0.5)	0.5 (0.5)	0.54 (0.5)	0.54 (0.5)	0.54 (0.5)	0.49 (0.5)	0.52 (0.5)
Income high	0/1	0.3 (0.46)	0.24 (0.43)	0.19 (0.4)	0.19 (0.39)	0.26 (0.44)	0.33 (0.47)	0.27 (0.44)	0.29 (0.46)	0.26 (0.44)	0.2 (0.4)	0.26 (0.44)
Income medium	0/1	0.3 (0.46)	0.26 (0.44)	0.34 (0.48)	0.26 (0.44)	0.25 (0.43)	0.3 (0.46)	0.27 (0.44)	0.26 (0.44)	0.27 (0.45)	0.24 (0.43)	0.28 (0.45)
Income no answer	0/1	0.03 (0.18)	0.18 (0.38)	0.12 (0.32)	0.3 (0.46)	0.28 (0.45)	0.1 (0.3)	0.23 (0.42)	0.2 (0.4)	0.09 (0.29)	0.24 (0.43)	0.18 (0.38)
Head of household	0/1	0.55 (0.5)	0.63 (0.48)	0.52 (0.5)	0.56 (0.5)	0.64 (0.48)	0.45 (0.5)	0.55 (0.5)	0.53 (0.5)	0.52 (0.5)	0.56 (0.5)	0.55 (0.5)
Two-person household	0/1	0.34 (0.47)	0.31 (0.46)	0.29 (0.45)	0.27 (0.45)	0.36 (0.48)	0.12 (0.32)	0.24 (0.42)	0.24 (0.42)	0.14 (0.34)	0.17 (0.37)	0.25 (0.43)
Larger household (3 or more people)	0/1	0.56 (0.50)	0.47 (0.5)	0.61 (0.49)	0.62 (0.49)	0.46 (0.5)	0.86 (0.35)	0.67 (0.47)	0.62 (0.49)	0.81 (0.39)	0.77 (0.42)	0.64 (0.48)
Memory of high inflation	0/1	0.47 (0.5)	0.68 (0.47)	0.62 (0.48)	0.81 (0.39)	0.68 (0.47)	0.6 (0.49)	0.38 (0.49)	0.41 (0.49)	0.68 (0.47)	0.8 (0.4)	0.61 (0.49)
Trust in deposit safety	0/1	0.64 (0.48)	0.39 (0.49)	0.69 (0.46)	0.45 (0.5)	0.46 (0.5)	0.63 (0.48)	0.44 (0.5)	0.56 (0.5)	0.61 (0.49)	0.44 (0.5)	0.53 (0.5)

Source: OeNB Euro Survey.

Note: Entries refer to sample means. Entries in parentheses refer to standard deviations.



## Event Wrap-Ups

# IMF October 2012 World Economic Outlook and Global Financial Stability Report

Compiled by  
Christina Lerner

Global economic growth is being hampered by uncertainty, prospects have deteriorated further, and downside risks have increased and are considerable: Both the IMF's World Economic Outlook (WEO) and Global Financial Stability Report (GFSR) of October 2012 paint a gloomier picture of the global economy than a few months ago.

The WEO subtitled "Coping with High Debt and Sluggish Growth" shows that uncertainty is weighing heavily on global output. Assessing the precise nature and effects of this uncertainty is crucial, but difficult. If uncertainty were to be reduced, the recovery could well turn out to be stronger than currently forecast. A key issue is whether the global economy is just suffering from a slow and bumpy recovery or whether the current slowdown is here to stay.

World output is projected to increase by 3.3% in 2012 and 3.6% in 2013, while euro area growth is forecast to contract by 0.4% in 2012 and to increase by 0.2% in 2013. The analogous projections for Central, Eastern and Southeastern European (CESEE) countries are +2% (2012) and +2.6% (2013). In advanced economies, an accommodative monetary policy helps stimulate growth, offsetting the drag from fiscal consolidation and a still-weak financial system.

Unemployment is expected to stay elevated in many parts of the world. Global imbalances have decreased, but there is still a need for more decisive policy action to tackle them. Within the euro area, current account imbalances and deficits in most periphery economies need to align further.

According to both the WEO and GFSR, which is subtitled "Restoring Confidence and Progressing on Reforms," the euro area crisis is the most obvious threat to the global outlook. As the crisis intensified, new interventions became necessary to prevent further deterioration. The crisis has shown that euro area countries can be hit by strong, country-specific shocks, the adverse effects of which may then be amplified by weak banks. To break the negative feedback loops between sovereigns and banks, the European Financial Stability Facility (EFSF) and its permanent successor, the European Stability Mechanism (ESM), must provide support for countries facing economic challenges and the banks operating in these countries to relieve funding pressures. Sovereigns in need of assistance should apply for resources pooled under the EFSF/ESM to preserve or regain market access. The IMF calls on governments to make the euro area firewall more flexible and the ESM operational as soon as possible. In particular, the ESM should be allowed to intervene in banking systems.

The ECB's commitment to act on secondary markets via the Outright Monetary Transaction (OMT) program is considered to be an important step in the right direction, which has improved financial conditions. However, serious risks remain and anti-crisis measures should be anchored by the vision of a more complete monetary union.

While the crisis has also spurred a host of regulatory reforms, financial systems are still too complex and concentrated, with tight domestic interbank linkages. European policymakers have announced policy measures aimed at reversing the fragmentation of euro area financial markets and strengthening EMU's architecture; now they need to be implemented at the national level.

To ensure market confidence in the viability of EMU, according to the WEO, such a union should rest on four pillars: common supervision, harmonized regulation, a pan-European deposit guarantee scheme, and a pan-European resolution mechanism with common backstops.

While the WEO expects advanced economies to face sluggish growth, output in emerging market and developing economies is forecast to remain relatively solid. In the CESEE economies, improving financial conditions in the crisis-hit economies, stronger demand from the euro area and the end of a boom-bust cycle in Turkey are expected to raise growth back to 4% later in 2013.

But low growth and prevailing uncertainty in advanced economies will also affect emerging market and developing economies, through both trade and financial channels. Financial stress in the euro area periphery has soared. Hence, the environment for emerging market economies (EMEs) has turned more challenging, as the euro area crisis sends renewed shockwaves through a fragile global economy: The GFSR sees the main risk to EMEs in their banking systems struggling with deleveraging pressures, worsening asset quality and slow growth. Among all EMEs, the GFSR considers the CESEE countries to be the most vulnerable given their exposure to the euro area and some similarities with the euro area periphery. EMEs need to beware of potential further fallout from the euro area, while coping with a slowdown in growth that could expose domestic financial stability risks.

# 10<sup>th</sup> ESCB Emerging Markets Workshop<sup>1</sup>

Compiled by  
Tomáš Slačik

On October 4 and 5, 2012, the OeNB hosted the 10<sup>th</sup> ESCB workshop on emerging markets. This workshop series, launched by the ESCB in 2003, provides researchers with a platform for disseminating relevant research conducted on macroeconomic and financial issues in emerging economies. Nowadays, invitations to the workshop are also extended to non-ESCB central banks. Therefore, with more than 40 – mostly excellent – submissions from over 20 countries including e.g. Russia, Kosovo and many Latin American countries, the jury was truly spoiled for choice this year. Within the course of 1.5 days, the program organizers accommodated two stimulating keynote speeches and 13 papers. Moreover, the exchange of views benefited considerably from discussants' contributions as well as questions and comments raised by the large audience, which provided highly positive feedback.

The first session was chaired by *Peter Mooslechner*, Director of the OeNB's Economic Analysis and Research Department. In the introductory statement, he pointed to the growing economic and political importance of emerging markets for the global economy in general and for Austria in particular. One of the main driving forces behind the success story of emerging markets – and also one of its major consequences – is increasing economic and financial integration. It manifests itself, inter alia, in new and deepening trade linkages, rising cross-border capital flows and FDI investments. Every coin has two sides, however. Intensifying real and financial integration with emerging markets and their rise on the global scene – while being instrumental in spurring economic growth and welfare – also hold risks and imply new big challenges for monetary, regulatory, fiscal and supervisory authorities in both advanced and emerging economies. Against this backdrop, Mooslechner closed by highlighting the aim of the ESCB workshop on emerging markets: to unveil these risks, challenges and vulnerabilities and to help resolve them.

## **Macprudential Policy: Expanding Central Banks' Countercyclical Arsenal**

In the first keynote address, *Andrzej Sławinski*, General Director of the Economic Institute of Narodowy Bank Polski, emphasized – against the background of the genesis of the current crisis – the crucial role of macroprudential instruments as a second weapon of central banks' countercyclical policy, i.e. besides monetary policy tools. In particular, the recent economic and financial crisis calls for macroeconomic stability to be set as a direct target for macroprudential policy to facilitate a timely reaction to macroeconomic imbalances resulting from excessive credit growth. So far macroprudential policy has been used as a countercyclical tool most actively in emerging economies due to their exposure to the destabilizing impact of short-term interbank funding. According to Sławinski, the merits of such an approach are so obvious that it is set to be adopted in an increasing number of countries, particularly under the framework of the planned banking union in the European Union.

<sup>1</sup> The presentations and workshop program are available at <http://ceec.oenb.at> (Events).

## Monetary Policy and Capital Flow Issues in Emerging Markets

Addressing the risks and challenges emanating from emerging markets' strengthening role on the global stage, the presented papers broadly centered on (1) monetary policy and capital flows, (2) financial and fiscal stability, and (3) real economy issues. To ensure focused discussions, each of the three sessions was divided into two blocks. The morning part of the first session, chaired by *Peter Backé*, Deputy Head of the OeNB's Foreign Research Division, revolved around time-varying components of inflation paths and capital flows.

With the paper "Changes in Inflation Dynamics under Inflation Targeting? Evidence from Central European Countries" (coauthors: Jaromír Baxa and Miroslav Plašil), *Bořek Vašíček* of Česká národní banka presented a novel look at the evolution of inflation dynamics in the Czech Republic, Hungary and Poland. Using a time-varying New Keynesian Phillips Curve framework with stochastic volatility estimated by means of Bayesian techniques, the authors analyzed the evolution in inflation dynamics in response to changes in the economy and economic policy. The results point to rather heterogeneous inflation paths in the region: While inflation persistence has almost disappeared in the Czech Republic, it remains rather high in Hungary and Poland. Moreover, the volatility of inflation shocks decreased relatively quickly after the adoption of inflation targeting in the Czech Republic and Poland, whereas it remains rather unchanged in Hungary even after a decade of inflation targeting. Vašíček thus concluded that different practical implementations of inflation targeting may impact inflation dynamics.

In the presentation of the paper "Modelling the Time Varying Determinants of Portfolio Flows to Emerging Markets," *Marco Lo Duca* of the ECB addressed the question on how drivers of portfolio flows develop over time by employing a model allowing for continuous endogenous changes in regression coefficients. Apart from facilitating a precise calculation of the contribution of different factors to capital flows, this approach enables an endogenous detection of periods in which the relative importance of these drivers changes. Lo Duca's empirical analysis of daily equity portfolio flows to emerging markets over five years prior to March 2012 unveiled a substantial time variation in regression coefficients. Major changes in the importance of the factors driving the flows coincided with important market events. Overall, investors tended to pay more attention to regional developments in emerging markets in periods when market tensions were elevated. However, according to Lo Duca's analysis, extreme tensions generated panics, i.e. periods in which flows were driven by changes in uncertainty and risk aversion, while regional developments played only a marginal role.

In the second block of the morning session, chaired by OeNB senior expert *Thomas Reininger*, the focus shifted from determinants of capital flows to drivers of exchange rates and macroeconomic forecasts. The analytical work presented in this sub-session essentially boiled down to the question: Do central banks have the power to influence exchange rates and public expectations? *Emanuel Kohlscheen* of the Banco Central do Brasil presented his paper titled "What Drives Emerging Market Currencies?" where he investigated the impact of monetary policy shocks on the exchange rates (effective or vis-à-vis the U.S. dollar) of the Brazilian real and the Mexican and the Chilean peso. He found that even a focus on one-day exchange rate changes following policy events – which reduces the potential for reverse causality considerably – fails to lend support to the conventional view that

associates unexpected interest rate hikes with appreciations. This lack of empirical backing for standard open economy models withstood a whole plethora of different model and variable specifications and other robustness checks. According to Kohlscheen, the policy implication to be drawn from these findings is that if policymakers want to impact the exchange rate, they should not tinker with the interest rate but rather intervene directly.

In a similar vein, central banks' effective power to influence macroeconomic variables – or, more precisely, the expectation thereof – played a key role also in the contribution of *Michael Pedersen* from the Banco Central de Chile. In his paper “What Affects the Predictions of Professional Forecasters? The Role of Central Bank Forecasts,” Pedersen analyzed the drivers of professional forecasters' expectations and, particularly, whether they are affected by central bank forecasts. Controlling for other relevant factors such as central bank credibility or surprises in published data, he compared professional forecasters' inflation and growth predictions before and after the publication of the forecast of the Banco Central de Chile. His results were mixed. They suggested that central bank predictions indeed affect inflation expectations in the short run, i.e. for the current year. In the medium term, however, inflation expectations depend mainly on changes in short-run forecasts, while oil price expectations also seem to matter. For GDP growth expectations, central bank forecasts do not play a role, however. Such expectations are driven only by surprises in the monthly indicator of economic activity in the short run and exchange rate expectations in the medium term.

### Challenges to Financial and Fiscal Stability

The first part of the afternoon discussion featuring financial and fiscal stability was moderated by *Laura Solanko*, adviser at the Bank of Finland Institute for Economies in Transition (BOFIT). It centered on the effect of different exchange rate arrangements on real economic developments during the current crisis. In her paper, *Livia Chițu* of the ECB raised the question “Was Unofficial Dollarisation/Euroisation an Amplifier of the ‘Great Contraction’ of 2007–09 in Emerging Economies?” Building on a novel dataset on unofficial dollarization/euroization covering a cross-section of around 60 emerging market economies, she tested whether informal currency substitution contributed to the growth collapse in 2007–09. According to Chițu, both OLS as well as Bayesian techniques suggest that unofficial dollarization/euroization indeed contributed to the severity of the recession, once other growth determinants well established in the literature are controlled for. Moreover, she found that the adverse impact on the real economy was transmitted through currency mismatches, reduced monetary policy autonomy and the limited lender of last resort ability. Hence, all traditional channels highlighted in the literature became a more binding constraint in the wake of the crisis.

*Michał Brzoza Brzezina* of Narodowy Bank Polski shed some light on a similar issue – but from a different perspective. In his contribution “Would It Have Paid to Be in the Euro Area?” he presented an analytical project that he had coauthored (with Krzysztof Makarski and Grzegorz Wesołowski), which aimed to assess by means of a DSGE model whether Poland's joining of the euro area would have been beneficial in terms of providing more macroeconomic stability. Apart from standard frictions present in new Keynesian models, the authors also included financial frictions as well as stochastic interest rate spreads in their model. Such an

approach ensured that financial shocks, particularly the current crisis, were better accounted for. Counterfactual simulations suggested that the volatility of the Polish economy would have increased substantially if Poland had joined the euro area in 2007. Especially GDP would have featured a strong boom after accession, followed by a recession during the global crisis. Against this background, Brzoza Brzezina concluded that independent monetary policy, most importantly the flexible exchange rate, played an important stabilizing role for the Polish economy.

The second afternoon sub-session, chaired by *Enrique Alberola Ila*, executive coordinator at the Banco de España, zeroed in on fiscal sustainability issues, bank failures and the interlinkages of the two. *Irina Balteanu* from the Banco de España presented a paper titled “Bank Crises and Sovereign Defaults: Exploring the Links.” She and her coauthor used a large sample of emerging economies over three decades to study, in a systematic way, the mechanisms through which sovereign and bank problems feed into each other. While they found that there are many systematic differences between single and twin crises, the key distinctive characteristic of the latter – which typically have more severe consequences for the real economy – is the existence of large and increasing balance sheet interrelations between banks and the public sector. Moreover, banking crisis episodes that compound into twin events feature a late policy response by the central bank and the government. Then, *Jarmila Urvová* of the OeNB led the discussion from fiscal stability to fiscal sustainability. A condensed version of her joint paper with Markus Eller – “How Sustainable Are Public Debt Levels in Emerging Europe?” – is published in this issue.

Returning to the issue of bank failures, *Zuzana Fungáčová* of Suomen Pankki – Finland’s Bank closed the first day. The paper “Does Excessive Liquidity Creation Trigger Bank Failures?” (coauthors: Rima Turk Ariss and Laurent Weill) proposed the so-called excessive liquidity creation hypothesis: Proliferation in the core liquidity creation of banks increases the probability of their failure. This hypothesis withstood an empirical test involving the Russian banking sector, which was used as a natural field experiment given the large number of bank collapses in the last decade. Against this background, regulatory authorities are advised, by Fungáčová and her coauthors, to identify excessive liquidity creators early on and monitor them closely.

## Real Economy Issues and Challenges

The second day of the workshop was devoted to real economy topics ranging from measurement problems for macroeconomic variables to sources of growth, wealth and competitiveness. OeNB expert – and chair of the first part of the morning session – *Julia Wörz* opened the day by introducing *Marcelo Delajara* from the Banco de México. In his contribution titled “Weekday with Low Prices: Evidence on Daily Seasonality of Foods, Beverages and Tobacco Prices,” Delajara presented evidence of daily seasonality he and his coauthor (José Antonio Murillo) had found in weekly price variations of certain product categories in the consumer basket in the Metropolitan Area of Mexico City. The researchers were able to identify the weekday with the lowest weekly price variation, which, however, differs across products, types of commercial establishment and supermarket chains. According to Delajara, this “day-of-the-week effect” should be taken into account when preparing calendars for CPI data collection.

Subsequently, *Alessio Ciarlone* of the Banca d'Italia presented his paper on “Wealth Effects in Emerging Economies” featuring estimations of the impact of changes in real and financial wealth on private consumption for a panel of emerging economies in Asia and Central and Eastern Europe. He found that both house and stock market prices affect household consumption positively in the long run. As this long-run impact is generally greater in Central and Eastern Europe, the emerging countries in that region are more vulnerable to adverse developments in the housing market.

After the coffee break, *Doris Ritzberger-Grünwald*, Head of the OeNB's Foreign Research Division, took over the chair, welcoming *Laurent Weill*, Professor at Strasbourg University, as the second keynote speaker of the workshop. In his speech titled “Corruption and Bank Lending,” Weill started out by presenting some stylized facts on corruption in CESEE, which is still comparably high, and – contrary to expectations – has not eased in line with rising wealth. He then went on to stress that corruption had a detrimental impact on growth through various channels, inter alia through hampered or distorted bank lending, which was the focus of his lecture. In fact, many empirical studies – partly (co)authored by Weill – confirm that corruption per se has a harmful effect on bank lending both in quantitative and qualitative terms at the macro and micro level. Corruption thus not only reduces the bank lending volume but also favors bad loans. However, the quantitative detrimental impact of corruption on bank lending falls with banks' rising risk aversion, and if the risk aversion is sufficiently high, corruption may even increase bank lending volumes. Since greater risk aversion translates into more rejected loan applications, incentives for borrowers to bribe increase in order to obtain bank credit. Weill wrapped up by stressing that the impact of corruption on bank lending should not be underestimated, especially given the key role of banks in economic development.

After this stimulating food for thought, Ritzberger-Grünwald opened the last subsession, handing over the floor to *Sokol Havolli* from the Central Bank of the Republic of Kosovo. He presented a paper, coauthored with Bostjan Jazbec, on “Migrants' Investments, Remittances, and Foreign Direct Investments in the Balkans: The Case of Kosovo.” In their empirical analysis, the authors found that one of the most important factors in determining migrants' investments is their perception of the home country's business environment. Moreover, emigrants with higher income levels and those who send remittances tend to invest more in their home country. The migrants' age is also an important determinant of their investments. According to Havolli, these findings suggest that it is crucial for emerging market economies in the Balkans to set up an attractive investment environment to attract foreign investments, particularly emigrants' capital.

The final contribution to the workshop came from *Konstantins Benkovskis* of Latvijas Banka. He presented a joint paper with Julia Wörz (OeNB) on “Nonprice Competitiveness of Exports from Emerging Countries,” follow-up research to a study published in FEEI Q3/12. In this paper, the authors applied their previously developed export price index to nine emerging economies for the period from 1999 to 2010. Unlike studies that use a CPI-based real effective exchange rate, their method highlights notable differences in nonprice competitiveness across markets. Among other things, China shows a huge gain in international competitiveness due to nonprice factors, which implies that China's critics may be over-

stressing the role of renminbi undervaluation. Benkovskis moreover pointed out that oil exports account for substantial improvements in nonprice competitiveness in the case of Russia, while they brought about modest losses of competitiveness for Argentina and Indonesia.

# 17<sup>th</sup> Global Economy Lecture: John Van Reenen Trade-Induced Technical Change? The Impact of Chinese Imports on Innovation, IT and Productivity

Compiled by  
Julia Wörz

On October 22, 2012, John Van Reenen, Professor of Economics at the Department of Economics and Director of the Centre for Economic Performance at The London School of Economics and Political Science, gave the 2012 Global Economy Lecture<sup>1</sup> at the OeNB. In his inspiring presentation, Van Reenen analyzed the impact of rising imports from China on advanced – in particular European – countries. This seminal trend in world trade has two positive implications for importing countries: First, not only is innovation spurred in firms which are heavily exposed to competition from Chinese imports, but also IT intensity and total factor productivity are raised. Second, import pressure from China leads to creative destruction in the sense that low-tech firms have to shed labor, but jobs are reallocated to more high-tech firms. In terms of magnitude, however, it seems that the job losses in low-tech tasks outnumber the gains in the high-tech segment, a point which was also raised in the discussion.

From a theoretical perspective, lower import barriers should boost technological change due to the reallocation of activity between firms (uncompetitive firms are forced to exit the market) as well as within firms (with their product mix shifting toward higher-end products). In addition to these composition effects, increased import competition also induces real innovation in the form of newly created products. This reaction is traceable to “trapped factors” within firms, i.e. firms cannot dispose of their present factors of production due to adjustment costs and sunk investment. While these factors are no longer profitable in producing goods that are in direct competition with Chinese products, the shadow cost of innovating in order to use these production factors in a more high-tech setting is lowered by Chinese competition.

In his lecture, Professor Van Reenen presented an empirical underpinning of these theoretical predictions based on an extremely rich, newly constructed panel dataset, which combines firm-level data on IT intensity, patents, balance sheets and data on international trade. To establish causality between rising import competition from China and firms’ reactions, he focused on import data on textiles and clothing as the episode of quota abolition under the WTO’s Agreement on Textiles and Clothing (1995–2005) represented a natural experiment to test his hypotheses.

The discussion zeroed in on two main issues: First, the positive effect on innovation was considered, by some participants, to be insufficient compared with the negative effects on low-skill employment. John Van Reenen agreed that reallocation costs are substantial and that they have to be dealt with adequately, as they pose a major policy challenge. However, he also pointed out that import competi-

<sup>1</sup> *The Global Economy Lecture is an annual event jointly organized by the Oesterreichische Nationalbank (OeNB) and The Vienna Institute for International Economic Studies (wiiw).*

tion from China merely sped up an inevitable restructuring process in the most advanced economies. Second, it was pointed out that imports from China are not necessarily low-cost and hence low-tech imports, but they may well have been produced by high-tech multinationals located in China, which implies that competition actually comes from advanced countries' firms. This is yet another demonstration of the fact that China's integration into the global economy is accelerating a process of global reallocation and skill-upgrading.



## Statistical Annex

# Statistical Annex

This section provides tables detailing selected economic indicators for Albania, Bosnia and Herzegovina, FYR Macedonia<sup>1</sup>, Montenegro, Serbia and Ukraine, i.e. CESEE countries not covered in the Recent Economic Developments and Outlook section.

## Conventions used

x = No data can be indicated for technical reasons

. . = Data not available at the reporting date

Discrepancies may arise from rounding.

Table 1

### Gross Domestic Product

	2005	2006	2007	2008	2009	2010	2011
<i>Annual real change in %</i>							
Albania	5.7	5.4	5.9	7.5	3.3	3.0	2.9
Bosnia and Herzegovina	3.9	5.9	6.1	5.6	-2.9	0.7	2.2
FYR Macedonia	4.4	5.0	6.1	5.0	-0.9	2.9	3.1
Montenegro	4.2	8.6	10.7	6.9	-5.7	2.5	2.0
Serbia	5.6	5.2	6.9	5.5	-3.1	1.8	1.6
Ukraine	2.7	7.3	7.9	2.3	-14.8	4.1	5.2

Source: wiiw.

Table 2

### Industrial Production

	2005	2006	2007	2008	2009	2010	2011
<i>Annual real change in %</i>							
Albania	11.7	12.1	-9.7	8.7	7.2	20.0	10.0
Bosnia and Herzegovina	10.8	11.5	6.4	7.3	1.5	3.7	5.6
FYR Macedonia	7.1	3.6	3.7	5.5	-7.7	-4.3	3.3
Montenegro	-1.9	1.0	0.1	-2.0	-32.2	17.5	-10.3
Serbia	0.8	4.7	3.7	1.1	-12.1	2.9	2.1
Ukraine	3.1	6.2	7.6	-5.2	-21.9	11.2	7.6

Source: wiiw.

Table 3

### Average Gross Wages – Total Economy

	2005	2006	2007	2008	2009	2010	2011
<i>Annual change in %</i>							
Albania	5.0	9.2	25.2	25.3	5.2	6.7	6.6
Bosnia and Herzegovina <sup>1</sup>	10.8	11.5	6.4	7.3	1.5	3.7	5.6
FYR Macedonia	2.7	8.0	4.8	8.7	14.1	1.0	1.2
Montenegro	7.8	15.6	31.7	22.5	5.6	11.2	1.0
Serbia	24.1	24.4	22.0	17.9	-3.3	7.5	11.1
Ukraine	36.7	29.2	29.7	33.7	5.5	17.5	17.6

Source: wiiw.

<sup>1</sup> Net wages.

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

Table 4

**Unemployment Rate**

	2005	2006	2007	2008	2009	2010	2011
	%						
Albania <sup>1</sup>	14.1	13.8	12.9	12.7	13.9	13.5	13.3
Bosnia and Herzegovina <sup>1</sup>	44.1	44.1	42.5	40.6	42.4	42.7	43.8
FYR Macedonia <sup>2</sup>	37.3	36.0	34.9	33.8	32.2	32.0	31.4
Montenegro <sup>2</sup>	30.3	29.6	19.3	17.2	19.3	19.6	19.7
Serbia <sup>2</sup>	20.8	20.9	18.1	13.6	16.1	19.2	23.0
Ukraine <sup>2</sup>	7.2	6.8	6.4	6.4	8.8	8.1	7.9

Source: wiiw.

<sup>1</sup> Registered, end of period.<sup>2</sup> Labor force survey, period average.

Table 5

**Industrial Producer Price Index**

	2005	2006	2007	2008	2009	2010	2011
	Period average, annual change in %						
Albania <sup>1</sup>	4.9	0.8	3.5	6.5	-1.6	0.3	2.5
Bosnia and Herzegovina <sup>2</sup>	-0.6	3.4	4.6	6.9	-3.1	0.0	4.2
FYR Macedonia	3.2	7.3	2.5	10.3	-6.5	8.5	11.1
Montenegro	2.1	3.6	8.5	14.0	-3.9	-0.9	3.2
Serbia	14.2	13.3	5.9	12.4	5.6	12.7	14.3
Ukraine	16.7	9.6	19.5	35.5	6.5	20.9	19.0

Source: wiiw, national sources.

<sup>1</sup> Manufacturing industry.<sup>2</sup> Federation of Bosnia and Herzegovina.

Table 6

**Consumer Price Index**

	2005	2006	2007	2008	2009	2010	2011
	Period average, annual change in %						
Albania	2.4	2.4	2.9	3.4	2.3	3.5	3.5
Bosnia and Herzegovina	3.0	6.2	1.5	7.5	-0.4	2.1	3.7
FYR Macedonia	0.5	3.2	2.3	8.3	-0.8	1.6	3.9
Montenegro	2.3	3.0	4.2	7.4	3.4	0.5	3.1
Serbia	16.2	11.7	7.0	13.5	8.6	6.8	11.0
Ukraine	13.5	9.1	12.8	25.2	15.9	9.4	8.0

Source: wiiw.

Table 7

**Trade Balance**

	2005	2006	2007	2008	2009	2010	2011
	<i>% of annual GDP</i>						
Albania	-22.5	-23.1	-26.9	-27.4	-26.4	-23.5	-24.4
Bosnia and Herzegovina	-45.0	-34.5	-37.1	-38.1	-27.7	-25.7	-27.2
FYR Macedonia	-17.8	-19.1	-19.8	-26.2	-23.3	-21.3	-23.0
Montenegro	-35.4	-45.0	-57.6	-65.6	-44.3	-40.8	-39.6
Serbia	-21.1	-21.4	-24.8	-26.0	-17.7	-17.0	-17.9
Ukraine	-1.3	-4.8	-7.4	-8.9	-3.7	-6.1	-8.4

Source: *wiiw*.

Table 8

**Current Account Balance**

	2005	2006	2007	2008	2009	2010	2011
	<i>% of annual GDP</i>						
Albania	-9.0	-6.6	-10.5	-15.6	-15.3	-11.5	-12.5
Bosnia and Herzegovina	-17.0	-7.9	-10.7	-14.0	-6.3	-5.7	-8.6
FYR Macedonia	-2.5	-0.4	-7.1	-12.8	-6.8	-2.1	-2.7
Montenegro	-16.6	-31.3	-39.5	-50.6	-29.6	-24.6	-19.2
Serbia	-8.8	-10.1	-17.7	-21.6	-7.2	-7.4	-9.6
Ukraine	2.9	-1.5	-3.7	-7.1	-1.5	-2.2	-5.5

Source: *wiiw*.

Table 9

**Net FDI Inflows**

	2005	2006	2007	2008	2009	2010	2011
	<i>% of annual GDP</i>						
Albania	3.2	3.5	5.9	6.9	7.9	8.9	7.7
Bosnia and Herzegovina	5.6	6.1	13.4	5.3	1.4	1.1	2.2
FYR Macedonia	1.6	6.6	8.5	6.1	2.0	2.3	4.0
Montenegro	22.0	21.9	21.2	18.9	35.8	17.8	11.8
Serbia	6.2	14.3	6.4	5.6	4.7	3.1	5.9
Ukraine	8.7	5.3	6.5	5.5	4.0	4.2	4.2

Source: *wiiw*.

Table 10

**Reserve Assets Excluding Gold**

	2005	2006	2007	2008	2009	2010	2011
	<i>End of period, % of annual GDP</i>						
Albania	17.9	18.5	18.1	18.3	18.4	20.8	20.2
Bosnia and Herzegovina	24.5	28.2	30.7	25.4	25.6	26.0	24.0
FYR Macedonia	21.4	25.1	23.5	20.3	21.3	21.0	23.9
Montenegro	3.4	8.0	9.7	7.0	5.8	5.3	5.2
Serbia	23.5	38.0	33.2	24.3	35.5	34.1	37.3
Ukraine	23.2	19.3	20.8	17.8	21.2	24.4	19.9

Source: *wiiw*.

Table 11

**Gross External Debt**

	2005	2006	2007	2008	2009	2010	2011
	<i>End of period, % of annual GDP</i>						
Albania	25.2	26.2	28.6	37.4	40.9	44.3	49.3
Bosnia and Herzegovina <sup>1</sup>	25.2	21.1	18.1	17.1	21.8	25.6	25.5
FYR Macedonia	52.5	47.9	47.6	49.2	56.4	58.6	64.7
Montenegro	28.3	23.5	17.2	15.6	23.5	29.4	30.3
Serbia	60.1	60.9	60.2	64.6	77.7	84.9	78.2
Ukraine	48.5	48.2	52.2	58.6	85.8	86.0	82.5

Source: wiiw.

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

Table 12

**General Government Balance**

	2005	2006	2007	2008	2009	2010	2011
	<i>% of GDP</i>						
Albania	-3.5	-3.3	-3.5	-5.5	-7.0	-3.1	-5.0
Bosnia and Herzegovina	2.4	2.8	1.2	-2.2	-4.5	-2.5	-2.5
FYR Macedonia	0.2	-0.5	0.6	-0.9	-2.7	-2.4	-2.5
Montenegro	-1.7	1.6	6.7	0.5	-2.3	-2.7	-3.0
Serbia	1.0	-1.6	-2.0	-2.6	-4.5	-4.8	-5.1
Ukraine	-1.8	-0.7	-1.1	-1.5	-4.1	-6.0	-1.8

Source: wiiw.

Table 13

**Gross General Government Debt**

	2005	2006	2007	2008	2009	2010	2011
	<i>% of annual GDP</i>						
Albania	58.1	56.0	53.9	55.2	59.7	58.2	60.0
Bosnia and Herzegovina	25.6	21.9	29.7	30.7	35.3	38.9	39.0
FYR Macedonia	46.9	38.8	32.3	27.9	31.7	34.8	35.0
Montenegro	38.6	32.6	27.5	29.0	38.2	40.9	44.0
Serbia	52.1	37.3	30.9	29.2	34.8	42.9	45.0
Ukraine	17.7	14.8	12.3	20.0	34.8	39.1	35.9

Source: wiiw.

Table 14

**Broad Money**

	2005	2006	2007	2008	2009	2010	2011
	<i>End of period, annual nominal change in %</i>						
Albania (M2)	11.7	7.4	9.6	7.4	8.7	4.5	6.6
Bosnia and Herzegovina (M2)	17.6	21.1	23.5	13.5	-1.6	7.8	5.6
FYR Macedonia	15.0	25.0	29.3	11.2	6.0	12.2	9.7
Montenegro (M2)	58.7	82.9	71.9	-14.3	..	..	..
Serbia (M3)	39.1	38.3	42.5	9.8	21.5	12.9	10.3
Ukraine	54.4	34.5	51.7	30.2	-5.5	22.7	14.7

Source: European Commission, wiw.

Table 15

**Official Key Interest Rate**

	2005	2006	2007	2008	2009	2010	2011
	<i>End of period, %</i>						
Albania (refinancing base rate)	5.0	5.5	6.3	6.3	5.3	5.0	4.8
Bosnia and Herzegovina <sup>1</sup>	x	x	x	x	x	x	x
FYR Macedonia <sup>2</sup>	8.5	5.7	4.8	7.0	8.5	4.1	4.0
Montenegro <sup>3</sup>	x	x	x	x	x	x	x
Serbia (two-week repo rate) <sup>4</sup>	19.2	14.0	10.0	17.8	9.5	11.5	9.8
Ukraine (refinancing rate) <sup>5</sup>	9.5	8.5	8.0	12.0	10.3	7.8	7.8

Source: Eurostat, Bloomberg, wiw, IMF.

<sup>1</sup> Currency board.<sup>2</sup> Monthly weighted average interest rate on Central Bank Bills auctions (28 days).<sup>3</sup> Unilateral euroization.<sup>4</sup> 2002–05: Weighted average interest rates on securities used in open market operations by Narodna banka Srbije.<sup>5</sup> Average.

Table 16

**Exchange Rate**

	2005	2006	2007	2008	2009	2010	2011
	<i>Period average, national currency per EUR</i>						
Albania	124.19	123.08	123.63	122.80	132.06	137.79	140.33
Bosnia and Herzegovina	1.96	1.96	1.96	1.96	1.96	1.96	1.96
FYR Macedonia	61.30	61.19	61.18	61.27	61.27	61.52	61.53
Montenegro	x	x	x	x	x	x	x
Serbia	82.91	84.19	79.98	81.47	93.94	102.90	102.93
Ukraine	6.39	6.34	6.92	7.71	10.87	10.53	11.09

Source: wiw, national sources, Thomson Reuters.

Notes

# Periodical Publications

See [www.oenb.at](http://www.oenb.at) for further details.

## **Geschäftsbericht (Nachhaltigkeitsbericht) Annual Report (Sustainability Report)**

German  
English

This report reviews the OeNB's mandate, responsibilities and organization as well as the monetary policy of the Eurosystem, economic conditions and developments both in the financial markets and in financial market supervision during the reporting year. Furthermore, it contains the OeNB's financial statements, Intellectual Capital Report and Environmental Statement.

## **Geldpolitik & Wirtschaft Monetary Policy & the Economy**

German  
English

Monetary Policy & the Economy provides analyses and studies on central banking and economic policy topics and is published at quarterly intervals.

## **Financial Stability Report**

English

This semiannual report contains analyses of Austrian and international developments with an impact on financial stability and studies designed to offer in-depth insights into specific financial stability-related topics.

## **Focus on European Economic Integration**

English

This quarterly publication presents peer-reviewed studies on macrofinancial and monetary integration in Central, Eastern and Southeastern Europe (CESEE) as well as related country analyses and statistics. This publication reflects a strategic research priority of the OeNB.

## **Statistiken – Daten & Analysen**

German, English summaries

This quarterly publication contains analyses of Austrian financial institutions, cross-border transactions and positions as well as financial flows. Some 200 tables provide information about macroeconomic, financial and monetary indicators. On the OeNB's website, these tables are also available in English. In addition, this series includes special issues on selected statistics topics published at irregular intervals.

## **Research Update**

English

This quarterly newsletter is published online ([www.oenb.at/research-update](http://www.oenb.at/research-update)) and informs readers about selected findings, research topics and activities of the OeNB's Economic Analysis and Research Department.

## **Proceedings of OeNB Workshops**

German, English

These proceedings contain papers presented at OeNB workshops at which national and international experts discuss monetary and economic policy issues.

## **Working Papers**

English

This online series provides a platform for the publication of studies by OeNB economists or external authors on particular monetary policy topics.

## **Conference Proceedings of the OeNB's Economics Conference**

English

These proceedings contain contributions to the OeNB's annual Economics Conference, an international platform for exchanging views and information on monetary and economic policy as well as financial market issues.

## **Conference Proceedings of the OeNB's Conference on European Economic Integration**

English

These proceedings contain contributions to the OeNB's annual Conference on European Economic Integration (CEEI), which focuses on Central, Eastern and Southeastern European issues and the ongoing EU enlargement process.

## **Publications on Banking Supervision**

German, English

[www.oenb.at/en/presse\\_pub/period\\_pub/finanzmarkt/barev/barev.jsp](http://www.oenb.at/en/presse_pub/period_pub/finanzmarkt/barev/barev.jsp)

# Addresses

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