



EUROPEAN CENTRAL BANK

EUROSYSTEM

OCCASIONAL PAPER SERIES

NO 114 / JUNE 2010

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**THE IMPACT OF  
THE GLOBAL  
ECONOMIC AND  
FINANCIAL CRISIS  
ON CENTRAL,  
EASTERN AND  
SOUTH-EASTERN  
EUROPE**

**A STOCK-TAKING  
EXERCISE**

by Sándor Gardó  
and Reiner Martin



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## A STOCK-TAKING EXERCISE<sup>1</sup>

by Sándor Gardó<sup>2</sup>  
and Reiner Martin<sup>3</sup>



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<sup>1</sup> The authors would like to thank Hans-Joachim Klöckers and Rasmus Ruffer (both ECB), Peter Backé (OeNB) as well as an anonymous referee for valuable comments. In addition, the paper benefited from comments received at an OeNB workshop on 20 August 2009 and the 7<sup>th</sup> ESCB Emerging Market Workshop in Madrid on 21-22 September 2009. The views expressed in the paper are solely those of the authors and do not necessarily reflect the views of the ECB or the OeNB.

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ISSN 1607-1484 (print)

ISSN 1725-6534 (online)

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## ABSTRACT

The paper first reviews the main drivers of the growth and real convergence process in central, eastern and south-eastern Europe (CESEE) since 2000 and assesses the key macro-financial strengths and vulnerabilities of the region at the beginning of the global economic and financial crisis. The main part of the paper reviews financial and real economic developments in these countries since the crisis started to impact the CESEE region. The paper finds that developments have been rather heterogeneous in the region. CESEE countries with the largest economic imbalances tended to be most affected. National and international support measures appear to have helped to stabilise financial markets, and parent banks of foreign bank subsidiaries in CESEE were committed to sustaining their exposure to the region. The degree to which CESEE governments were able to use policy instruments to counter the real effects of the crisis is rather heterogeneous, depending inter alia on the exchange rate regime in place and the initial fiscal positions.

**Keywords:** Financial crisis, vulnerability indicators, central, eastern and south-eastern Europe.

**JEL classification:** F15, F32, G01, G15, G18, H30.

## SUMMARY

The paper looks at the impact of the global economic and financial crisis on a number of central, eastern and south-eastern European (CESEE) countries. More specifically, we are looking at those CESEE economies that became Member States of the European Union (EU) in 2004 and 2007, but which have not yet adopted the euro. In addition, we have included Croatia in our analysis, given its fairly advanced stage of membership negotiations with the EU.

Before the crisis, the CESEE region was experiencing an economic boom with rapid GDP and credit growth, which in turn benefited from strong global growth and easy liquidity conditions. In addition, economic growth in the region was underpinned by positive expectations for EU convergence and euro adoption. Until the final quarter of 2008, the CESEE region was remarkably resilient to the global economic and financial crisis. This is partly due to the fact that the region had no or only negligible exposures to subprime or subprime-related assets. However, part of this resilience can also be explained with standard vulnerability indicators, which at the onset of the crisis indicated in several dimensions a stronger position of the region compared with previous crises. The main exceptions were the heightened external and banking vulnerabilities, precisely two areas that proved particularly sensitive in the context of the global crisis.

From September 2008, however, the global economic and financial crisis gained markedly in depth and intensity, and waning foreign investor confidence towards emerging markets quickly dashed hopes of a possible decoupling of the CESEE region from the global turmoil. As a result, CESEE was hit hard, in many respects even harder than other emerging market regions such as Latin America. Developments have, however, not been homogenous in the region. Countries in central and eastern Europe (CEE) tended to be hit less seriously than those

in the Baltics or south-eastern Europe (SEE), suggesting that countries with rather pronounced vulnerabilities and a higher degree of financial integration tended to be affected more severely.

Looking at the impact on different financial market segments, exchange rates were strongly affected, stock markets piled up huge losses and bond spreads as well as risk premia increased to elevated levels, while becoming more volatile. The crisis also had a major impact on capital flows to the region, although the magnitude of the impact differed again notably, depending on the type of capital inflow and the receiving country. Despite some temporary capital outflows, the worst-case scenario of a fully fledged financial meltdown did not occur. In particular, foreign direct investment (FDI) inflows and inter-company loans played an important role in stabilising capital flows to the region, but the region's strong integration into European banking networks turned out to be an asset during the crisis too. CESEE banking sectors experienced a strong deceleration in credit and deposit growth, while banks in the region have become confronted with an – in some countries substantial – increase in non-performing loans and a decline in profitability. Nevertheless, banking sector capitalisation remained at high levels.

The disruptions in domestic and international financial markets, together with the real channels of transmission such as the plunge in global trade flows, also had a very pronounced effect on real economic developments from late 2008 onwards, ultimately resulting in severe recessions in most countries in the region. The length and depth of the resulting economic downturn cannot be predicted with accuracy. Future domestic demand will depend inter alia on the success of private debt restructuring and the willingness of the financial sector to continue lending. Net exports will depend on future foreign demand and on CESEE countries' relative external competitiveness. Given the lack of nominal exchange rate flexibility, the

fixed exchange rate CESEE countries may find strengthening their competitiveness somewhat more challenging than the countries with floating nominal exchange rates.

The policy response to the crisis in the CESEE countries focused on standard and non-standard monetary policy action as well as fiscal measures. Standard monetary policy remained very cautious in most countries until the end of 2008 when the severity of the recession became clear and most CESEE countries embarked on a process of monetary easing. In most CESEE countries, however, policy rates remain at higher levels than in major industrialised economies. Since the outbreak of the crisis, CESEE authorities have also taken a range of non-standard policy measures to stabilise financial markets and reduce spillovers to the real economy. Fiscal policy responses to the crisis varied within the region and were mainly determined by the fiscal situation at the beginning of the crisis. Overall, the various national and – in some cases – international (e.g. IMF, EU) support measures appear to have helped to cushion the impact of the global economic and financial crisis on the CESEE countries.

## I INTRODUCTION

The paper analyses the impact of the global economic and financial crisis on a number of central, eastern and south-eastern European (CESEE) countries. More specifically, we are looking at those CESEE economies which are Member States of the EU, but have not yet adopted the euro (Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland and Romania). In addition, we have included Croatia in our analysis, given its fairly advanced stage of membership negotiations with the EU.<sup>1</sup>

When assessing the impact of the global economic and financial crisis on the CESEE region, it is important to recall two important aspects that distinguish this region from other emerging market regions.<sup>2</sup> First, the countries in this region went through a deep and historically unprecedented transformation process from planned to market economies. This implied the need to undertake significant investments in physical as well as human capital within a short period of time, as the pre-transition

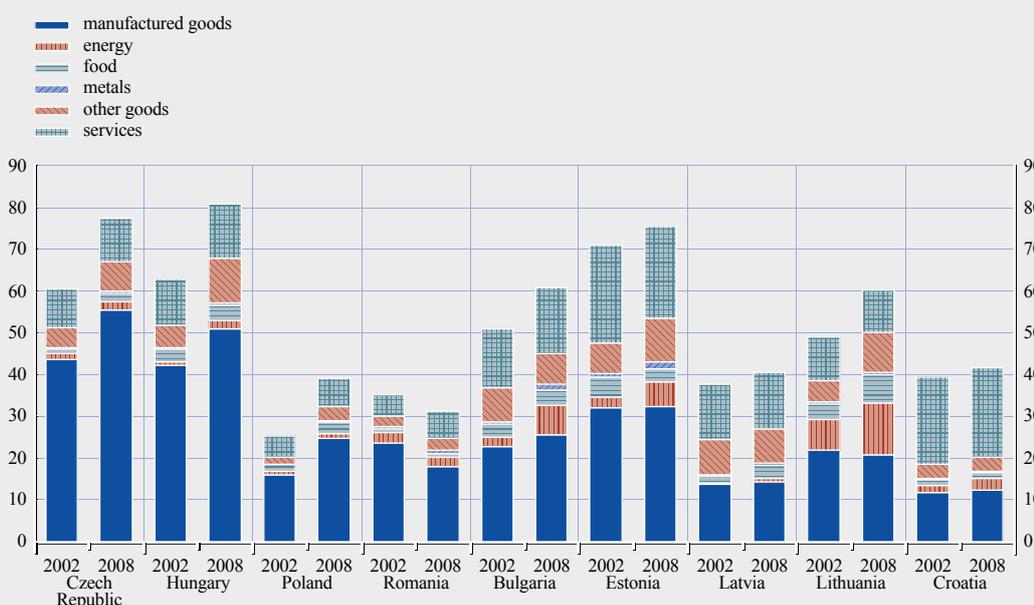
physical capital stock had become largely obsolete after the regime change. In addition, the transition process implied manifold changes in the economic integration pattern of CESEE, including substantial trade deepening (see Chart 1) and an almost complete redirection of international trade flows. The regional reorientation of trade flows towards the EU went hand in hand with structural changes involving a shift from resource-based/low-tech exports to medium- and high-tech exports (see Chart 2). This shift helped the CESEE countries (being net importers of raw materials and energy) to successfully cope with the negative terms-of-trade shock resulting from the global commodity price boom before the global crisis.

The issue of regional trade reorientation is closely related to the second key distinguishing

- 1 These countries can be divided into three geographical sub-regions, namely the central and eastern European (CEE) countries the Czech Republic, Poland and Hungary, the south-eastern European (SEE) countries Bulgaria, Croatia and Romania, and the Baltic countries Estonia, Latvia and Lithuania.
- 2 On this issue, see also Martin and Winkler (2009).

Chart 1 Exports of goods and services

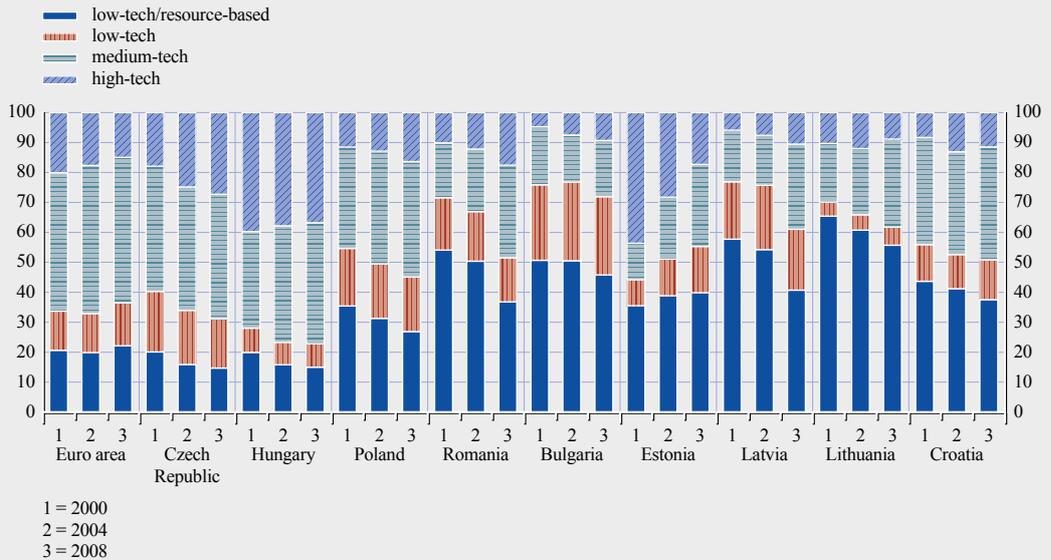
(percentage of GDP)



Sources: NCBS and OeNB.

## Chart 2 Technological content of exports

(in percentage of classified exports (covering around 90% of total exports))



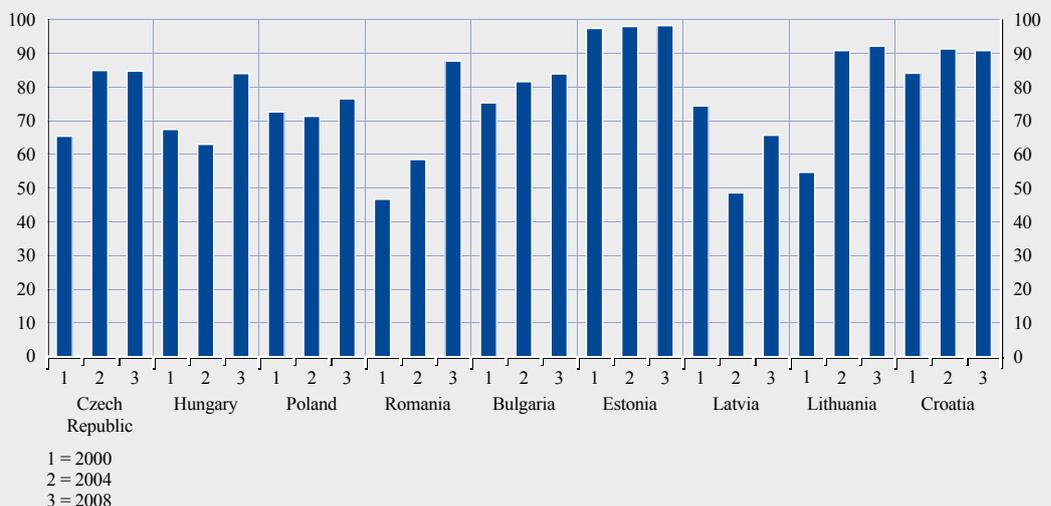
Sources: Eurostat/Comext and OeNB.

feature of the CESEE economies, namely their participation in the European integration process. Except for Croatia – which is expected to join the EU in the coming years – all CESEE countries under review have become members of

the EU, an economic area with highly integrated goods, services, capital and (to a lesser extent) labour markets, and have adopted European standards for economic policy, institutions and governance. Moreover, all CESEE countries

## Chart 3 Asset share of foreign banks

(in percentage)



Sources: EBRD and OeNB.

are sooner or later set to adopt the euro and are thus committed to striving towards the fulfilment of the convergence criteria laid down in the EU Treaty (ECB, 2003). During the period of buoyant growth until 2008, financial vulnerabilities built up in some, but not all, CESEE countries. Policy stances differed across countries, while the policy toolbox (e.g. as regards the management of capital flows) was constrained by EU accession and the depth of financial integration, which has increased considerably over the last decade, not least in terms of cross-border ownership of financial institutions (see Chart 3).

Against this background, this paper first reviews the main drivers of the growth and real convergence process in the CESEE countries since 2000. In doing so, it focuses in particular on the role of the financial sector and reviews the resulting macro-financial strengths and vulnerabilities of the region at the onset of the global economic and financial crisis. This provides the background for the main part of the paper, which reviews financial and real economic developments in CESEE since the onset of the crisis. This part of the paper also reviews the national and international policy responses undertaken so far in order to cope with the spillovers of the global crisis. The final section of the paper presents the main conclusions.<sup>3</sup>

3 Given the small country sample, we do not attempt to explain empirically the cross-country differences in the severity of the crisis impact. Examples of such analyses, based on larger country samples, are Lane and Milesi-Ferretti (2010) and Rose and Spiegel (2010). Whereas the former paper identifies *inter alia* the pre-crisis level of development, the buoyancy of economic activity and credit, external vulnerabilities and openness to trade as important determinants for the intensity of the crisis, the latter paper does not find a link between the commonly cited causes of the crisis and its cross-country impact.

## 2 MAIN DRIVERS OF GROWTH AND REAL CONVERGENCE BEFORE THE FINANCIAL CRISIS

### 2.1 STYLISTED FACTS ON GROWTH AND CONVERGENCE TRENDS<sup>4</sup>

Following the end of central planning, output initially collapsed throughout the CESEE region. By the mid-1990s, however, real GDP growth resumed in all countries, reflecting mainly macroeconomic stabilisation and a wide range of structural reforms. For a number of reasons, real GDP growth further accelerated in most CESEE countries at the beginning of the new millennium.<sup>5</sup> First, macroeconomic stabilisation and structural reforms favoured, inter alia, sizeable FDI inflows, the recovery of domestic investment and productivity growth. Second, lower (global) interest rates and the rapid development of financial sectors supported domestic demand. Finally, the prospect of EU accession required the implementation of significant legal and

institutional reforms and spurred further trade and financial integration with the EU.

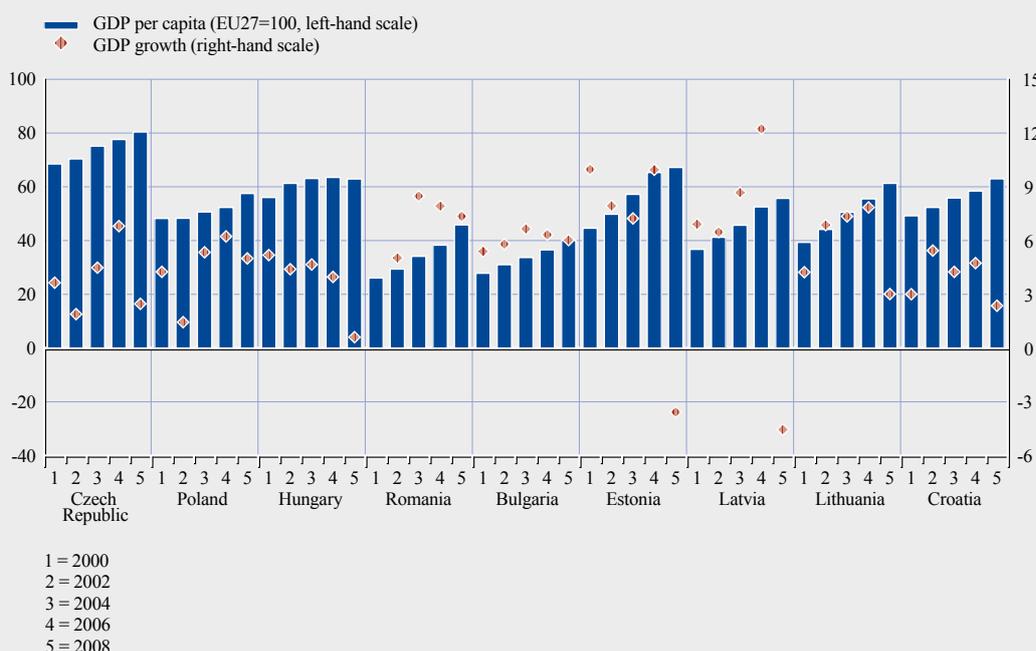
The strong growth performance of CESEE led to some progress in real convergence, defined here as per capita income levels in PPP terms (see Chart 4). In most “fixers”, i.e. countries whose nominal exchange rate vis-à-vis the euro is completely fixed or tightly managed (Bulgaria, the Baltic countries and Croatia), per capita income almost doubled between 2000 and 2008. The increase in income levels in most “floaters”, i.e. countries with floating exchange rates (the Czech Republic, Hungary, Poland and Romania) was less impressive than in the “fixers” (except for Romania). Overall, as claimed by standard economic convergence

<sup>4</sup> See ECB (2009a) for a review of economic developments in the CESEE EU Member States since their accession in 2004 and 2007.

<sup>5</sup> This section of the paper partly draws on Arratibel et al. (2007) as well as Morgese Borys, Polgár and Zlate (2009), who provide more detailed analyses of the growth and convergence process in CESEE.

Chart 4 GDP growth and GDP per capita

(in percentage and EU27=100)



Sources: Eurostat and OeNB.

theory, countries with the lowest income levels at the beginning of the observation period made most progress in real convergence since 2000.

In order to better understand the growth and convergence pattern of CESEE economies, we look in more detail at the drivers of growth. We first look at the relative importance of changes in total factor productivity (TFP), capital and labour. Second, we look at the different components of GDP growth to see whether growth was mainly driven by domestic or foreign demand.

The production function approach to growth assumes that output depends on total factor productivity, the capital stock and labour.<sup>6</sup> Arratibel et al. (2007) find that between 1996 and 2005 TFP growth made a very significant contribution to GDP growth in almost all CESEE countries. The strong role of TFP growth is intuitive. The transition process – involving privatisation, higher competition, deregulation

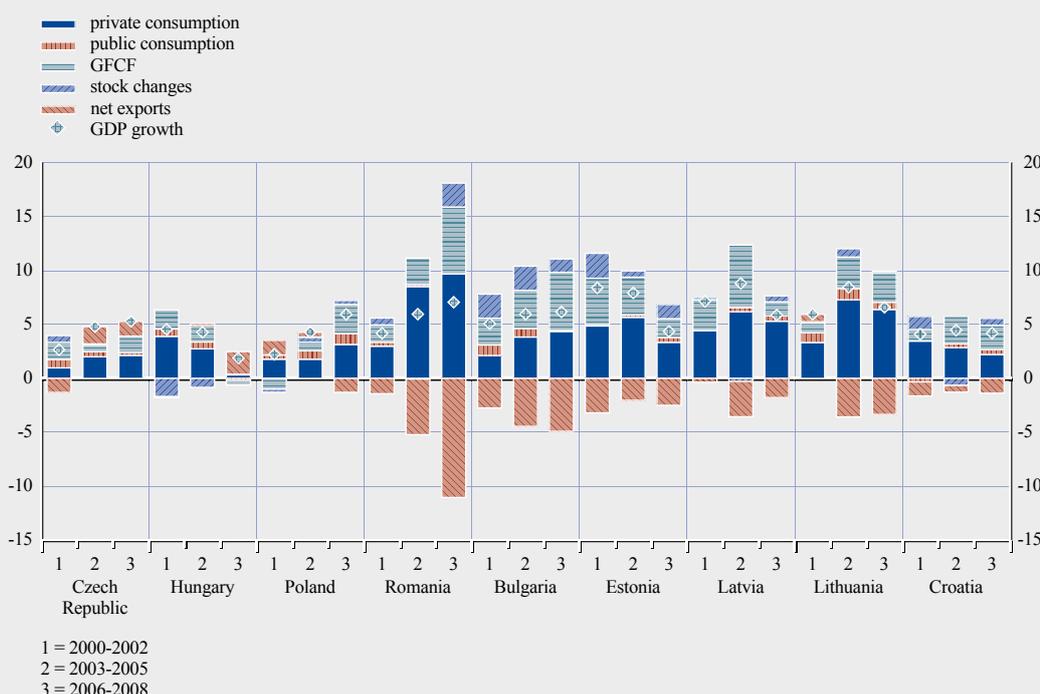
in product and labour markets, opening up to international trade and FDI, technology transfer, etc. – resulted in a more efficient use of input factors and better managerial practices, which are captured by TFP. By contrast, the contribution of labour to GDP growth was for most CESEE countries very modest or even negative.<sup>7</sup>

Turning to the main components of GDP growth, i.e. consumption, gross fixed capital formation (GFCF) and net exports, there are some important differences between the various CESEE countries (see Chart 5). Until 2008, net exports had an increasingly negative impact

- 6 A weakness of this analytical approach is the absence of reliable and comparable data on capital stocks in CESEE countries. Therefore, they are approximated using the perpetual inventory method (see Arratibel et al., 2007, p. 11).
- 7 The contributions by capital and labour may be somewhat underestimated, for instance due to unregistered employment. The above findings are broadly confirmed by other production function analyses for CESEE countries (e.g. European Commission, 2004, and IMF, 2006).

Chart 5 GDP growth and its components

(GDP growth; year-on-year change; percentages; components: percentage points contribution to growth)



Sources: Eurostat and OeNB.

on growth in the “fixers” (except Croatia) and in Romania, whereas private consumption tended to make a positive contribution in almost all CESEE countries between 2000 and 2008 (except Hungary and Croatia). A broadly similar pattern can be observed for GFCF, although the pattern is in many CESEE countries less pronounced than for private consumption.

In sum, the key cross-country features of the CESEE growth process prior to the economic and financial crisis are the increasingly negative contribution of net exports to growth, especially in the “fixers”, and the increasing contributions of private consumption and – less so – GFCF. Although these developments are in principle consistent with a maturing economic cycle, they implied that in most CESEE countries economic growth prior to the impact of the global economic and financial crisis was predominantly based on private domestic demand. This growth pattern changed fundamentally when the crisis hit the region in 2008 (see Section 3.2).

## 2.2 THE ROLE OF THE FINANCIAL SECTOR

It is widely acknowledged in the literature that rapid financial sector development played a key role in the CESEE growth and convergence experience. We first look briefly at international aspects of financial sector development in the region, in particular the import of foreign capital. This is followed by a short discussion of domestic aspects of the region’s financial deepening process, which was largely driven by rapid financial integration.

### 2.2.1 INTERNATIONAL FINANCIAL ASPECTS

Economic theory suggests that capital should flow “downhill”, i.e. from relatively capital-intensive economies to relatively less capital-intensive economies, given that the marginal return on capital is expected to be larger in the latter parts of the world. During the last couple of years the CESEE countries were good examples of emerging market economies which imported large amounts of capital to finance their growth and convergence process (see Abiad, Leigh and Mody, 2007).

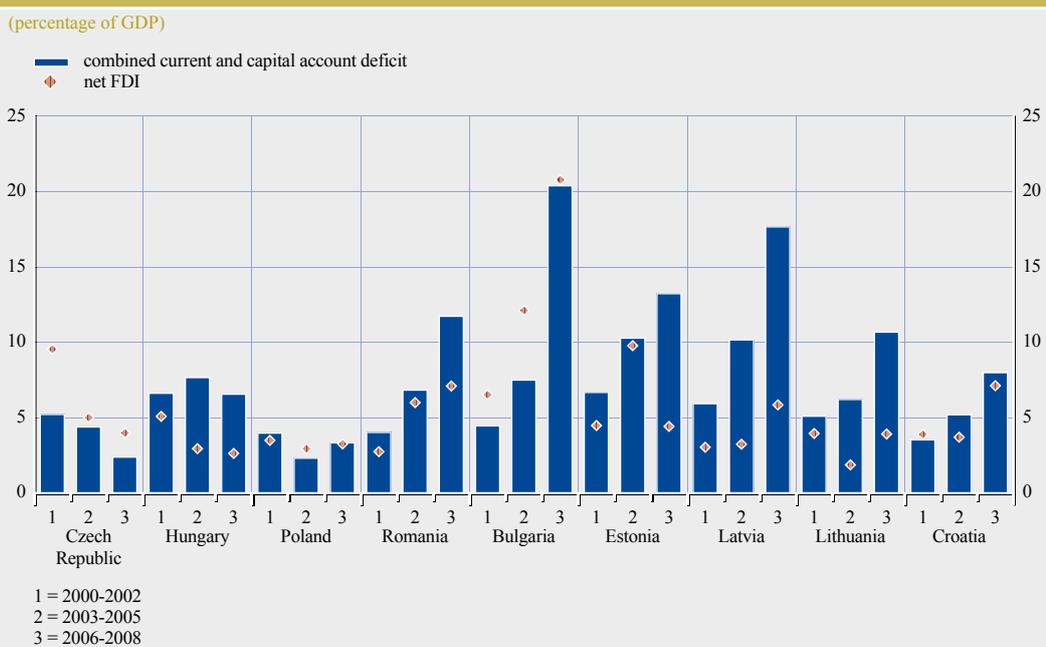
In the CESEE countries, the academic and policy debate on capital inflows tended to be less sceptical about the risk of strong capital inflows than in other emerging market regions such as Latin America (von Hagen and Siedschlag, 2008), as it was strongly conditioned by EU accession. First and foremost, this process implied the need to lift all capital controls at the latest at the time of accession to the EU. In addition, the accession process resulted in a range of institutional provisions that arguably fostered capital inflows (Lane, 2008). Moreover, the region’s increasing financial integration with the rest of the EU, in particular the widespread foreign ownership of CESEE banking sectors, also contributed to these inflows and played an important role in boosting credit growth and fuelling the boom before the crisis.<sup>8</sup>

There are some further reasons for the more positive attitude towards capital inflows in CESEE countries. First, a relatively large share of capital inflows were FDI, which is seen as less volatile and more beneficial for economic development than short-term, speculative capital flows (Abiad, Leigh and Mody, 2007). Second, unlike other emerging market regions (e.g. Latin America), the CESEE region had less experience with large-scale capital inflows, including their negative side effects such as asset price booms, sudden stops in capital flows and capital outflows.

Given the institutional requirements of EU integration and the rather positive assessment of the economic impact of capital inflows, CESEE central banks seem to have been less active in directly managing capital inflows. However, most CESEE central banks took measures to rein in overall credit growth and/or the growth in foreign currency-denominated credit, which was increasingly financed by capital inflows into the region, as the buoyant growth phase went on. Measures included increases in the reserve requirements, administrative measures and prudential measures including credit ceilings

<sup>8</sup> See also Herrmann and Winkler (2008), Berglöf et al. (2009), EBRD (2009), ECB (2009b), as well as Herrmann and Mihaljek (2010).

Chart 6 Combined current and capital account deficit and net FDI inflows



Sources: National central banks and OeNB.

and a tightening of provisioning requirements. However, such measures often had only limited and at best temporary effects in achieving the desired results. Finally, some CESEE countries used fiscal policies to partly offset the expansionary macroeconomic effects of capital inflows. Overall, however, fiscal tightening was relatively limited in most countries (von Hagen and Siedschlag, 2008), although also on this account considerable cross-country variation is to be noted.

The above-mentioned rapid GDP growth, which was strongly – and increasingly – based on domestic demand and financed by capital inflows, resulted in large external imbalances in most CESEE countries except for the Czech Republic and Poland. In fact, during the 2006-08 period many CESEE countries ran current account deficits well above 10% of GDP (see Chart 6).

At the same time, the role of FDI inflows was significant in all CESEE countries. In the

Czech Republic, Poland and Bulgaria, FDI inflows even exceeded the current account deficits, and in Romania and Croatia they covered a very large part of the current account deficit. However, cross-border borrowing by banks and non-financial corporations has also played an important role in financing the catching-up process in many CESEE economies. Other forms of capital imports, in particular portfolio investments, which are seen as rather volatile capital flows, were in recent years, however, relatively less important in the CESEE countries under review.

### 2.2.2 DOMESTIC FINANCIAL ASPECTS

The largely capital import-based growth model of the CESEE region was closely intertwined with a rapid financial deepening process. In fact, in light of the inefficiencies and distortions characterising CESEE banking markets during the early/mid-1990s<sup>9</sup> and the increasing fiscal constraints on dealing with troubled banks, the

<sup>9</sup> See Barisitz and Gardó (2009).

need for a more radical reform approach became evident in all CESEE countries by the mid-/end-1990s. Thus, the authorities in most countries took the decision to open up their banking sectors to foreign strategic investors, in order to attract missing know-how, technology and capital, as well as to raise banks' corporate governance, efficiency and competitiveness. Given the huge untapped catching-up and profit potential and the progress made in EU integration, foreign investors started to enter CESEE banking markets on a large scale at the turn of the millennium, with Austrian, German, Italian and French investors taking the lead. By year-end 2008 foreign banks held market shares well above 80% of total banking sector assets in most CESEE countries.

Against the background of improvements in the macro-structural environment and other supply and demand-side factors, bank lending to the private sector gathered momentum at the turn of the millennium. In fact, strengthened structural, institutional and regulatory frameworks,

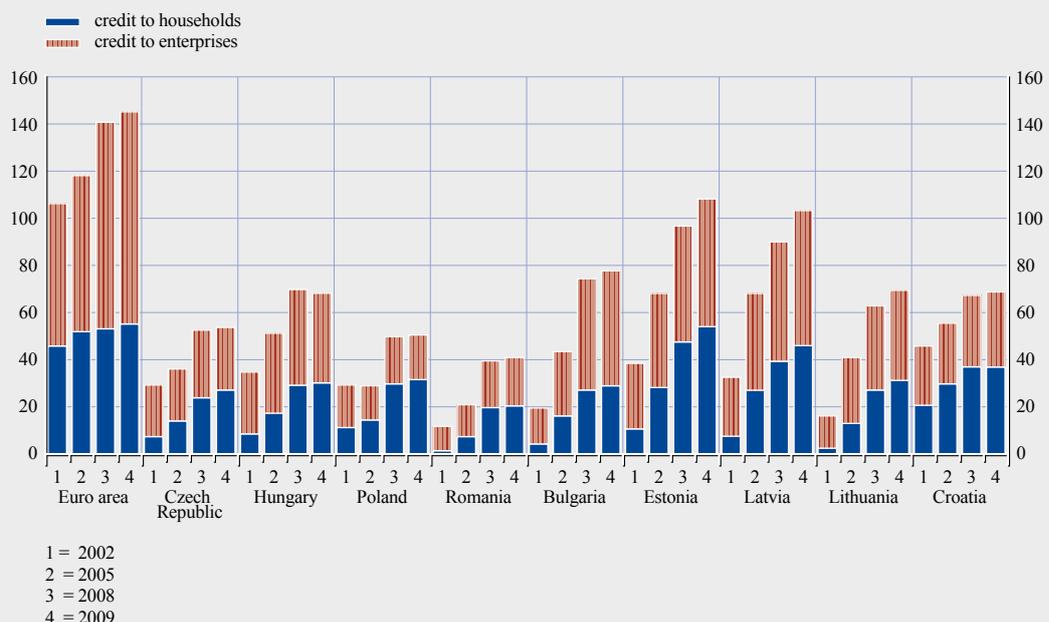
the supply-side improvement associated with the entry of foreign financial institutions, as well as robust output and income growth which have underpinned credit demand, all played an important role in boosting credit growth. By the middle of the decade, however, levels of private sector credit-to-GDP ratios (see Chart 7) had become fairly elevated relative to the underlying fundamentals and overshoot in some CESEE countries towards the end of the boom.<sup>10</sup>

The related increase in credit risk induced many CESEE central banks to take action with a view to reining in credit growth and/or the growth in foreign currency-denominated credit, which was increasingly financed by capital inflows into the region. The measures ranged from tightening minimum reserve requirements (e.g. Croatia, Romania), to administrative and prudential measures, like the introduction of credit ceilings

<sup>10</sup> For more details on the computation of equilibrium credit-to-GDP ratio levels, see e.g. Backé, Égert and Walko (2007) and Zumer, Égert and Backé (2009).

Chart 7 Credit levels in CESEE

(percentage of GDP)



Sources: National central banks, ECB and OeNB.

(e.g. Bulgaria, Croatia). However, given banks' circumvention strategies, such measures often had only a limited and at best temporary effect.<sup>11</sup> More recently, however, the global economic and financial crisis brought the financial deepening process to an abrupt halt, although relatively low financial intermediation levels – compared to the euro area average – still signal long-term catching-up potential.

### 2.3 MACRO-FINANCIAL STRENGTHS AND VULNERABILITIES AT THE BEGINNING OF THE CRISIS

Many CESEE countries accumulated considerable economic and financial risks and vulnerabilities in the run-up to the global economic and financial crisis, which in many instances seem to have worked as a catalyst for spillovers from the crisis. In this section, we use standard vulnerability indicators to gauge the strengths and vulnerabilities of CESEE before the outbreak of the global crisis, while trying to put these vulnerabilities into perspective.

By standard vulnerability indicators we refer to economic variables which, according to the literature on currency, banking or twin crises, indicate potential risks or which have good properties as leading crisis indicators. In this paper, we compare the status of those indicators before the current crisis with their relative position before previous crisis episodes. More specifically, we look at six sets of indicators which try to capture the market sentiment vis-à-vis CESEE as well as vulnerabilities in the real, public, monetary, external and banking sectors (see Table 1).<sup>12</sup>

It is important to note, however, that the link between vulnerabilities and performance

- 11 Certain exceptions in this respect are Croatia, which took a host of measures to rein in credit growth based on banks' foreign liabilities and expanded the scope of these measures to retain their effectiveness, and Poland, which appears to have had some success in increasing the awareness of exchange rate risk in the population.
- 12 A similar exercise, comparing the vulnerability patterns of CESEE and Latin America at the beginning of the crisis, can be found in Gallego et al. (2010).

Table 1 Vulnerability indicators

Group	Indicator	Measure	Interpretation
Sentiment indicators	Sovereign spreads	Points, JPM EMBIG Europe	Proxies for market and foreign investor sentiment; also gauges contagion from a global or other emerging market crisis.
	Sovereign rating	Average of the numerical value assigned to sovereign rating by Fitch, Moody's and S&P	
	Domestic stock exchange index	Percentage of world stock exchange index	
Real and nominal indicators	Industrial output	Year-on-year change, percentage	Leading indicator of current and future economic growth.
	Interest rates	3-month nominal money market rates, percentage	Variables determining investment and consumption propensity.
	HICP	Year-on-year change, percentage	
	Exports	Year-on-year change, percentage	Proxy for external demand and international competitiveness.
Fiscal indicators	Budget balance	Percentage of GDP	Signal pressures from public finances on monetary and exchange rate policies and indicate financing pressures for the public sector.
	Public debt	Percentage of GDP	
	Interest payments	Percentage of budget revenues	
Monetary indicators	Money supply (M2)	Year-on-year change, real, HICP-deflated	Try to capture issues related to monetary policies, credit growth in the banking system and the way it is financed.
	Deposits	Year-on-year change, real, HICP-deflated	
	Credit	Year-on-year change, real, HICP-deflated	

**Table I Vulnerability indicators (cont'd)**

Group	Indicator	Measure	Interpretation
External indicators	Current account balance	Percentage of GDP	Captures external financing needs and indicates balance of payments pressures.
	FDI	Percentage of GDP	Which part of the external financing needs is covered by rather long-term and stable capital inflows.
	Basic balance	Percentage of GDP	
	Short-term external debt	Percentage of foreign exchange reserves	Estimates the capacity to confront a sudden stop in short-term capital inflows or short-term debt rollovers with central bank resources.
	External debt	Percentage of GDP	Capacity to repay external liabilities.
	Net portfolio investment inflows	Percentage of GDP	Potential short-term outflows in case of a sudden stop.
	Net foreign assets (NFA)	Percentage of GDP	Structural measure of a country's position as external creditor or debtor and the effects in the case of a more pronounced depreciation of the currency.
Banking indicators	Domestic banks' foreign liabilities	Percentage of banks' foreign assets	Proxy for currency mismatches in case of a devaluation and the dependence of banks on external sources of funds.
	Long-term foreign exchange deposit rating (Moody's)	Points	Reflects the foreign investor sentiment about a country's banking sector.
	Stock price index for domestic banks	Percentage of domestic stock exchange index (all sectors)	Represents the investor confidence vis-à-vis listed banks relative to the rest of the stock exchange.
	Loan-to-deposit ratio	Percentage	Measures whether credit is increasing faster than deposits and is financed through other possibly less stable sources.
	Foreign exchange loans	Percentage of total loans	Measure of the currency mismatch of bank clients, and the potential increase in non-performing loans in case of downward pressures on national currencies.
	Non-performing loans (NPL)	Percentage of total loans	Gauges the pressure from non-performing loans on banking sector balances.
	Capital adequacy ratio (CAR)	Percentage	Solvency of the banking sector.
	Return on equity (ROE)	Percentage, after-tax	Profitability of the banking sector.

during crisis periods is neither simple nor straightforward. In fact, empirical evidence from earlier crisis episodes is not conclusive on how, when and to what extent vulnerabilities materialise when a shock hits. Moreover, the regional results refer to stylised averages and are not necessarily indicative of the vulnerability profile of individual countries, as they hide major differences in levels and dynamics across the region (for details of the vulnerability profile of individual CESEE countries, see the statistical annex).

We present the vulnerability indicators in the form of cobweb charts, which can be read as follows: a data point located closer to the origin of the cobweb represents less vulnerabilities, while a data point further away from the origin represents a larger degree of vulnerability. Data are normalised to give a clearer picture of the development of each indicator over time.<sup>13</sup>

The reference date we are using for the current crisis is September 2008, given that the spillovers of the global crisis reached CESEE mostly thereafter.<sup>14</sup> The reference points in time – for the same sample of CESEE countries – are December 2001 (Argentine crisis) and August 1998 (Russian crisis).

<sup>13</sup> Observations are standardised based on the long-term average and the standard deviation of the series. The impact of trends in the data is not accounted for. A value above zero means a positive deviation from the long-term average expressed in standard deviation terms. In order to maintain that a cobweb closer to the origin represents less vulnerability, some variables are inverted (sovereign ratings, domestic stock index, budget balance, deposit growth, industrial output growth, current account balance, FDI, net portfolio investment flows, net foreign assets, basic balance, return on equity, capital adequacy ratio, long-term foreign exchange deposit rating and relative bank stock price).

<sup>14</sup> For daily and monthly data we use the weighted average of the six months before the month of the respective crisis, while for quarterly data we use the weighted average of the four quarters before the quarter of the respective crisis. CESEE aggregates are calculated as weighted averages of country data based on each country's share in regional GDP.

These two crises both impacted emerging market economies worldwide, although the Russian crisis had a more pronounced impact on the CESEE countries than the Argentine crisis. That said, the latter is a useful additional reference point in order to get a more complete picture of changes in the region's vulnerabilities over time.

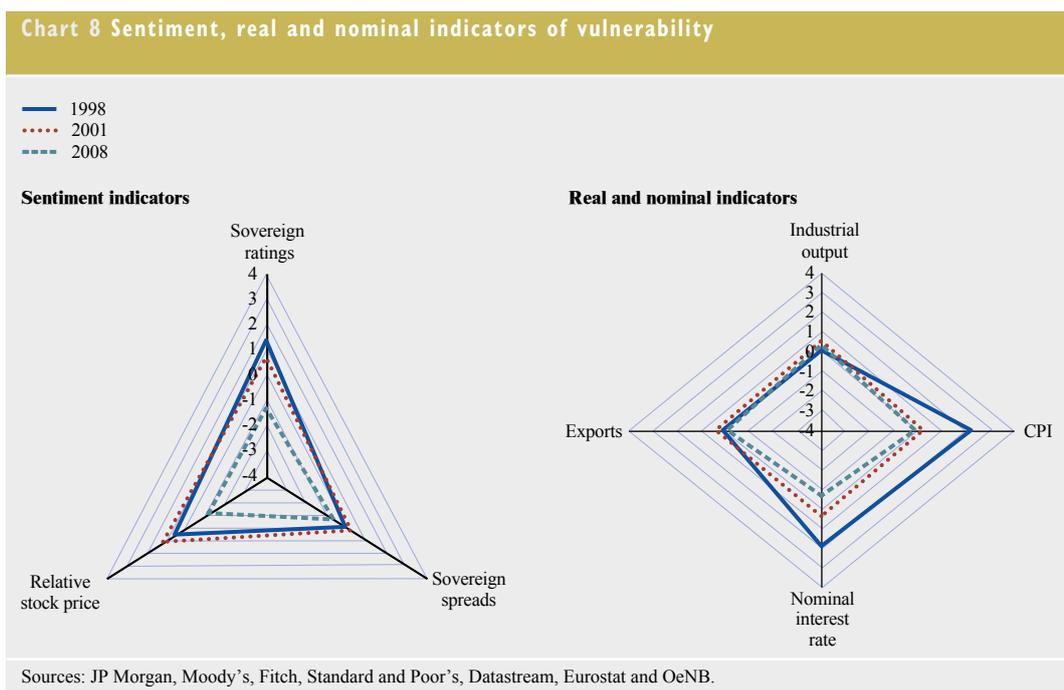
Gauging the vulnerabilities of the CESEE region at the beginning of the recent crisis can shed some light on the main channels through which the region was affected. It is less useful to assess the magnitude of the subsequent impact because the latter is closely related to the overall magnitude of the crisis itself. The CESEE countries may have been better prepared to weather a crisis in 2008 than they were in 1998, but if the crisis itself was more severe, the better preparedness may not translate into a milder outcome.

The sentiment indicators illustrate that the CESEE region was more positively assessed by financial markets in 2008 than before the other two crises (see Chart 8). This was partly due to

the favourable overall global financial market situation, which may have distorted financial markets' assessment of CESEE as well as other regions. There were, however, also important region-specific factors. In light of the progress made in economic restructuring since the mid-1990s, all CESEE countries gained investment-grade status (or climbed even further up the rating ladder). The related fall in risk premia not only led to a drop in sovereign spreads, but also made the region more attractive for foreign investors, which boosted stock market performance and other asset prices. Moreover, the EU/euro area "halo effect"<sup>15</sup> (or the prospect of EU accession) and the sustained good medium- and long-term economic prospects of the region (despite rising economic imbalances in some countries) seem to have bolstered investors' confidence in the region in the run-up to the global crisis.

Selected real and nominal indicators also suggest that the region was better off in September 2008 than before previous crises

15 See Luengnaruemitchai and Schadler (2007).



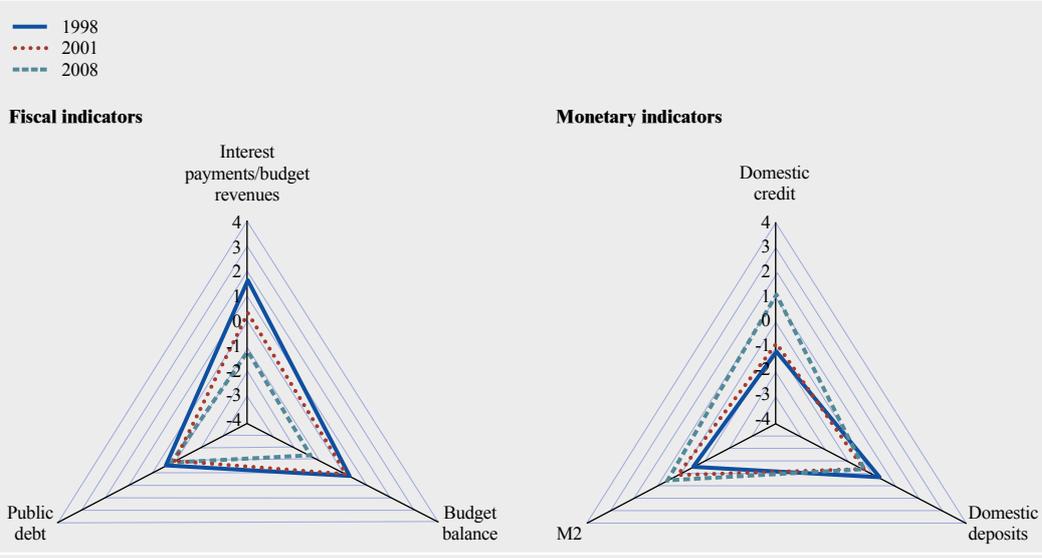
(see Chart 8). In fact, the monetary stabilisation after periods of transition-related monetary distortions (e.g. hyperinflation) in many CESEE countries in the early/mid-1990s coupled with favourable global inflationary developments have contributed to a more benign inflationary environment and thus also to falling interest rate levels. In addition, the deep-rooted economic restructuring of the 1990s, the region's integration in EU trade structures and strong export-oriented FDI inflows in many countries allowed for a gradual expansion of industrial production capacities and export growth.

Fiscal indicators also show a rather favourable picture. Headline fiscal balances have improved considerably over time (see Chart 9), although in some countries the underlying fiscal stance was rather pro-cyclical in recent years (as suggested by cyclically adjusted primary budget figures) and – more generally – the lower fiscal deficits have to be seen against the background of very strong growth and were thus not necessarily sustainable. In light of improving fiscal positions, public debt levels stabilised, resulting in interest charges on public debt gradually falling relative to budget revenues.

By contrast, monetary indicators show a rising trend over time (see Chart 9). Real M2 and real private sector credit rose before September 2008 at higher rates than before previous crises. Although credit growth was to some extent justified by a catching-up process to levels of credit over GDP in line with regional per capita GDP, rapid credit growth was also a warning signal, as credit rose much faster than deposits.

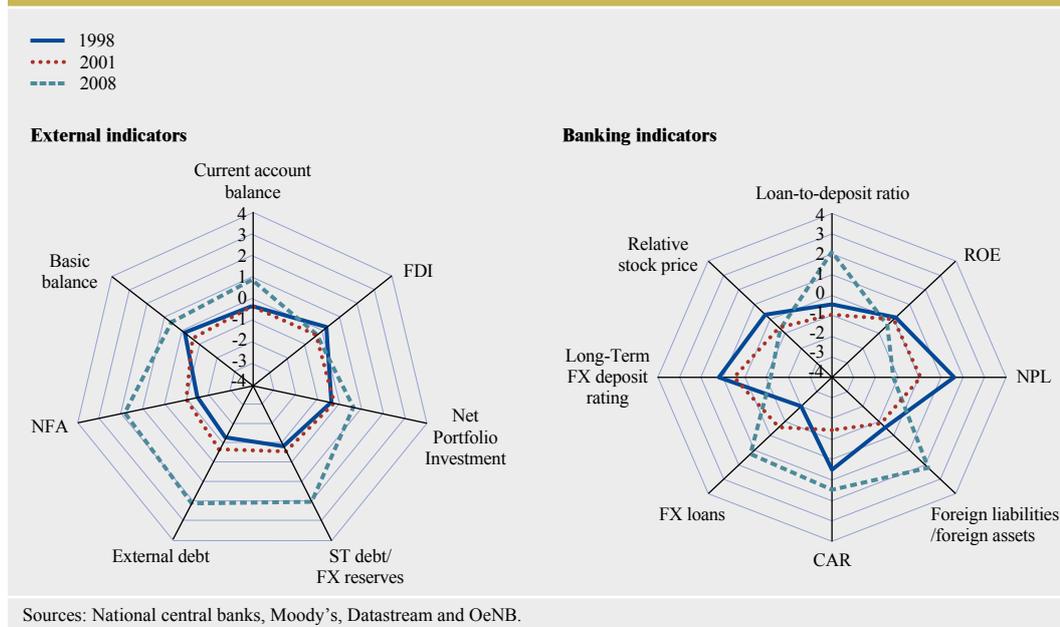
CESEE external sector vulnerability indicators also tended to worsen in 2008 compared with previous crisis episodes (see Chart 10). Many countries, in particular in the Baltics and SEE (except Romania, all of them fixed exchange rate countries), experienced a considerable widening of their current account deficits. This was partly a result of booming domestic demand, but also due to the global commodity price boom. FDI inflows remained substantial, but – in most countries – were not fully covering the current account deficits. This resulted in a pick-up in external debt levels over time. In particular, short-term external debt increased so that, despite a strong build-up in foreign exchange reserves, the ratio of short-term external debt to foreign exchange reserves deteriorated in the

Chart 9 Fiscal and monetary indicators of vulnerability



Sources: National central banks, Eurostat and OeNB.

Chart 10 External and banking indicators of vulnerability (CESEE)



run-up to the global crisis. This in turn made CESEE more vulnerable to changes in investor sentiment and sudden stops, although also the development in short-term debt is not uniform across the region.

Finally, looking at banking sector vulnerabilities, the rising loan-to-deposit ratio signals that deposit growth could not keep up with credit growth. Thus, banks had to rely increasingly on other refinancing sources, mainly foreign funding. This translated into a rising ratio of foreign liabilities over foreign assets in many countries in the region, although there are again some exceptions, in particular the Czech Republic and Poland. In a number of CESEE countries, a large share of credits were issued in foreign currency (mostly unhedged positions vis-à-vis households), which added to the banking sectors' vulnerability profile.<sup>16</sup> Against the background of banks' changing credit business profile (which shifted from government to private sector financing), bank capitalisation moderated slightly over time, although the average capital adequacy ratio remained well above legal requirements. The

non-performing loan ratio improved also over time, following transition-related banking reforms and the recent expansion of bank balance sheets due to strong credit growth. The latter was to a large extent driven by mortgage lending growth, which in turn was related to rapid growth in house prices resulting in an overvaluation of house prices in some CESEE countries. Lower provisioning requirements, booming credit growth, rising bank efficiency and better bank governance (a result of the large-scale entry of foreign banks and improved bank supervisory and regulatory structures) also led to increased bank profitability until 2008 (see Chart 10). Finally, improvements in Moody's long-term foreign exchange deposit ratings and bank stock valuations imply a positive investor sentiment towards CESEE banking sectors too.

The overall conclusion from these charts is mixed. Vulnerabilities had increased in the

<sup>16</sup> Again, average numbers hide cross-country differences. Foreign currency credit in the Czech Republic is for example minimal. Determinants of foreign currency borrowing in CESEE are investigated inter alia by Rosenberg and Tirpak (2008).

CESEE region in some areas compared with the past, notably in the external and banking sectors. In addition, some monetary indicators (mainly credit growth) also suggest that vulnerabilities in the region were higher in 2008 than before previous crises. By contrast, sentiment, real and nominal, as well as fiscal indicators suggest a decline in the region's macro-financial vulnerabilities over time, implying that the CESEE region was in these respects better prepared for the possible repercussions of a crisis than it was in 1998 or in 2001. As mentioned above, however, given the magnitude of the crisis itself, the better (partial) preparedness was not a guarantee for a benign impact of the crisis on the region.

### 3 THE IMPACT OF THE FINANCIAL AND ECONOMIC CRISIS ON CESEE<sup>17</sup>

The global economic and financial crisis affected the CESEE region through various channels of transmission. Although the schematic depiction below is not exhaustive and there might be overlaps and feedback loops between the various channels (see Chart 11), it provides a good starting point for analysing the spillovers of the global crisis to CESEE. In addition, one should bear in mind possible second-round effects of spillovers from affected emerging economies to developed countries and/or spillovers among emerging economies.<sup>18</sup>

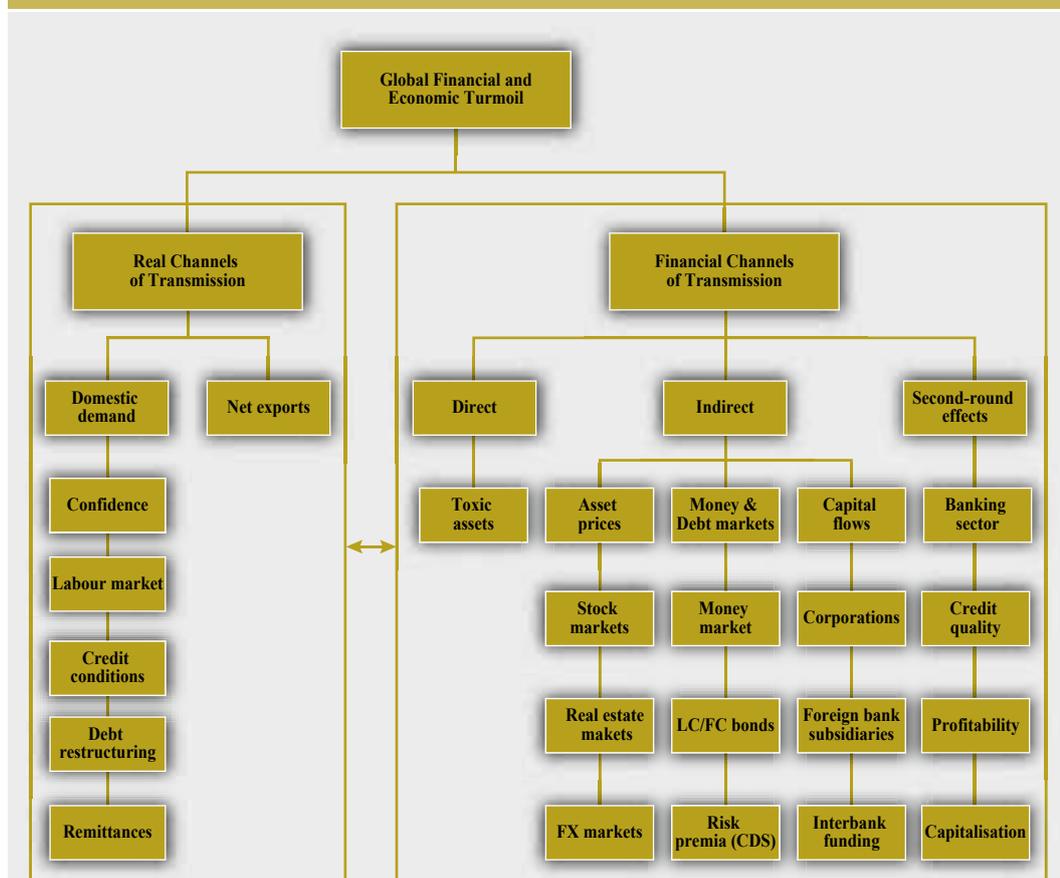
affect the CESEE region: direct and indirect channels, as well as second-round effects. The direct channel works mainly via changes in the prices of toxic assets in the portfolios of financial institutions. The indirect financial channels, which become important once there is a deterioration of foreign investor sentiment towards emerging markets, relate to asset prices, money and debt markets as well as capital flows. In this regard, the first two channels explain price effects, while the third one refers to volume effects. Looking in more detail at the indirect financial transmission channels, a loss of investor confidence can hit the CESEE region first via foreign exchange, stock and real estate

In general, there are three financial transmission channels through which the global crisis may

<sup>17</sup> This chapter reviews developments between 30 June 2007 and 31 December 2009.

<sup>18</sup> For more details, see Balakrishnan et al. (2009).

Chart 11 Transmission Channels of the Global Economic and Financial Crisis to CESEE



Source: Author's compilation.

markets. This in turn can have a negative impact on the real economy by lowering consumption and investment activity. In addition, a weakening of currencies can drive up inflation and pose a challenge for banks in countries with sizeable foreign currency lending to unhedged borrowers. At the same time, an increase in risk aversion could reduce the access to financing for governments (but also corporations and banks) on money and debt markets and/or make it more expensive. A slowdown (or sudden stop) in capital inflows can hit particularly enterprises and banks in countries with heavy reliance on foreign funding. Second-round effects relate to feedback loops from a slump in economic activity which may negatively impact financial institutions, inter alia via deteriorating credit quality, rising non-performing loans, declining profitability and increased problems retaining the necessary capitalisation.

The aforementioned disruptions in financial markets, together with a slump in external demand, affect also the real economy.<sup>19</sup> However, the real economy channels transmitted their full impact with a certain time-lag vis-à-vis the financial market channels.

The anatomy of the spillovers of the global crisis to CESEE shows that the channels of transmission mentioned before have been at work at different points in time and affected CESEE countries in different stages of the crisis. In addition, the economic downturn in the Baltic countries, at that point driven mostly by domestic factors, started already in the course of 2007.<sup>20</sup> The global crisis intensified rather than triggered the downswing in the Baltic countries. In general, however, given no or negligible exposures to subprime or subprime-related assets, CESEE financial markets weathered the global crisis relatively well until mid-September 2008 and have thus been hardly hit through the direct channels of financial transmission.

Since September 2008, however, the global economic and financial crisis gained markedly in depth and intensity and waning foreign

investor confidence towards emerging markets in general and CESEE in particular dashed hopes of a decoupling.<sup>21</sup> In fact, CESEE countries were hit hard via the indirect financial transmission channels (in many respects even harder than other emerging market regions such as Latin America<sup>22</sup>), while at the same time, in light of the slump in global demand, the foreign trade channel started to become active. Given the large degree of openness of the CESEE countries and the high share of manufactured products in their export structure, this channel had a particularly strong effect on the region. Financial market conditions remained tense until March 2009, when the long-lasting downward trend finally came to a halt and financial markets stabilised at fairly low levels.

Driven by highly accommodative monetary policies in the industrial world, as well as large-scale coordinated support measures (e.g. by the IMF and the EU), global investor sentiment improved and the second and third quarters of 2009 saw a strong recovery of financial markets which helped to partly make up for previous losses. At the same time, the real transmission channels operated with some time-lag, and second-round effects on the banking sectors and labour markets started to materialise in the course of 2009.

### 3.1 IMPACT ON SELECTED FINANCIAL MARKET SEGMENTS

#### 3.1.1 TOXIC ASSETS

The CESEE region was largely resilient to the toxic asset problem. According to full-year 2007 and 2008 reporting of large CESEE banks, local banks' exposure to subprime-related assets, i.e. asset-backed securities and collateralised debt obligations, has been negligible. There are a number of reasons for the limited direct

19 Using somewhat different categories, Obiora (2009) looks empirically at the relative importance of various transmission channels for the Baltic States.

20 See European Commission (2010) and Martin and Zauchinger (2009).

21 See Frank and Hesse (2009).

22 For a comparison of the experiences of CESEE and Latin America during the crisis, see e.g. Backé et al. (2010).

exposure of CESEE to the crisis. First and foremost, CESEE financial sectors still exhibit a low degree of sophistication: market penetration by complex financial products is low and the number of specialised financial intermediaries is small. Second, capitalising on the profitable and booming local lending business in unsaturated markets seemed more promising for CESEE banks than engaging in foreign structured products, for which demand was low or non-existent. Finally, banking sectors in CESEE countries are dominated by foreign banks, with parent banks' exposure to subprime-related assets appearing to be manageable as well in most cases.<sup>23</sup>

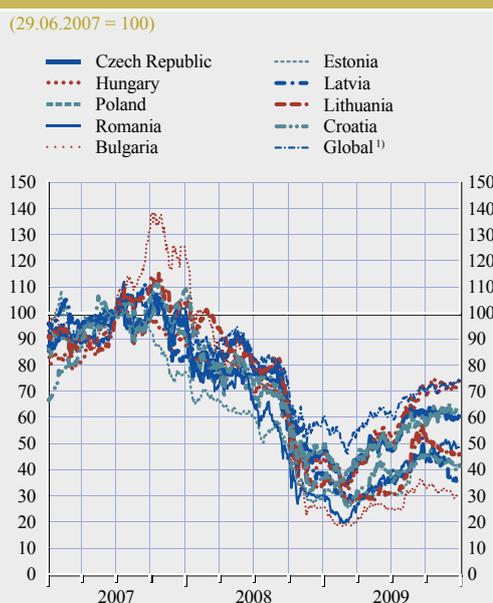
### 3.1.2 ASSET PRICES

CESEE asset prices were rather resilient to the global economic and financial crisis until September 2008. Thereafter, however, stock and – in many CESEE countries – real estate prices were severely hit, although developments have diverged considerably within the region. Signs of stabilisation and recovery in these markets have been observed since March 2009.

Looking first at stock market developments, the downward correction has been particularly pronounced in the Baltic and SEE countries (see Chart 12). These cross-country differences can to a large extent be explained by country-specific political, economic and social aspects (e.g. protests against austerity measures), all impacting (foreign) investor sentiment.<sup>24</sup> In many countries the stock market plunges are also to be seen in the context of long-lasting stock market rallies before the outbreak of the financial crisis. In fact, until September 2008 the CESEE region outperformed mature stock markets in the US and Europe as well as other emerging market regions. Only Latin America performed somewhat better during this period.<sup>25</sup>

Real estate prices in most CESEE countries also developed very dynamically in recent years (see Table 2).<sup>26</sup> House price growth was supported by various factors, like the fast rise in disposable income, increased demand for

Chart 12 Stock market developments



Sources: Datastream and OeNB.  
1) Global = FTSE All World Price Index.

housing by foreign investors and the enhanced availability and affordability of mortgages. These developments appear to have reinforced each other and there is empirical evidence suggesting that housing loan growth played an important role in house price dynamics (Égert and Mihaljek, 2007). In some countries, housing subsidies and/or favourable tax treatment of housing loans have also contributed to stronger real estate demand and higher house prices.

23 Toxic assets can in principle also have other indirect impacts on CESEE banks. If for example CESEE banks hold securities issued by foreign financial institutions (active or inactive in the subprime segment), changes in their standing can have an effect on the securities valuations of CESEE banks. See Narodowy Bank Polski (2008).

24 Equities of banking and other financial institutions as well as raw material-related corporations were among the worst-hit, i.e. equities which have strongly benefited from the favourable global liquidity conditions and the related raw material boom in the first half of the past decade.

25 In late 2008, however, the MSCI EMEE index (covering the Czech Republic, Hungary, Poland and Russia) lost in two months more than 50% in value, much more than any other emerging market region in the world.

26 On this issue, see inter alia Égert and Martin (2008), Walko (2008b) and for a case study on Estonia Lamine (2009).

**Table 2 House price developments in CESEE**

(percentages; year-on-year)

**House price growth**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Last quarter	
Bulgaria		0.3	1.8	12.2	47.6	36.6	14.7	28.9	24.9	-21.4	-26.3	Q4/09
Czech Rep.	11.1	12.4	14.5	9.0	1.4	-0.6	6.5	21.1				
Estonia	2.5	34.2	29.5	12.9	27.8	30.9	51.8	10.1	-12.3	-39.4	-40.3	Q4/09
Croatia	-1.7	6.8	1.8	0.5	12.9	8.8	16.6	13.0	5.8	-4.1		
Latvia						20.0	159.3	45.1	-18.3	-30.5		
Lithuania	-9.3	23.8	9.5	18.0	9.9	51.8	39.2	33.5	5.2		-33.0	Q2/09
Hungary	17.6	18.7	12.6	20.8	2.8	0.8	-1.1	2.0	2.1	2.1	-0.5	Q4/09
Poland	7.3	10.0	-4.1	-6.7	7.3	20.0	3.8	45.3	42.4			

Source: National central banks

House prices started to decelerate in the Baltic countries in 2007 and were falling strongly in 2009 in all fixed exchange rate countries although to a lower extent in Croatia. The end of the house price boom is likely to have considerable repercussions. On the financial side, the demand (and most likely also the supply) for new mortgages has fallen considerably, and in most countries an increasing share of the existing mortgages are becoming problem

loans. On the real economy side, falling demand for new housing implies falling demand in the construction sector, which in recent years was an important driver of growth in many CESEE countries.

**Chart 13 Exchange rate developments vis-à-vis the euro<sup>1)</sup>**

(29.06.2007 = 100)



Sources: Datastream and OeNB.

1) An increase in value means a nominal appreciation.

Similar to stock markets and housing prices, CESEE currencies were initially hardly affected by the global economic and financial crisis (see Chart 13).<sup>27</sup> Against the background of strongly appreciating (possibly overshooting) currencies, negative global investor sentiment, perceptions of an approaching end of the policy rate cycle and in some cases adverse country-specific factors, however, all free-floating CESEE currencies came under intensified market pressure from September 2008, before recovering since March 2009 (except for the Romanian leu).

Exchange rate pressures prompted many central banks to intervene, either verbally (e.g. the Czech Republic, Poland, Romania, Hungary) and/or through direct foreign exchange market interventions (e.g. Romania).<sup>28</sup> Also CESEE countries with fixed or quasi-fixed exchange rate regimes felt downward pressures. In Latvia and Croatia central banks intervened on the

27 In fact, between the outbreak of the global crisis and September 2008, the major regional currencies appreciated substantially. The only exception was the Romanian leu, which depreciated after August 2007.

28 In addition, the Polish government started to sell EU funds directly on foreign exchange markets to support the zloty and later similar actions were announced in Hungary.

foreign exchange markets in order to keep the exchange rate within the  $\pm 1\%$  fluctuation band (Latvia) or to prevent a more marked weakening (Croatia).<sup>29</sup>

### 3.1.3 MONEY AND DEBT MARKETS

Money and debt markets, as well as risk premia as reflected by CDS spreads, remained relatively stable until September 2008 in the CESEE region, but were strongly affected by the crisis afterwards due to waning investor confidence and rising financing and default risks in some countries. In most CESEE countries money and debt markets improved again in the course of 2009, although the levels prior to September 2008 had not been reached again by the end of 2009.

Money market rate spreads increased strongly in the second half of 2008, with Romania and Latvia being most affected although at different points in time (see Chart 14). These spreads remained broadly stable throughout the region in 2009. Notable improvements in

money market conditions were seen, however, in Croatia and Latvia.

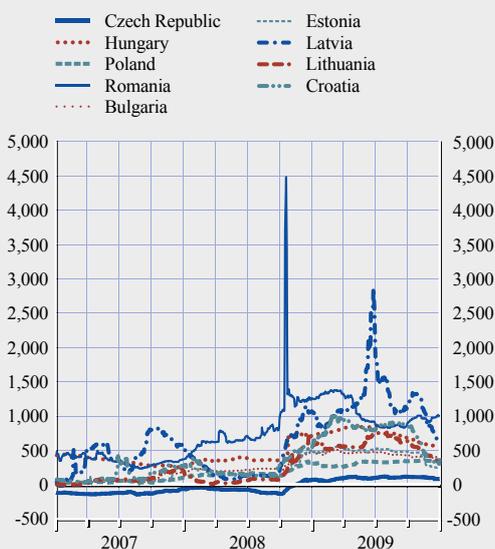
As of late 2008 CESEE local currency government bond spreads also increased throughout the region and became more volatile (see Chart 15). In some countries, severe bond market tensions even emerged, with authorities stepping in to ease market tensions. Unlike other financial market segments, which improved considerably in the course of 2009, local currency government bond yield spreads remained at elevated levels in some CESEE countries, notably Latvia and Lithuania.

A marked widening of sovereign Eurobond spreads from around September 2008 was common to all CESEE countries, but the subsequent development of Eurobond spreads varied significantly across the region

29 In Croatia, the central bank also changed reserve requirements to counter downward pressures on the kuna.

Chart 14 Money market developments in CESEE

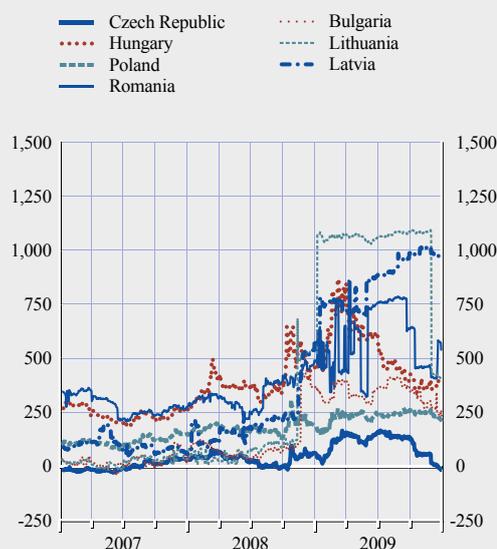
(3-month money market rate spreads versus euro area; in basis points)



Sources: Datastream and OeNB.

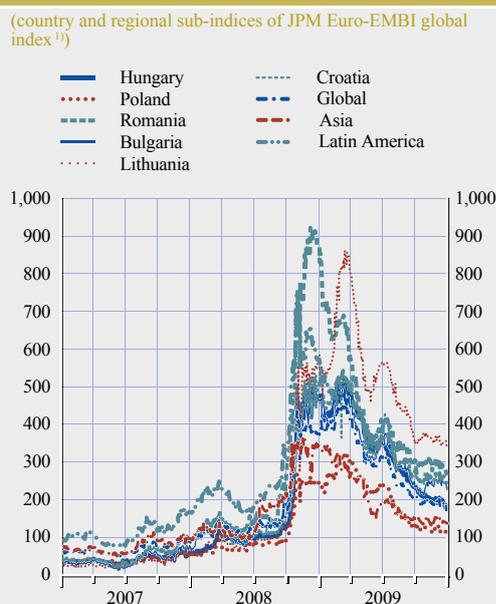
Chart 15 Local currency government bond market developments

(local currency government bond yield spreads versus euro; in basis points)



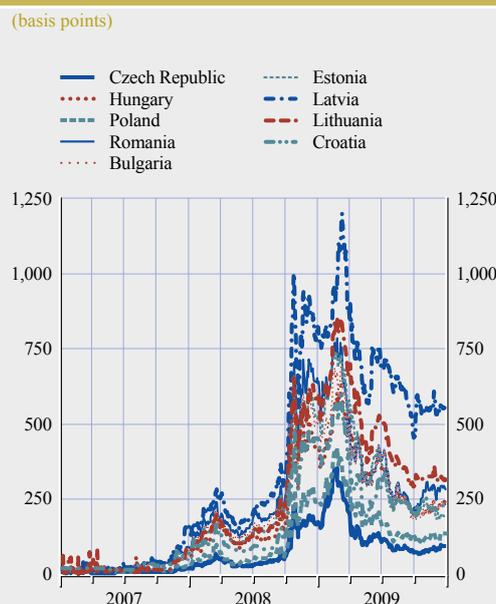
Sources: Eurostat and OeNB.

**Chart 16 Euro-denominated Eurobond yield spread developments**



Sources: Bloomberg and OeNB.  
 1) The JPM Euro-EMBI Global Index does not cover the Czech Republic, Estonia and Latvia.

**Chart 17 Sovereign five-year credit default swap premia**



Sources: Datastream and OeNB.

(see Chart 16). The spreads on Polish euro-denominated sovereign Eurobonds remained relatively compressed over the review period, while more pronounced increases were observed in Romania and Lithuania. Eurobond spreads have come down considerably since March 2009, but (with the exception of Poland) were still clearly above pre-crisis levels as at end-2009. Taking advantage of the improving global investor sentiment and falling risk premia, many CESEE countries tapped international financial markets from mid-2009 and issued USD- or EUR-denominated Eurobonds.

Turning to risk premia, five-year sovereign CDS spreads trended continuously upwards in 2008 and early 2009 (see Chart 17). Similar to the developments in Eurobond spreads, CDS spreads rose particularly strongly in countries with large macroeconomic imbalances (e.g. Hungary, Romania and the Baltic States). Amidst a more favourable global environment, some CESEE countries reached by and large pre-crisis CDS spread levels by the end of 2009.

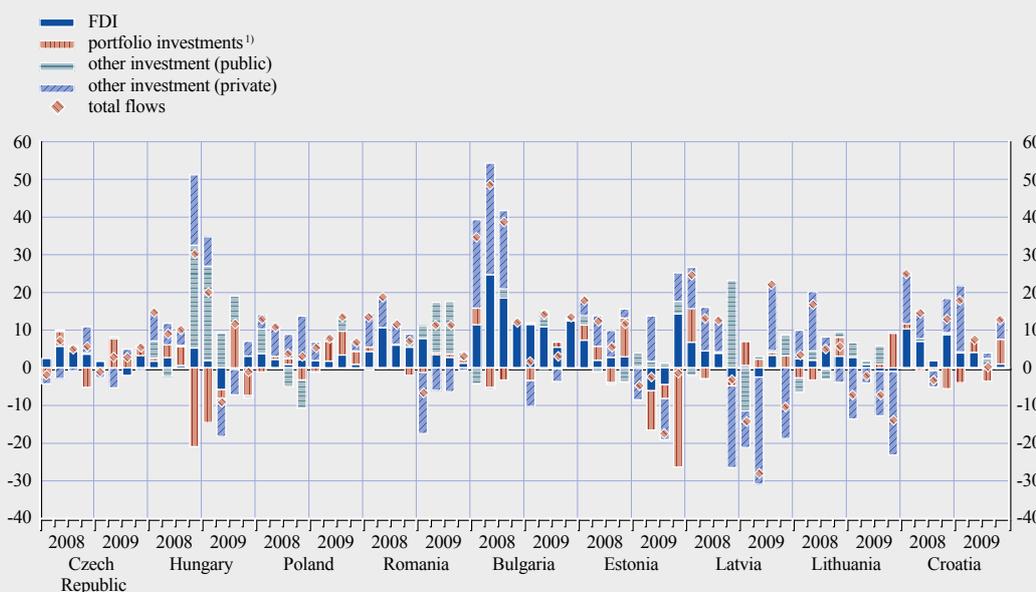
### 3.1.4 CAPITAL FLOWS

CESEE economies have also been affected by the financial turmoil via the tightening of global credit conditions, resulting in a slowdown (or temporary reversal) of capital inflows into the region. In order to obtain a comprehensive picture of capital movements, we look at the balance of payments flows, the external debt statistics and the claims and liabilities of BIS reporting banks.

First, according to balance of payments data, in the second half of 2008 and then again in the first half of 2009 total net capital inflows dropped considerably, very often from levels of (well) over 10% of GDP (see Chart 18). The picture altered later in 2009, when in many CESEE economies portfolio investments turned positive again on the back of improving global foreign investor sentiment. At the same time, net FDI inflows were mostly limited in 2009 and even turned temporarily negative in a number of countries (e.g. Hungary, Estonia and Latvia). Other investment inflows to the private sector

Chart 18 Capital flows in CESEE

(net flows in percentages of GDP)



Sources: National central banks and OeNB.  
1) Including financial derivatives.

(comprising capital flows to the corporate and banking sectors as well as funds flowing from international financial institution/EU financial support packages) turned mostly positive again in the course of last year but remained negative at the end of 2009 in Latvia and Lithuania.

Second, external debt statistics show more or less pronounced increases in external debt levels in all CESEE countries under review throughout 2009. Besides the strong fall in GDP in 2009, this can be attributed to resuming foreign borrowing of the corporate sector starting from the second quarter of 2009 and a pick-up in public sector external debt following various Eurobond issues and/or international support measures.

In more detail, non-financial corporations' direct access to foreign funding was more limited in the final quarter of 2008 and the first quarter of 2009 (see Chart 19). The corporate sector's gross external debt stock fell or remained stable in most CESEE countries from mid-2008 up to the first quarter of 2009.<sup>30</sup> This may indicate that

no or fewer new credit lines were granted and/or that existing credit lines have not been rolled over or were called due early. In addition, falling demand for new credits is likely to have played a role in this development too. Given the improving global environment later in 2009 this trend reversed thereafter though. In this context, IMF (2009b) suggests that rollover rates of foreign exchange-denominated corporate debt were higher in CESEE than in other emerging market regions during the peak of the crisis, but debt restructuring in other emerging market regions was faster in the first half of 2009.

A different picture emerges when looking at foreign debt related to inter-company loans (to non-financial corporations), which remained stable or increased in all CESEE countries during nearly the whole crisis period.

<sup>30</sup> In the context of capital flows, it is important to differentiate between flows (balance of payments data) and changes in stocks (external debt statistics and BIS data on claims and liabilities of BIS reporting banks), as the latter also comprise exchange rate effects, reclassifications and other adjustments, as well as revaluation adjustments (e.g. write-offs of loans, securities price changes).

Chart 19 External debt structure by debtors in CESEE

(percentages of rolling 4-quarter GDP)



Sources: National central banks and OeNB.

This reflects that parent companies continued to provide financing to their subsidiaries during the crisis. Changes in the banking sectors' external indebtedness are more heterogeneous, but overall tend to decrease (especially in the first quarter of 2009). However, foreign parent banks continued to support their subsidiaries in CESEE, in some cases with an explicit commitment in the context of international stabilisation packages.

Third, looking at the claims and liabilities of BIS reporting banks,<sup>31</sup> capital inflows to CESEE remained considerable up to the first half of 2008. From September 2008, however, capital inflows slowed down, with the claims of BIS reporting banks on some CESEE countries with rather liquid banking systems, like the Czech Republic and Poland (see Chart 20), even decreasing in the final quarter of 2008.

According to Mihaljek (2009), this implies that parent banks may have temporarily withdrawn liquidity from these markets to meet their liquidity needs at home. In the first half of 2009 (in many countries also in the second half) BIS

reporting banks further reduced their positions vis-à-vis CESEE, mainly Romania and the Baltic States (see Chart 21), thereby most likely responding to a sharp fall in credit demand as a result of deteriorating economic conditions. Nevertheless, CESEE has not experienced a major meltdown in cross-border banking flows, with foreign bank ownership providing a shelter against reversals in capital flows.<sup>32</sup>

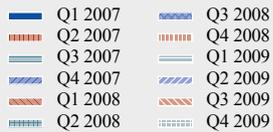
The liabilities of BIS reporting banks vis-à-vis the CESEE region (corresponding to CESEE banks' foreign assets) turned (remained)

31 BIS data on claims and liabilities of BIS reporting banks are based on the BIS international locational banking statistics and represent exchange rate-adjusted changes in stocks (in this paper expressed relative to GDP). The figures may be distorted by valuation effects (apart from exchange rate changes) which, however, cannot be separately identified. According to the BIS methodological guidelines, "the principal balance sheet items to be included as claims are deposits and balances placed with banks, loans and advances to banks and non-banks and holdings of securities and participations; on the liabilities side, the data should mainly relate to deposits and loans received from banks and non-banks."

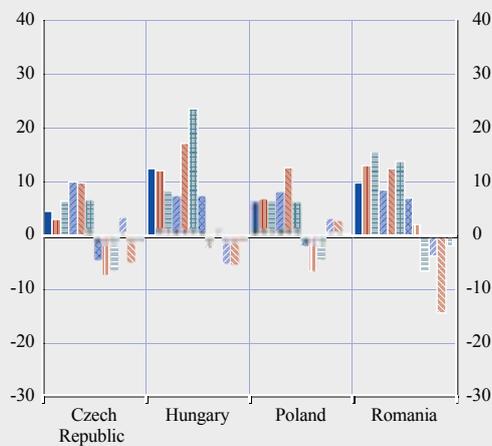
32 For further details, see Mihaljek (2009). Using firm-level data, Popov and Udell (2010) find, however, that financial distress at western European and US parent banks had a significant negative impact on business lending to central and eastern European firms.

Chart 20 Claims and liabilities of BIS reporting banks

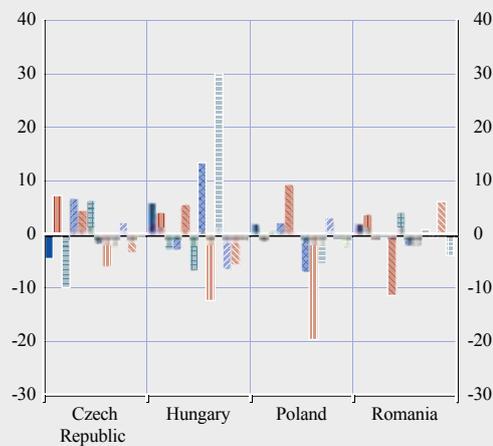
(exchange rate-adjusted changes in stocks; in percentage of GDP)



Claims of BIS reporting banks



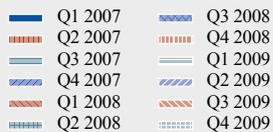
Liabilities of BIS reporting banks



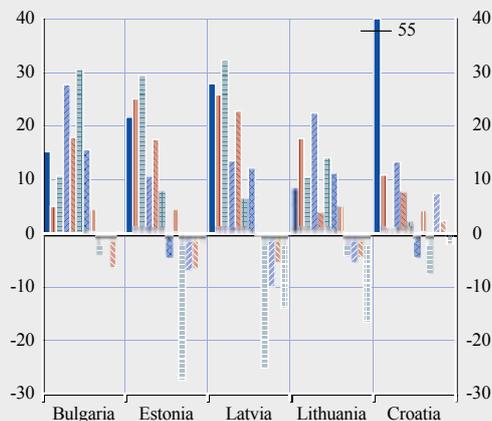
Sources: BIS and OeNB.

Chart 21 Claims and liabilities of BIS reporting banks

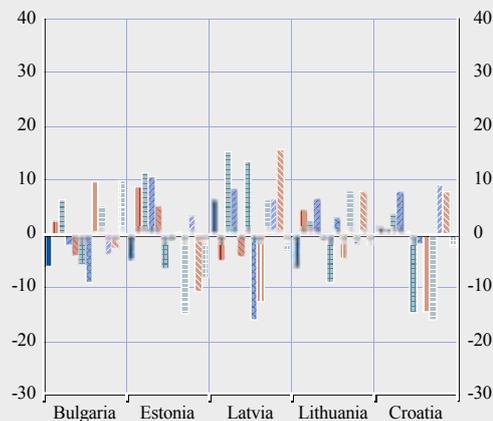
(exchange rate-adjusted changes in stocks; in percentage of GDP)



Claims of BIS reporting banks



Liabilities of BIS reporting banks



Sources: BIS and OeNB.

negative in the second half of 2008 (first quarter of 2009) as well, an indication that tight global liquidity conditions and limited access to foreign funding induced CESEE banks to repatriate parts of their foreign assets. In some cases this was supported or driven by central bank measures. For example, in Croatia, the relaxation of foreign currency liquidity regulations by the Croatian National Bank (HNB) in February 2009 (with the aim of alleviating the government's financing needs) facilitated banks' recourse to their foreign assets. By contrast, in Poland, a large part of the reduction of liabilities of BIS reporting banks vis-à-vis Poland in the final quarter of 2008 is related to Narodowy Bank Polski's foreign exchange reserve management (shift out of deposits with foreign banks and into foreign government securities) and balance sheet shortening (presumably to limit counterparty risk). With the stabilisation of global financial markets and easing liquidity pressures, from the second quarter of 2009 banks in many CESEE countries again started to rebuild foreign assets.

Overall, the global economic and financial crisis had a major impact on capital flows to CESEE, although the magnitude of the impact differed depending on the type of capital inflows and the receiving country. External financing problems mounted in a few CESEE countries in late 2008 and early 2009, and IFI/EU assistance was needed to stabilise the situation. Available data suggest that capital outflows were temporary and that in particular FDI inflows and inter-company loans played a positive role since the outbreak of the crisis.

### 3.1.5 SECOND-ROUND EFFECTS ON THE BANKING SECTOR

CESEE banking sectors were fairly resilient to the global economic and financial crisis until autumn 2008. Profitability levels remained high thanks to strong (albeit decelerating) credit growth and the share of non-performing loans in total loans reached, or stabilised at, often historically low levels.<sup>33</sup> In the second half of 2008, however, a number of supply- and demand-side factors negatively affected bank lending throughout the region (see Chart 22).

These factors included the increasingly tight global liquidity conditions (also before September 2008), the slowdown in capital inflows to CESEE (from September 2008), banks' increased risk aversion and falling credit demand against the background of strongly decelerating investment and consumption growth. As a result, credit growth in many countries decelerated sharply or even came to a halt in 2008 and 2009, a process which started in the Baltic States and Croatia<sup>34</sup> as early as end-2007 or early 2008.

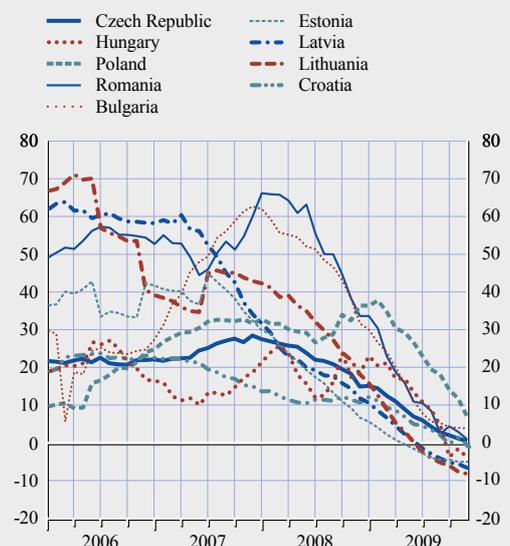
In a more recent analysis on Latvia, Hungary and Poland, the World Bank (2009a) notes some cross-country differences as regards the role supply- and demand-side factors play in the slowdown of credit growth, which is particularly important from the policy perspective. While for

<sup>33</sup> The Baltic States represent an exception in this regard, as the economic downturn had begun already back in early 2008. For more details, see Martin and Zauchinger (2009).

<sup>34</sup> In Croatia this process was reinforced by administrative prudential measures introduced by the HNB already in 2007 with a view to curbing credit growth.

Chart 22 Domestic credit developments

(year-on-year change; percentages; nominal, non-bank and non-government sector)



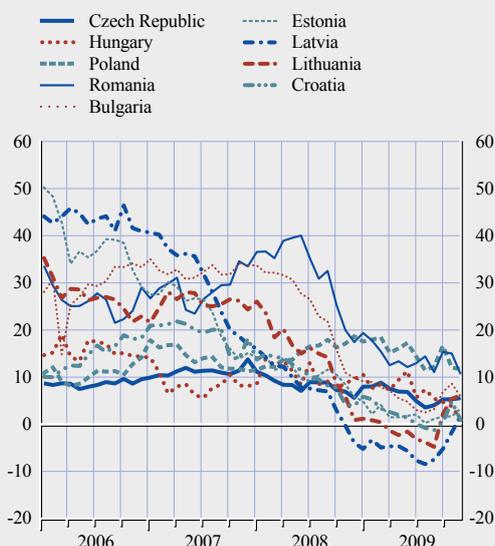
Sources: National central banks and OeNB.

Hungary the analysis suggests a credit crunch from the third quarter of 2008 through the first quarter of 2009, in Latvia the credit crunch in the second half of 2008 became a demand-side problem in the first quarter of 2009. In Poland, however, subdued credit demand started to weigh on credit growth already in the final quarter of 2008.

Deposit growth also came down to more moderate levels by the end of 2008 and continued to slow in 2009, especially in the Baltic States and SEE (see Chart 23). This can largely be attributed to worsening labour market conditions, more moderate wage growth and the related need for consumption smoothing, but in a few countries also to waning public confidence in banks, as a result of which some countries experienced temporary deposit withdrawals by households (e.g. Bulgaria, Croatia) in late 2008 and early 2009.<sup>35</sup> At the same time, the currency composition of savings hardly changed for the CESEE region as a whole, with the share of foreign currency deposits remaining fairly stable around 22% of total deposits.

Chart 23 Domestic deposit developments

(year-on-year change; percentages; nominal; non-bank and non-government sector)



Sources: National central banks and OeNB.

In late 2008 the rapid and marked worsening of economic fundamentals also started to affect the banking sector. The deteriorating economic conditions in the CESEE countries amplified credit and foreign exchange risks, with the latter risks pointing to possible adverse balance sheet effects. Increasing labour market pressures started to impede borrowers' ability to repay their loans. Borrowers' debt servicing capacity has been further impaired in countries with depreciating nominal exchange rates and predominance of foreign currency lending (e.g. Hungary, Romania).<sup>36</sup> Consequently, the share of non-performing loans in total loans started to pick up in all CESEE countries in the second half of 2008 and increased further over the course of 2009 (see Chart 24).<sup>37</sup> This development was particularly pronounced in Romania, Latvia and Lithuania, where the share of non-performing loans in total loans reached double-digit figures in 2009.

Increased credit risks and the related higher need for provisioning also started to put a strain on banking sector profitability (see Chart 25). Thus, as of late 2008, return on equity started to decline more or less strongly all over the region, a development which was also underpinned by banks' attempt to strengthen their capitalisation (in particular via retained earnings). Bank profitability was eroded relatively strongly in Poland, Bulgaria and Romania, although in general banks remained profitable. In contrast, the banking sectors recorded pronounced losses in 2009 in the Baltic States.

On a more positive note, banking sector stability was less at risk in CESEE.<sup>38</sup> According to Walko (2008a) this is due to the fact that financing by capital and reserves plays a more prominent role in CESEE than in the euro area. This reflects in particular higher capital adequacy

35 For further details, see Dvorsky, Scheiber and Stix (2009).

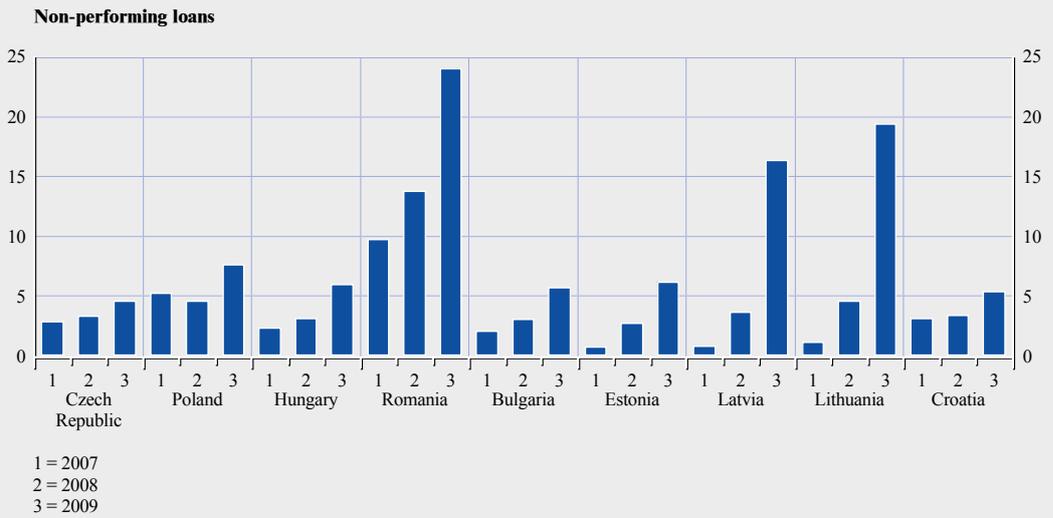
36 For further details on non-performing loans, see World Bank (2009b).

37 It is important to note, however, that given possible differences in classification rules, the comparability of non-performing loan levels across countries might be limited.

38 Since the beginning of the crisis only Latvia's Parex Bank required specific support measures by the authorities.

**Chart 24 Developments in non-performing loans**

(percentage of total loans)



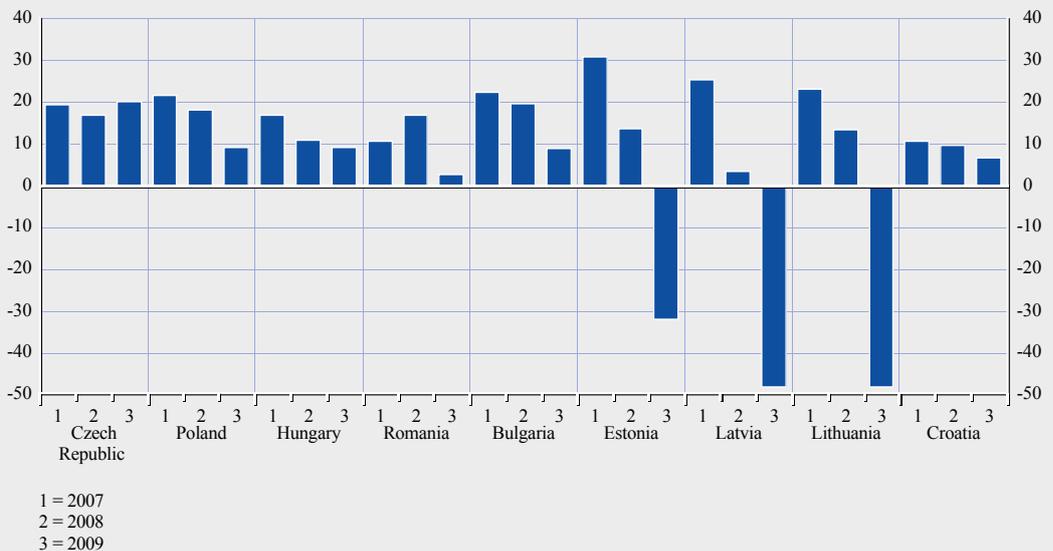
Sources: National central banks and OeNB.

requirements in many CESEE countries against the background of presumably more risky business environments, but may also be the result of the dominant position of foreign banks

in CESEE with parent banks providing a portion of financing to their subsidiaries in the form of equity. Capital adequacy remained stable at fairly high levels of over 10% in all countries under

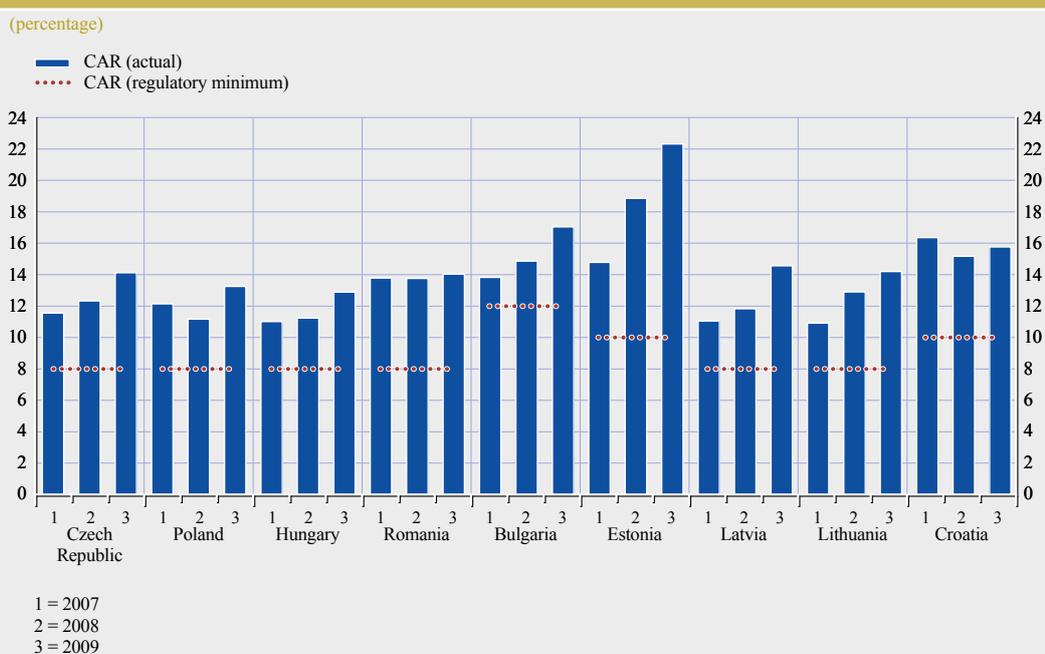
**Chart 25 Return on average equity**

(percentage; after tax)



Sources: National central banks and OeNB.

Chart 26 Capital adequacy ratios in CESEE



Sources: National central banks and OeNB.

review, which is well above the internationally recommended 8% and national requirements (often stricter than international standards). Most countries even recorded sizeable increases in capital adequacy ratios (in some cases despite higher risk weights imposed by central banks), most likely through capital increases by bank owners, including parent banks (see Chart 26). However, often balance sheet restructuring and downsizing (reducing risk-weighted assets) seem to have contributed to this development too.

To sum up, negative second-round effects on the banking sector from deteriorating real economic conditions have now become increasingly visible. Given the time-lags involved, a further deterioration of key banking performance indicators for the CESEE countries cannot be ruled out. Continued sound capitalisation levels and the commitment of parent banks to keep the capitalisation of subsidiaries at sound levels are therefore important to support a high overall degree of banking sector stability.

### 3.2 IMPACT ON THE REAL ECONOMY

Real economic developments in CESEE were severely affected by the disruptions in financial markets and the real channels of transmission, in particular the trade channel. When looking at the country-specific impact on the real economy, however, it is important to keep in mind the different starting points in terms of vulnerabilities at the onset of the crisis. Some CESEE countries accumulated sizeable domestic and external imbalances during the boom period and in countries with strong adjustment needs (in particular the Baltics) the spillovers from the global crisis worked not so much as a trigger but rather as an amplifier of the economic downturn that started in 2007. Moreover, some of the real transmission channels – especially the domestic demand channel – had their full impact with a time-lag vis-à-vis the financial channels. Except for the Baltic States, in most CESEE economies the crisis had hardly any visible impact on the real economy until the third quarter of 2008. In the final quarter of 2008, however, in parallel

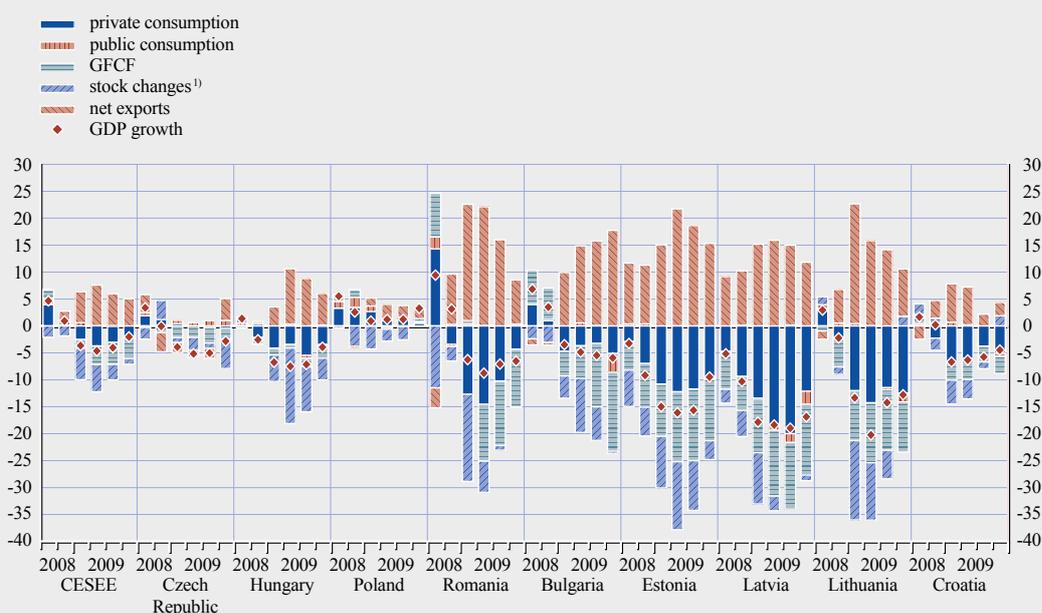
with the indirect financial transmission channels, the foreign trade channel was activated by a slump in global demand, triggering a slowdown in economic growth in all CESEE countries. The crisis fully spilled over to the real economy in the first half of 2009, with both foreign trade and domestic demand channels at work, and economic activity slumped throughout CESEE. Having bottomed out in the first half of the year, most CESEE economies saw a mild recovery in economic dynamics in the latter part of 2009, often driven by restocking. As a notable exception, Poland continued to record moderate positive economic growth in 2009. This might be attributable to (i) fairly low initial vulnerability levels, (ii) a lower degree of export dependence, (iii) a strong (albeit partly temporary) fall in the exchange rate (which notably contained imports), (iv) some fiscal stimulus and (v) infrastructure investments, which were partly financed by the EU and to some extent driven by preparations for the Euro 2012 football championship.

The trade channel appears to have been the most prominent real transmission channel of the crisis for most CESEE economies. This is not surprising given the region's increasing trade deepening and rising trade integration with the EU in the last two decades. The collapse of trade flows was driven by the plunge in global demand in the second half of 2008 and exacerbated by the strong changes in capital flows which are relevant for trade finance. The country-specific magnitude of this plunge in foreign trade volumes depended on the countries' trade openness and trade specialisation. At the same time, imports collapsed on the back of a slump in domestic demand and gloomy export prospects, taking into account the high import content of exports in some CESEE economies. However, with imports falling more quickly than exports, the contribution of net exports to GDP growth turned positive in most countries (see Chart 27).

The slump in domestic demand in CESEE was inter alia caused by worsening labour market

**Chart 27 GDP growth and its components in CESEE**

(GDP growth: year-on-year change; percentage; components: percentage points contribution to annual growth)



Sources: Eurostat and OeNB.  
1) Including statistical discrepancy.

conditions and income prospects, a slowdown in remittance flows, deteriorating business and consumer confidence, and tighter credit conditions. The composition of GDP growth thus showed major adjustments in domestic demand, especially in the first half of 2009. The biggest adjustments were seen in gross fixed capital formation, which is the most cyclical component and is affected directly by changes in the availability and cost of funding. The slowdown in investment was particularly strong in the Baltics, Romania and Bulgaria, where this component of domestic demand has shown very strong dynamics in recent years. Developments were similar, albeit not as severe, in private consumption, with the slowdown being particularly pronounced again in the Baltic States and Romania.

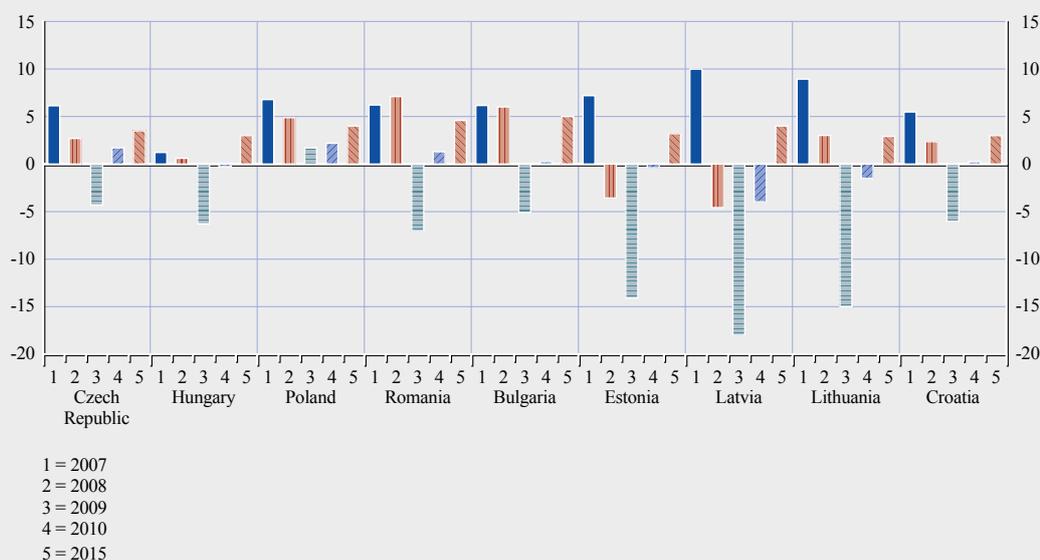
Recent forecasts for the CESEE countries are based on the assumption that the trough of the economic downturn was reached in the course of 2009 and that GDP growth in 2010 will be at least less negative than in 2009 (see Chart 28). The IMF's April 2010 World Economic Outlook

envisages GDP growth around zero in most CESEE countries in 2010. Only in Latvia and Lithuania, the countries with the most severe recession in 2009, is GDP still expected to contract relatively strongly in 2010.

The length and depth of the current recession will depend on how quickly domestic demand recovers in CESEE and how large the positive contribution of net exports will be. The strength of domestic demand will in turn be determined inter alia by the success of private debt restructuring, possibly including a reduction of the foreign exchange exposure of (unhedged) borrowers. Furthermore, the willingness of the financial sector to resume lending in CESEE will be an important factor as well. Employment and wage developments, which in turn depend on the flexibility of the CESEE economies, will be an important determinant of private consumption, whereas investment activity will first and foremost be contingent on expectations about future growth. The contribution of net exports will largely depend on future foreign demand and on the CESEE countries' relative external competitiveness.

Chart 28 GDP growth for 2007-2015

(at constant prices; year-on-year change in percentage)



Sources: IMF-WEO Database and OeNB.

As regards domestic demand, there is no evidence of a re-acceleration of credit growth in CESEE yet and the speed with which consumers and enterprises manage to restructure their debts is difficult to gauge. The above-mentioned rapid rise in the share of non-performing loans certainly suggests that many borrowers are experiencing difficulties in debt servicing. On a more positive note, however, it can be argued that the nominal exchange rates of most flexible CESEE currencies have partly recovered from their troughs in early 2009.

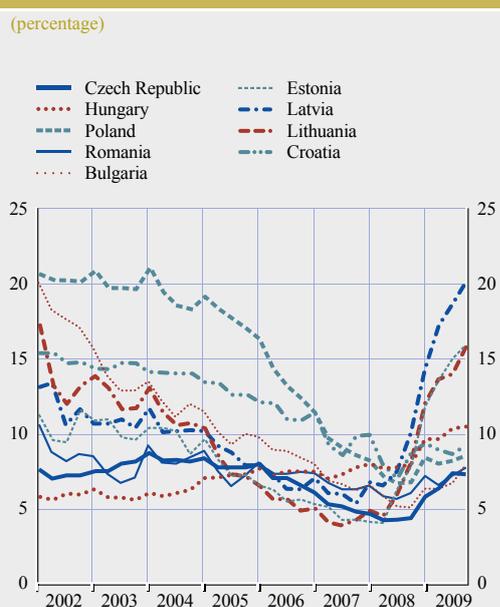
Looking at labour markets, unemployment increased more or less strongly in all CESEE countries (see Chart 29) over the course of 2009 and wages were on a declining trend in most of them (see Chart 30). The most severe labour market developments can be observed in the Baltic countries, which mirror ongoing internal adjustments in the absence of external channels of adjustment (i.e. the exchange rate) in fixed exchange rate regimes. It is too early

to say, however, how strong and persistent the increase in unemployment and the deceleration of wages will be.

Regarding the prospects for net exports, changes in international price competitiveness show some differences between developments in “fixers” and “floaters” (see Chart 31). Real effective exchange rates (REERs) of CESEE countries with floating exchange rate regimes depreciated notably since mid-2008, in line with nominal exchange rate depreciations, although some of these competitiveness gains have been lost in the meantime. The REERs in the “fixers”, however, continued to appreciate until early 2009 and depreciated only slightly since then, given the lack of nominal depreciation, although adjustment through deflation is of course an option for these countries.

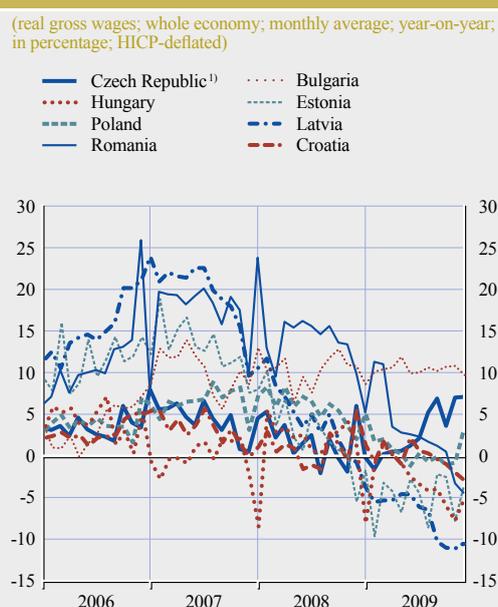
In a nutshell, after some initial inertia, the crisis had a very pronounced effect on real economic developments in CESEE starting

**Chart 29 Unemployment rates in CESEE**



Sources: Eurostat and OeNB.

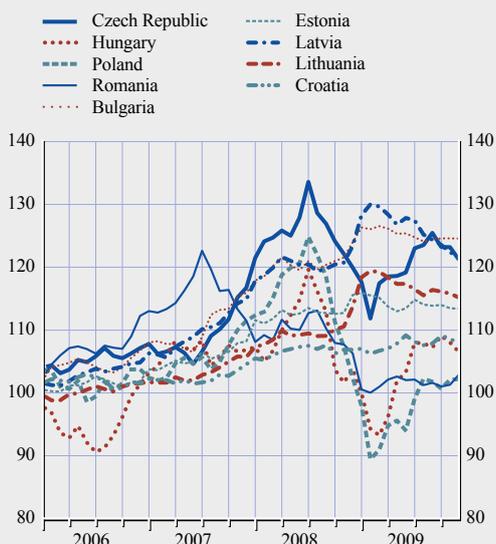
**Chart 30 Wage developments in CESEE**



Sources: WIIW, National statistical offices and OeNB.  
1) Czech Republic = wages in industry.

**Chart 31 Real effective exchange rate developments**

(real (CPI-based); broad indices; monthly averages; 2005 = 100)



Sources: BIS and OeNB.

from late 2008. The length and depth of the resulting economic downturn depends partly on domestic factors such as the magnitude of the non-performing loan problem, banks' willingness to resume lending activity and labour market developments. External factors such as the short to medium-term global economic prospects and the renewed availability of foreign capital will, however, obviously play a big role as well.

### 3.3 THE POLICY RESPONSE SO FAR

The policy response to the crisis in the CESEE region focused on three areas: 1) standard monetary policy action, in particular changes in interest rates, 2) non-standard (monetary) policy measures, including liquidity and exchange-rate supporting measures, and 3) fiscal policy. In addition, a few CESEE countries obtained international financial assistance. Furthermore, the crisis response in the euro area, e.g. the standard and non-standard monetary policy measures taken by the ECB, had a significant impact on the CESEE region as well. First, because the euro area is the main trading partner

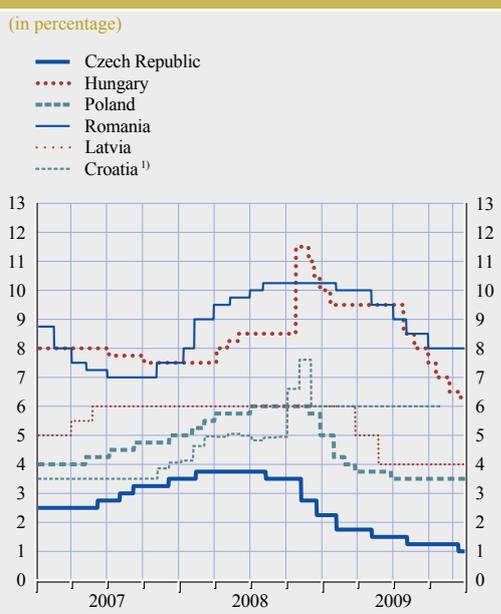
for all CESEE countries, and second, because the banking systems in CESEE are mostly dominated by euro area parent banks, which have benefited from ECB measures.

Looking first at the standard monetary policy measures, widespread inflationary pressure characterised the region when it was hit by the crisis in September 2008 and most CESEE central banks were in an upward interest rate cycle. During the first couple of months after the crisis unfolded, central banks thus faced difficult choices. On the one hand, they needed to stimulate demand by lowering interest rates. On the other hand, they needed to prevent excessive currency depreciation – which may have reignited inflation – by retaining a positive interest rate differential vis-à-vis other countries. Therefore, monetary policy remained very cautious in most CESEE countries until the end of 2008, when the severity of the recession became clear. Moreover, in some CESEE countries the effectiveness of the interest rate channel of monetary policy has been weakened by the increase in the spreads between policy and market rates, a phenomenon that was particularly pronounced in some CESEE countries with fixed nominal exchange rates.

In the final quarter of 2008 most CESEE countries with flexible exchange rates started a process of monetary easing (Hungary after a sizeable interest rate hike in October 2008) and by end-2009 they had reduced their policy rates by between 225 and 525 basis points (see Chart 32). At the same time, some CESEE central banks intervened verbally (e.g. the Czech Republic, Hungary and Poland) and/or through market operations (e.g. Romania) to support their currencies. Among countries with fixed (quasi-fixed) exchange rates, the central banks of Latvia and Croatia have conducted outright foreign exchange market interventions to cope with downward exchange rate pressures.

Since the outbreak of the financial crisis CESEE central banks and governments have also taken a range of non-standard (monetary) policy

Chart 32 Policy rate developments



Sources: National central banks and OeNB.  
 1) Weighted averages of weighted repo rates achieved at regular reverse repo auctions of the CNB in the reporting month.

measures to counter the impact of the crisis.<sup>39</sup> Broadly speaking, the aim of these measures was to safeguard financial system stability and to avoid (respectively minimise) spillovers from adverse financial developments to the real economy. Most CESEE central banks took liquidity-easing measures (e.g. reducing domestic reserve requirements, broadening eligible collateral and increasing the frequency of auctions). Hungary, Poland and Romania also used measures to support foreign exchange markets including foreign exchange liquidity injections and cross-central bank currency swap arrangements. More specifically, in the final quarter of 2008, the ECB established agreements on repurchase transactions with Hungary and Poland in order to provide support to central bank operations with a view to euro liquidity provision. In addition, some central banks signed swap arrangements with Sveriges Riksbank (Estonia, Latvia) and Danmarks Nationalbank (Latvia). CESEE central banks did not, however, undertake any credit or quantitative easing measures. In line with EU

legislation, governments broadened guarantee schemes for bank deposits in order to prevent bank runs.<sup>40</sup> The possibility of state capital injections into banks has also been established throughout the region, but banks have been rather reluctant to draw on that form of relief (OeNB, 2009).

Fiscal policy responses to the crisis varied across the CESEE region. Generally speaking, the fiscal response was determined by two key factors. First, the extent to which public finances were already under stress at the beginning of the crisis. Second, CESEE countries with high external financing needs needed to take account of a possible weakening of investor confidence which would complicate access to foreign funds.<sup>41</sup> Whereas the Czech Republic and Poland decided on fiscal stimulus packages of around 1% of GDP in 2009 (broadly in line with the EU and the euro area average), the net impact of fiscal policy measures in Bulgaria, Romania and Hungary is either neutral or even deficit-reducing.

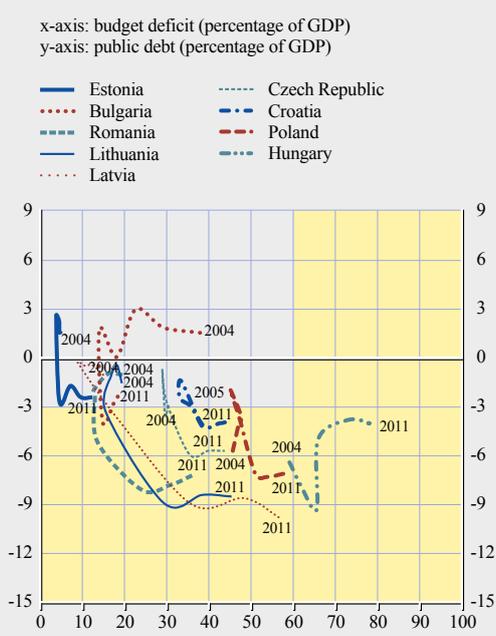
The strong economic downturn in CESEE put additional pressure on general government balances in 2009 (see Chart 33), further curtailing the room for discretionary fiscal stimuli. Public deficits in all CESEE countries but Estonia were larger than 3% of GDP in 2009, in some cases even close to 10% of GDP. Consequently, in 2009 public debt levels grew strongly throughout CESEE as well, but except for Hungary the level remained below 60% of GDP. Based on the European Commission's 2010 Spring Forecasts, public finances are expected to remain under pressure in most CESEE countries also in 2010 and 2011.

39 See Petrovic and Tutsch (2009) for an overview of measures taken in EU countries and Ishi, Stone and Yehoue (2009) for an overview of measures taken in 40 emerging economies.

40 In accordance with a proposal by the European Commission, all CESEE EU countries as well as Croatia now guarantee deposits up to the equivalent of at least €50,000 and some countries implemented an unlimited guarantee.

41 It should also be noted that most CESEE countries are small open economies. A strong fiscal stimulus would thus not only lead to higher domestic demand but also to an increase in imports. This consideration may have been an additional determinant of the fiscal policy response in some countries.

Chart 33 Public finances in CESEE, 2004-2011



14% of 2008 GDP, respectively), and €7.5 billion (32% of GDP) for Latvia. In the case of Poland the IMF has approved a credit line amounting to some €15 billion (5% of 2008 GDP) under the Flexible Credit Line facility.<sup>43</sup> For Hungary, Latvia and Romania, IFI/EU support packages were instrumental in stabilising their economies and in sustaining private capital flows, but these IFI/EU programmes have also helped to support private flows to other CESEE countries, although there is no direct evidence of such spillover effects.

Finally, in early 2009 the “Vienna initiative” was taken to coordinate the response of the main public and private stakeholders to the financial crisis in CESEE (EBRD, 2009). As part of this initiative, EU-based parent banks pledged to refinance and, if needed, recapitalise their CESEE subsidiaries, home governments allowed the parent banks to access national banking sector support packages for operations at home and abroad, and international financial

In addition to national support measures, Hungary, Latvia and Romania have received financial support from the IMF, the EU and other international financial institutions (see Table 3). The size of these Stand-By Arrangements (SBAs)<sup>42</sup> amounts to some €20 billion for Hungary and Romania (18% and

42 Following the IMF definition, SBAs are designed to help to address short-term balance of payments problems, by enabling countries to rebuild international reserves, stabilise currencies, continue paying for imports and restore conditions for strong economic growth, while undertaking policies to correct underlying problems.

43 According to the IMF definition, a Flexible Credit Line is designed for countries with very strong fundamentals, policies and track records of policy implementation and is particularly useful for crisis prevention purposes.

Table 3 IMF lending arrangements in emerging Europe

(in SDR million)

IMF Lending Arrangements in Emerging Europe as of February 28, 2010

Member	Date of arrangement	Amount agreed	Of which drawn
<b>Stand-by Arrangement</b>			
Ukraine	5 November 2008	11,000	7,000
Hungary	6 November 2008	10,538	7,637
Latvia	23 December 2008	1,522	892
Serbia	16 January 2009	2,619	1,021
Romania	4 May 2009	11,443	8,263
Bosnia and Herzegovina	8 July 2009	1,015	183
<b>Flexible Credit Line</b>			
Poland	06 May 2009	13,690	0

Source: IMF.

institutions (IFIs) as well as host-country governments gave assurances of financial and policy support. Overall, these international support measures seem to have helped to calm financial markets and to have contributed to the stabilisation of most financial market segments after the first quarter of 2009. In this context, one can also mention the EBRD's "Vienna Initiative Plus", which aims to address the issue of foreign exchange exposures, together with other IFIs as well as home and host authorities, by ensuring conducive macroeconomic policies and establishing supporting regulatory frameworks.

## 4 CONCLUSIONS

Before the crisis, the CESEE region was experiencing an economic boom with rapid GDP and credit growth, which in turn was driven by large capital inflows and benefited from strong global growth and easy global liquidity conditions. In addition, strong economic growth in the region was supported by positive expectations of EU convergence and euro adoption.

Up to the final quarter of 2008, CESEE showed remarkable resilience to the global economic and financial crisis. This is partly due to the fact that the region had no or only negligible exposures to subprime or subprime-related assets. Part of this resilience can be explained with standard vulnerability indicators as well, which at the onset of the crisis indicated in several dimensions a strong position of the region compared with previous crises. The main exceptions were the heightened external and banking vulnerabilities, precisely two areas that proved to be very sensitive in the context of the global crisis.

Since September 2008, the global economic and financial crisis gained markedly in depth and intensity and waning foreign investor confidence in emerging markets dashed hopes of a decoupling of the CESEE countries from the global financial crisis. As a result, the CESEE region was hit hard, in many respects even harder than other emerging market regions such as Latin America. Developments have, however, not been homogenous in the region. CEE countries tended to be less seriously hit than those in the Baltics or in SEE, suggesting that the most vulnerable countries tended to be most severely affected.

Looking at the impact on different financial market segments, exchange rates were strongly affected, stock markets piled up huge losses and bond spreads as well as CDS premia increased to elevated levels, while becoming more volatile. The crisis also had a major impact on capital flows to the region, although the

magnitude of the impact differed again notably, depending on the type of capital inflows and the receiving country. Despite some temporary capital outflows, the worst-case scenario of a fully fledged financial meltdown did not occur. In particular, FDI inflows and inter-company loans played a positive role in stabilising capital flows to the region. Banking sectors experienced a deceleration in credit and deposit growth, but the currency composition of credits and deposits hardly changed for the region as a whole. While banks in the region have become confronted with an – in some countries substantial – increase in non-performing loans and a decline in profitability, banking sector capitalisation remained at high levels.

The disruptions in domestic and international financial markets, together with the real transmission channels such as the plunge in global trade flows, had a pronounced effect on real economic developments since late 2008, ultimately resulting in severe recessions in most countries in the region. Future domestic demand will depend inter alia on the success of private debt restructuring and the willingness of the financial sector to continue lending. Net exports will depend on future foreign demand and on CESEE countries' relative external competitiveness. Given the lack of nominal exchange rate flexibility, the fixed exchange rate countries may find strengthening their competitiveness somewhat more challenging than the countries with floating nominal exchange rates.

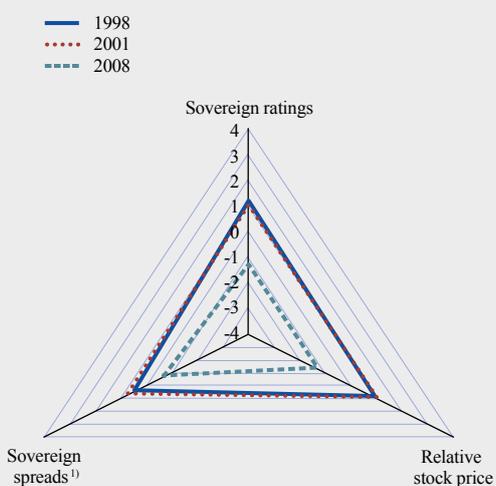
The policy response to the crisis focused in the CESEE countries on standard and non-standard monetary policy action, as well as fiscal measures. In countries with flexible exchange rates, key interest rates were lowered as from the end of 2008 when the severity of the recession became clear. In most CESEE countries, however, policy rates remain at higher levels than in major industrialised economies, and countries with fixed exchange rates tended to face a more significant rise in money market rates reflecting higher risk premia. Since the outbreak of the crisis CESEE authorities have

also taken a range of non-standard monetary policy measures to stabilise financial markets and reduce spillovers to the real economy. Fiscal policy responses to the crisis varied within the region and were mainly determined by the fiscal situation at the beginning of the crisis. Overall, the various national and – in some cases – international (e.g. IMF, EU) support measures appear to have helped to cushion the impact of the global economic and financial crisis on the CESEE countries and the region's integration into European banking networks turned out to be, on balance, an asset during the crisis (although it also played a role in fuelling the boom before the crisis). The EU anchor also provides a functioning institutional and regulatory framework for CESEE countries that promotes the convergence process and is expected to prevent extreme policy slippages.

STATISTICAL ANNEX

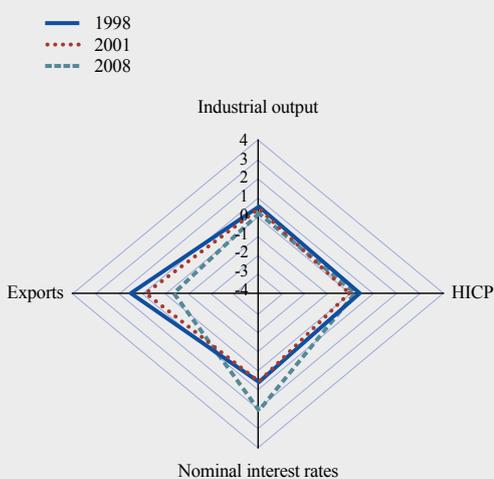
BULGARIA

Chart 1 Sentiment indicators



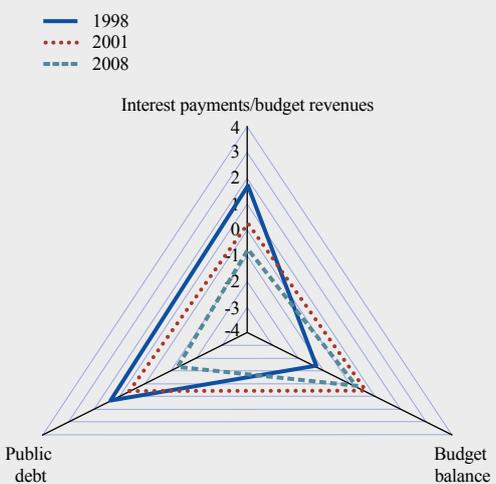
Sources: JP Morgan, Moody's, Fitch, Standard and Poor's, Datastream, Eurostat and OeNB.  
 1) JPM EMBIG for Bulgaria.

Chart 2 Real and nominal indicators



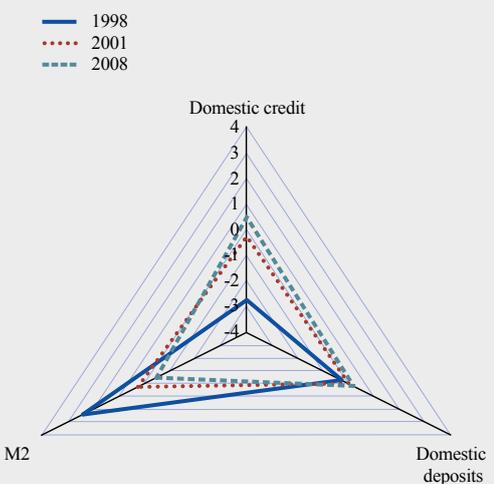
Sources: Datastream, Eurostat and OeNB.

Chart 3 Fiscal indicators



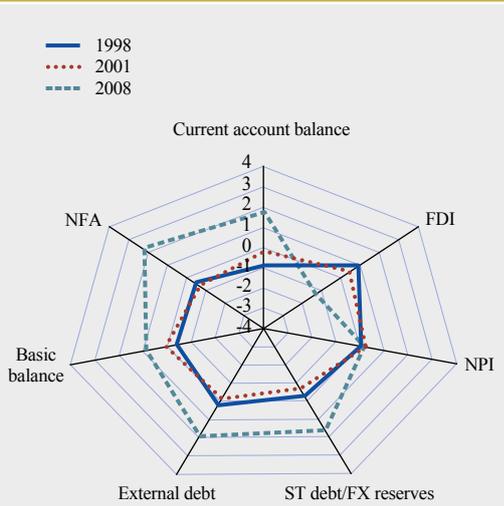
Sources: NCBs, Eurostat and OeNB.

Chart 4 Monetary indicators



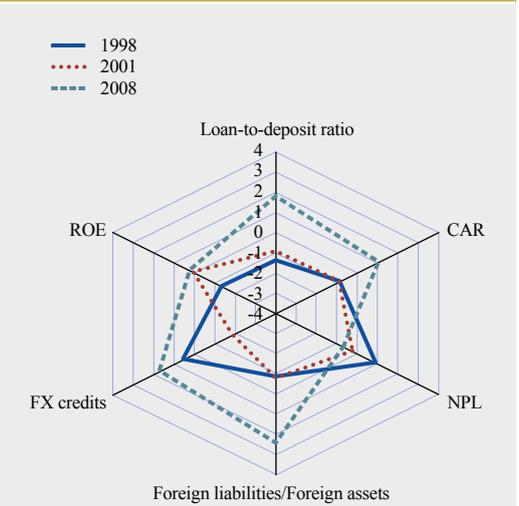
Sources: NCBs, Eurostat and OeNB.

Chart 5 External indicators



Sources: NCBs, Datastream and OeNB.

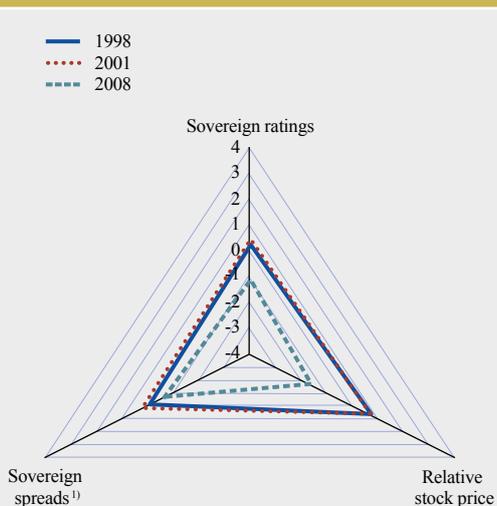
Chart 6 Banking indicators



Sources: NCBs, Datastream and OeNB.

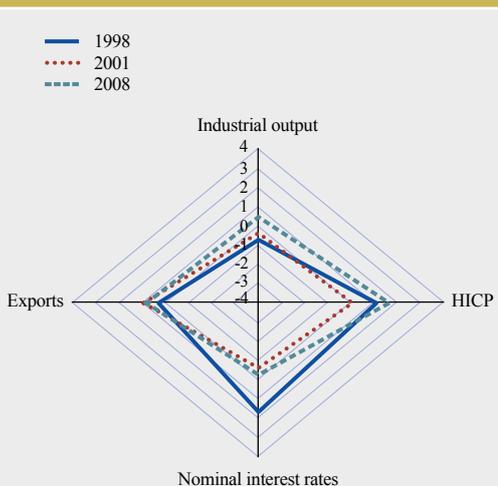
CROATIA

Chart 1 Sentiment indicators



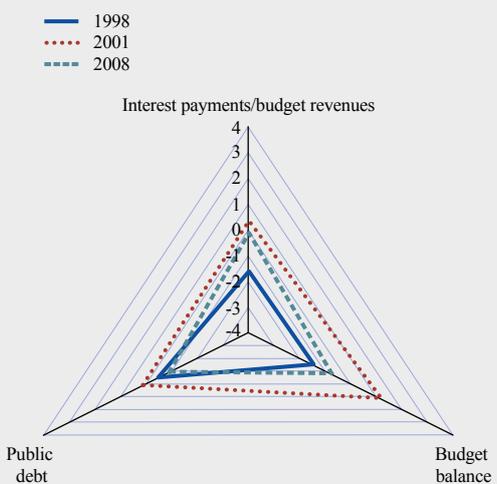
Sources: JP Morgan, Moody's, Fitch, Standard and Poor's, Datastream, Eurostat and OeNB.  
1) Proxied by JPM EMBIG for Europe.

Chart 2 Real and nominal indicators



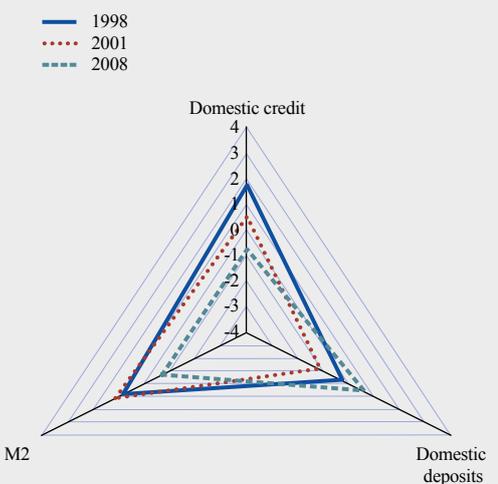
Sources: Datastream, Eurostat and OeNB.

Chart 3 Fiscal indicators



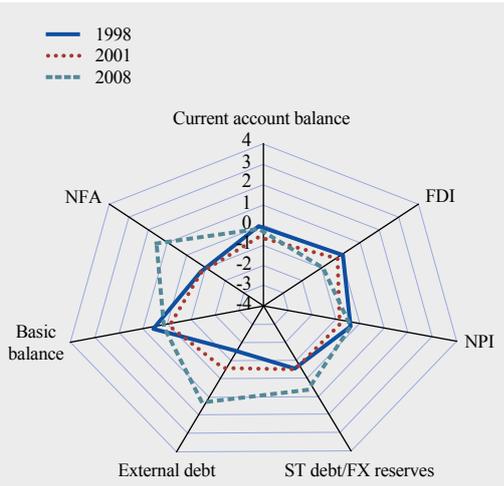
Sources: NCBS, Eurostat and OeNB.

Chart 4 Monetary indicators



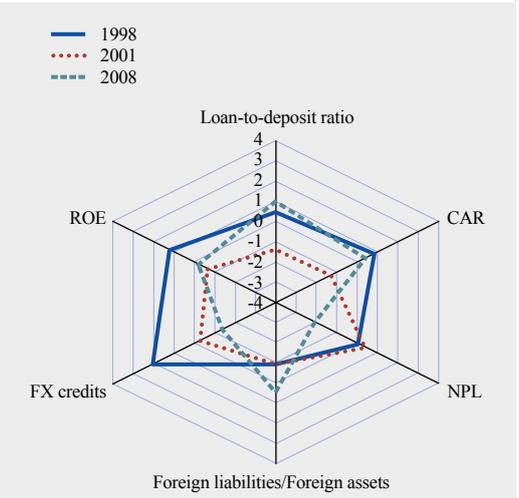
Sources: NCBS, Eurostat and OeNB.

Chart 5 External indicators



Sources: NCBs, Datastream and OeNB.

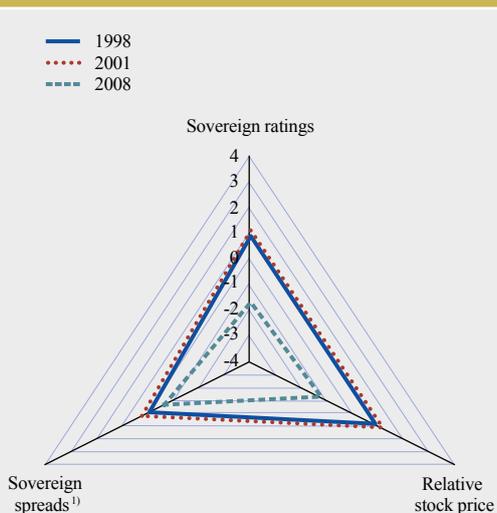
Chart 6 Banking indicators



Sources: NCBs, Datastream and OeNB.

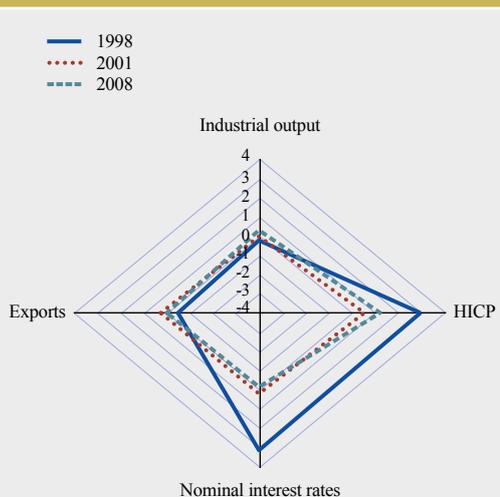
CZECH REPUBLIC

Chart 1 Sentiment indicators



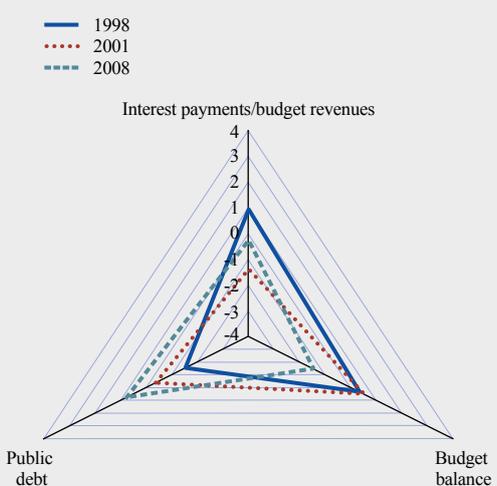
Sources: JP Morgan, Moody's, Fitch, Standard and Poor's, Datastream, Eurostat and OeNB.  
1) Proxied by JPM EMBIG for Europe.

Chart 2 Real and nominal indicators



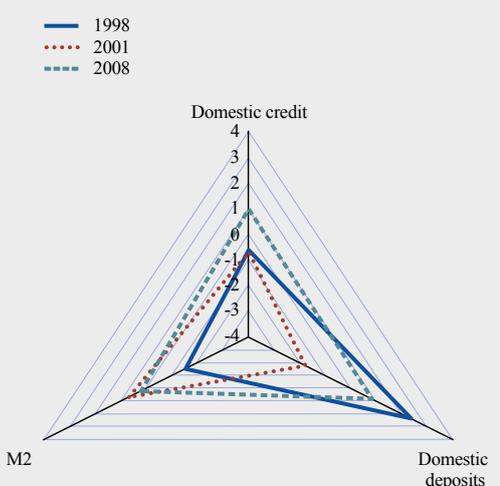
Sources: Datastream, Eurostat and OeNB.

Chart 3 Fiscal indicators



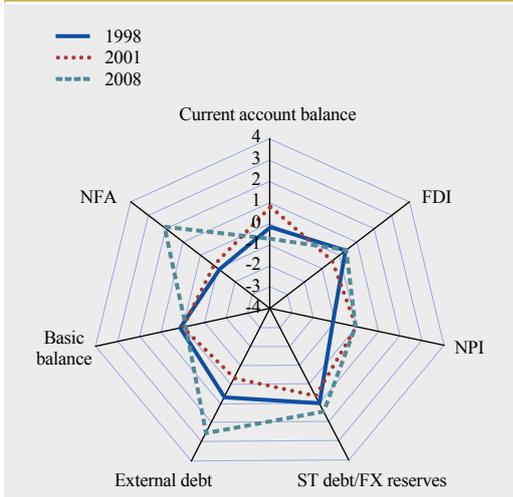
Sources: NCBS, Eurostat and OeNB.

Chart 4 Monetary indicators



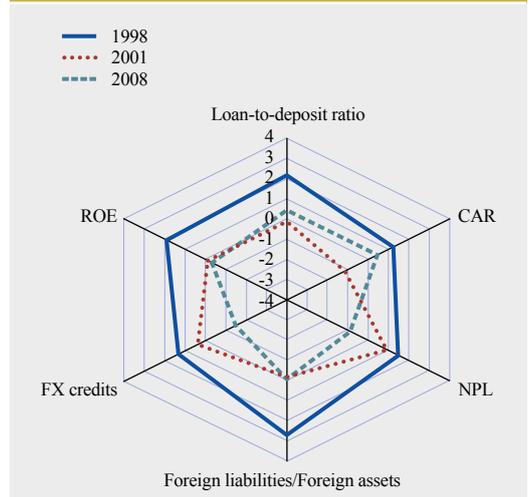
Sources: NCBS, Eurostat and OeNB.

**Chart 5 External indicators**



Sources: NCBs, Datastream and OeNB.

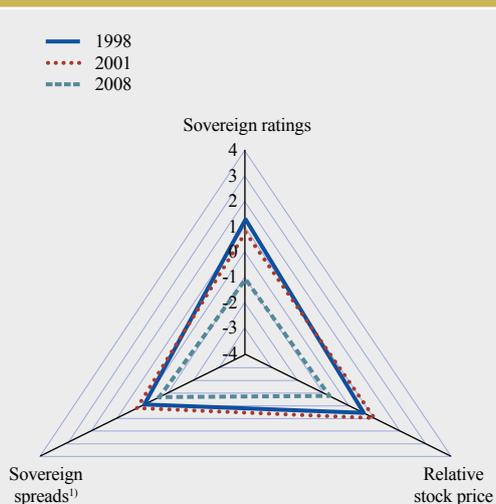
**Chart 6 Banking indicators**



Sources: NCBs, Datastream and OeNB.

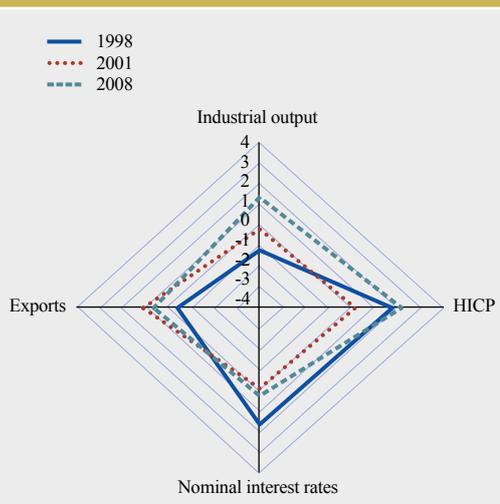
ESTONIA

Chart 1 Sentiment indicators



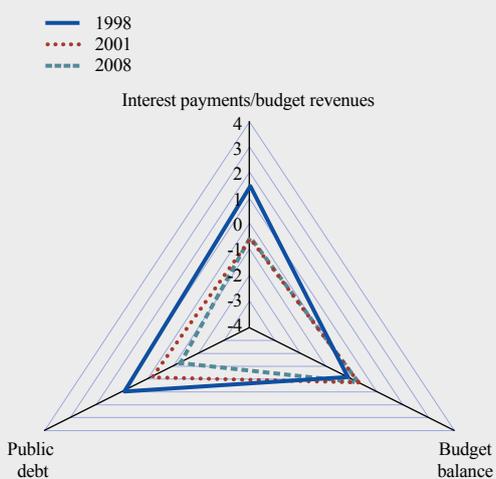
Sources: JP Morgan, Moody's, Fitch, Standard and Poor's, Datastream, Eurostat and OeNB.  
 1) Proxied by JPM EMBIG for Europe.

Chart 2 Real and nominal indicators



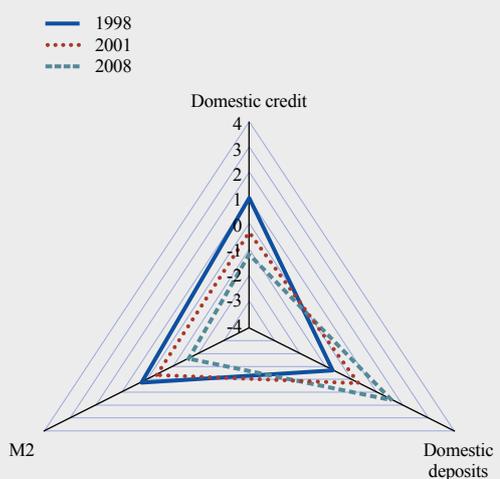
Sources: Datastream, Eurostat and OeNB.

Chart 3 Fiscal indicators



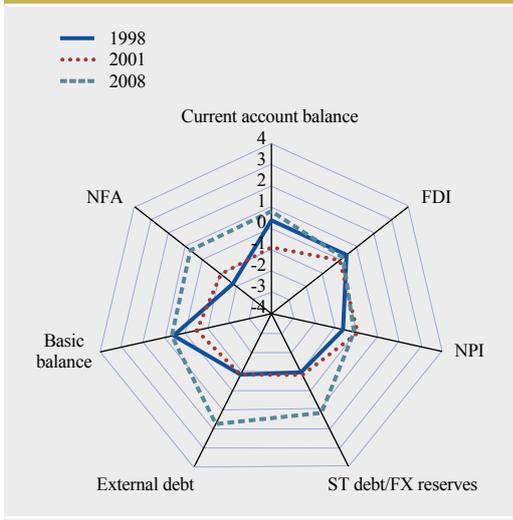
Sources: NCBs, Eurostat and OeNB.

Chart 4 Monetary indicators



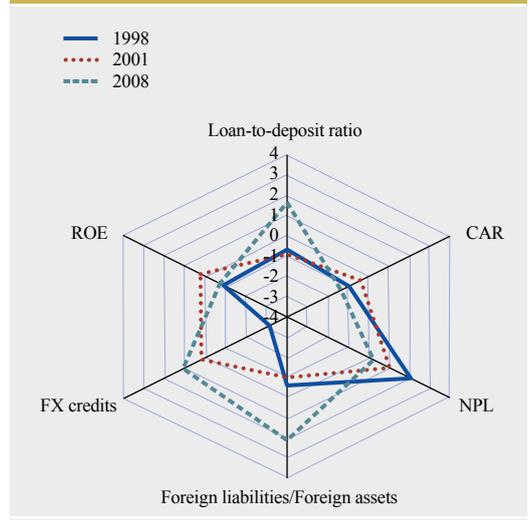
Sources: NCBs, Eurostat and OeNB.

**Chart 5 External indicators**



Sources: NCBs, Datastream and OeNB.

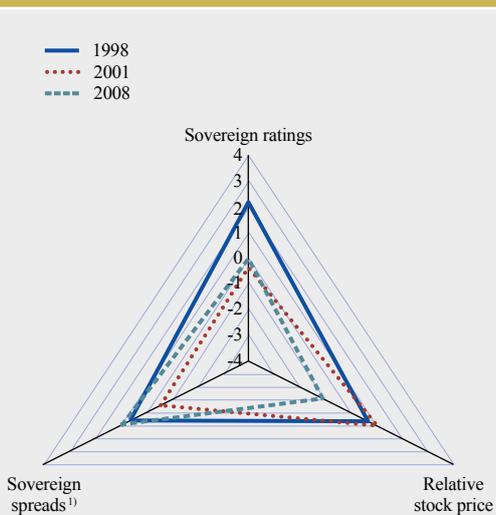
**Chart 6 Banking indicators**



Sources: NCBs, Datastream and OeNB.

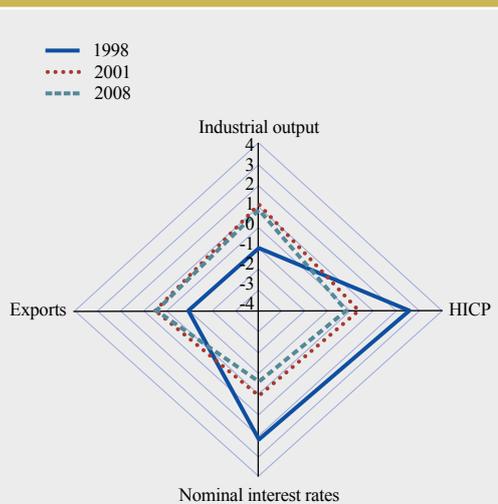
HUNGARY

Chart 1 Sentiment indicators



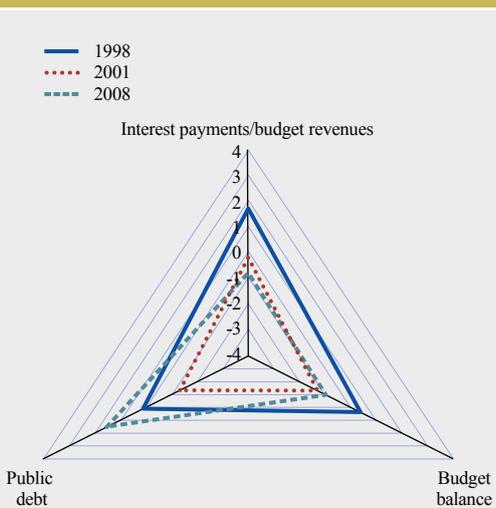
Sources: JP Morgan, Moody's, Fitch, Standard and Poor's, Datastream, Eurostat and OeNB.  
1) JPM EMBIG for Hungary.

Chart 2 Real and nominal indicators



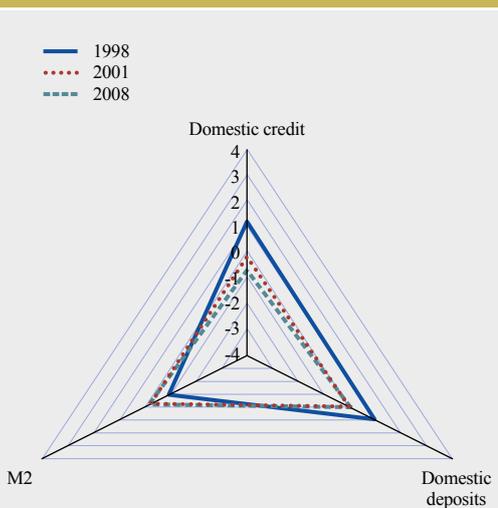
Sources: Datastream, Eurostat and OeNB.

Chart 3 Fiscal indicators



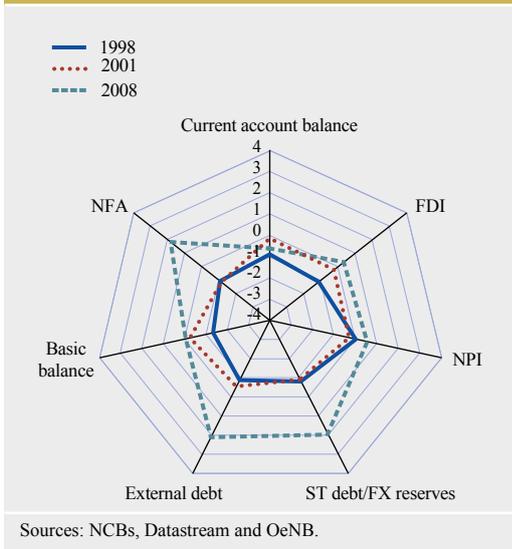
Sources: NCBs, Eurostat and OeNB.

Chart 4 Monetary indicators

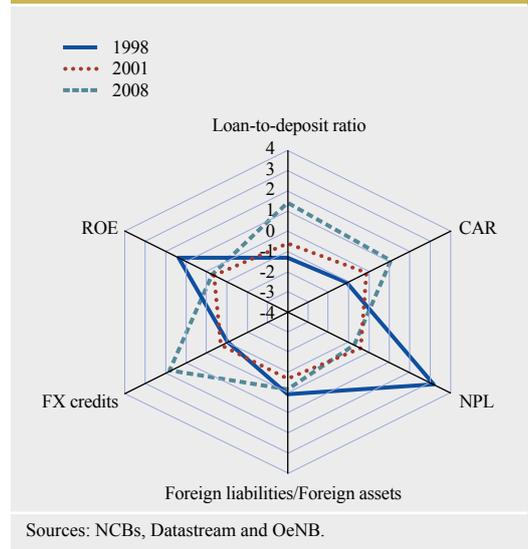


Sources: NCBs, Eurostat and OeNB.

**Chart 5 External indicators**

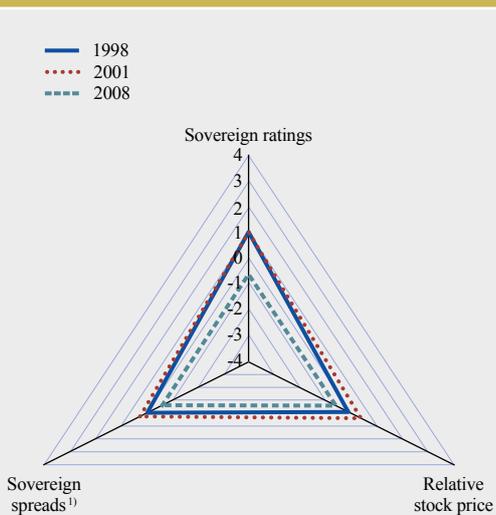


**Chart 6 Banking indicators**



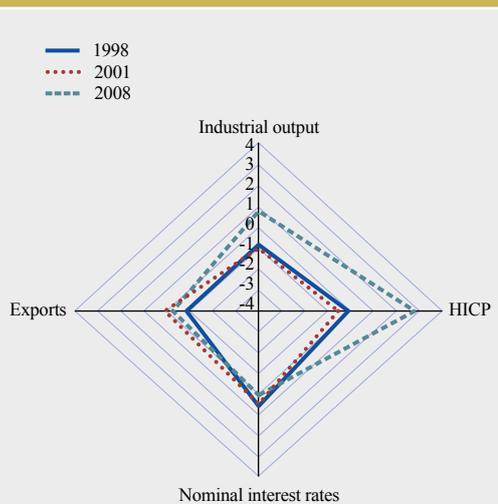
LATVIA

Chart 1 Sentiment indicators



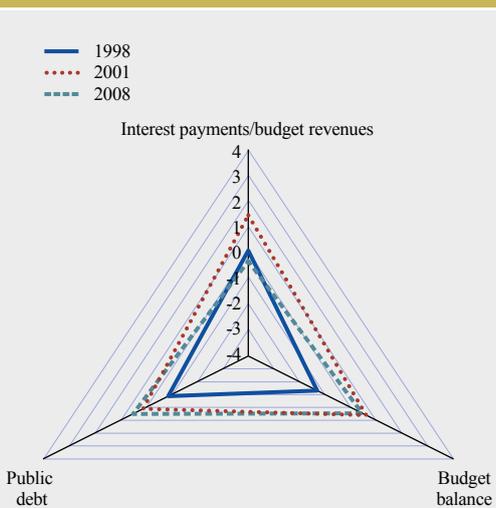
Sources: JP Morgan, Moody's, Fitch, Standard and Poor's, Datastream, Eurostat and OeNB.  
1) Proxied by JPM EMBIG for Europe.

Chart 2 Real and nominal indicators



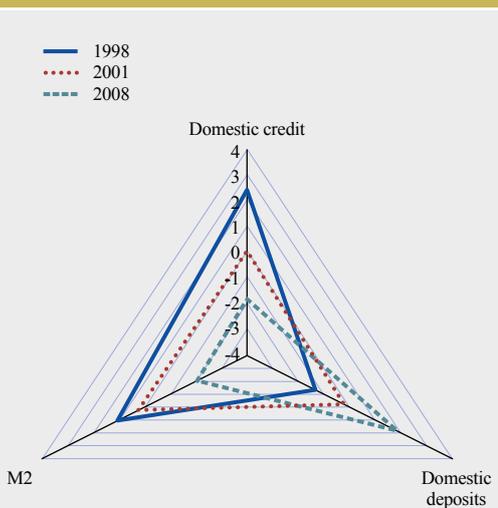
Sources: Datastream, Eurostat and OeNB.

Chart 3 Fiscal indicators



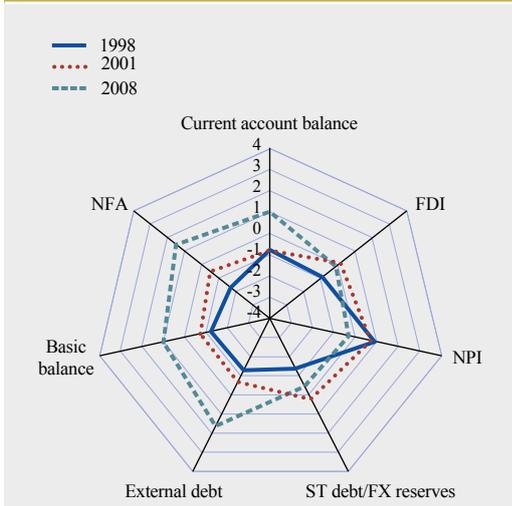
Sources: NCBs, Eurostat and OeNB

Chart 4 Monetary indicators



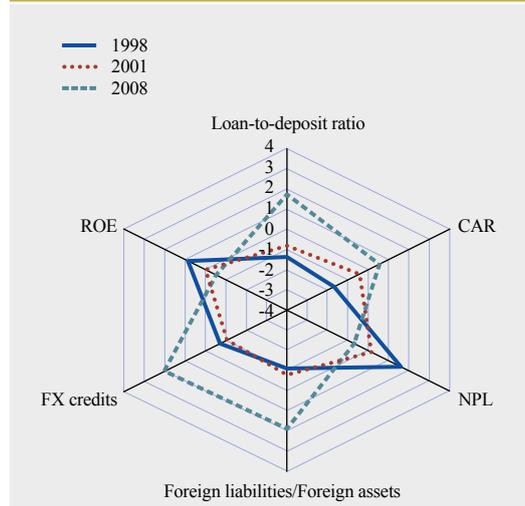
Sources: NCBs, Eurostat and OeNB

**Chart 5 External indicators**



Sources: NCBs, Datastream and OeNB.

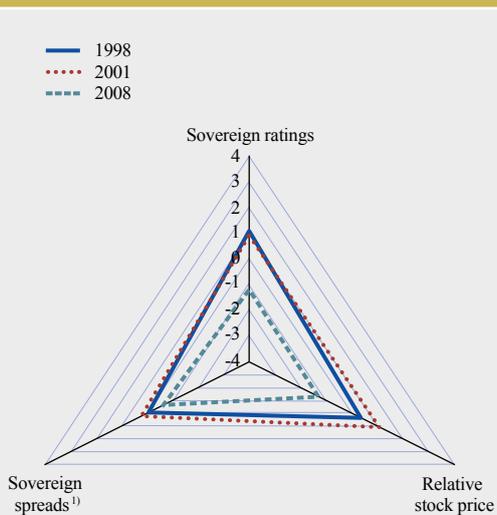
**Chart 6 Banking indicators**



Sources: NCBs, Datastream and OeNB.

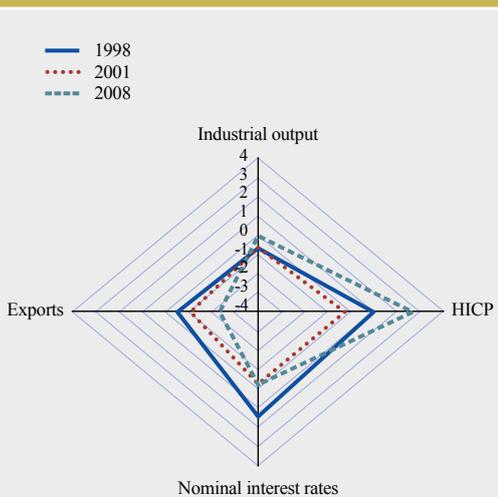
LITHUANIA

Chart 1 Sentiment indicators



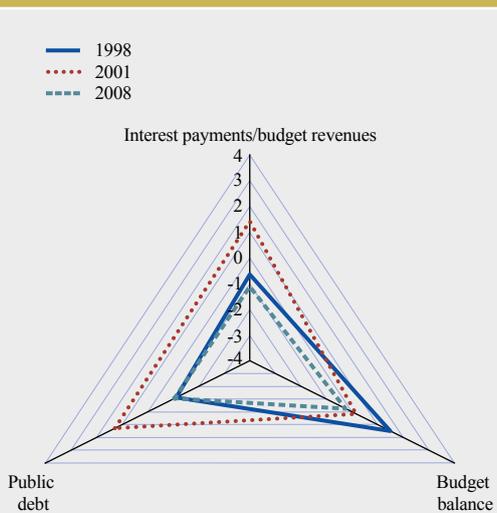
Sources: JP Morgan, Moody's, Fitch, Standard and Poor's, Datastream, Eurostat, OeNB.  
1) Proxied by JPM EMBIG for Europe.

Chart 2 Real and nominal indicators



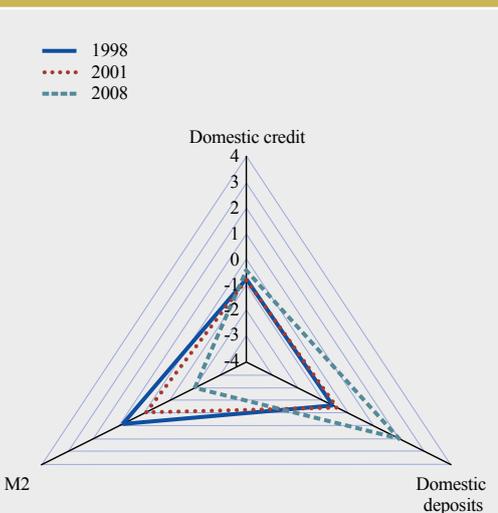
Sources: Datastream, Eurostat, OeNB.

Chart 3 Fiscal indicators



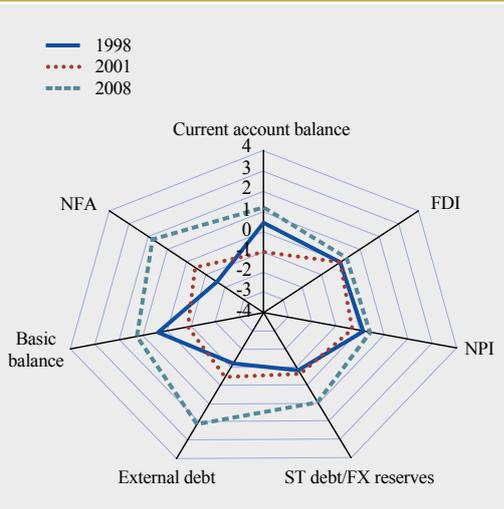
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Chart 4 Monetary indicators



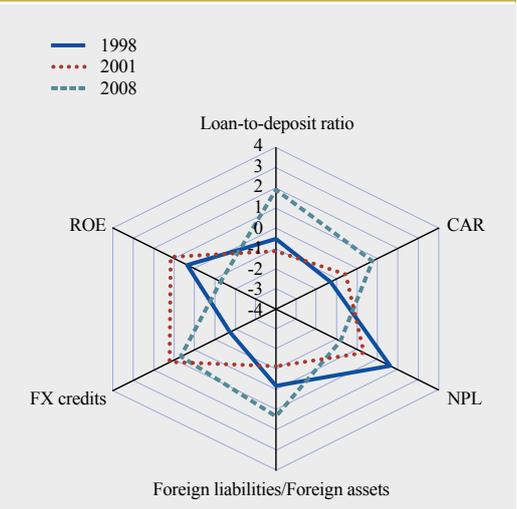
Sources: NCBS, Datastream and OeNB.

**Chart 5 External indicators**



Sources: NCBs, Datastream and OeNB.

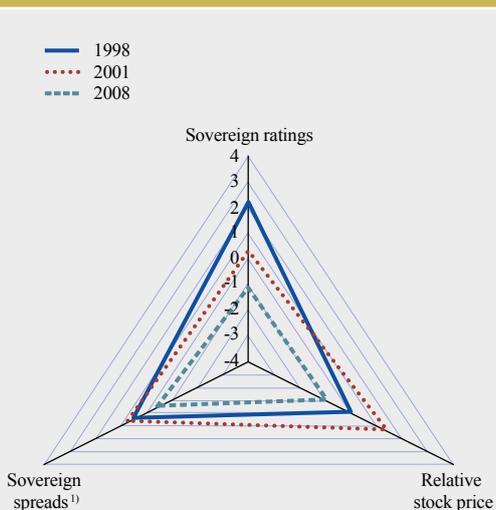
**Chart 6 Banking indicators**



Sources: NCBs, Datastream and OeNB.

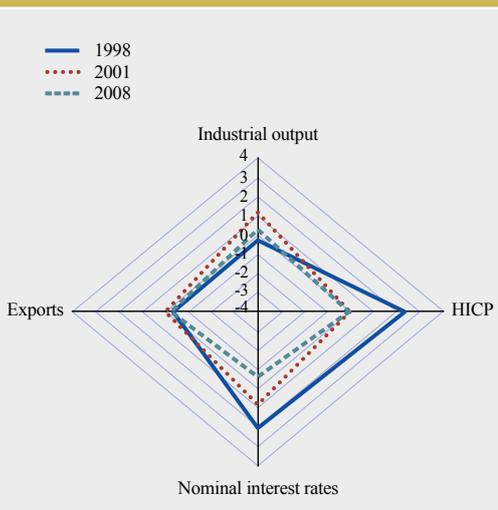
POLAND

Chart 1 Sentiment indicators



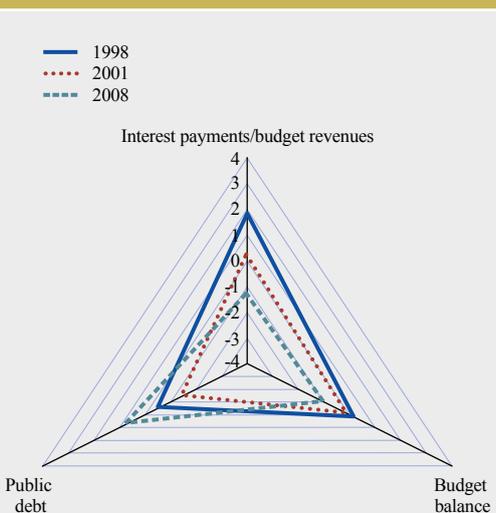
Sources: JP Morgan, Moody's, Fitch, Standard and Poor's, Datastream, Eurostat and OeNB.  
1) JPM EMBIG for Poland.

Chart 2 Real and nominal indicators



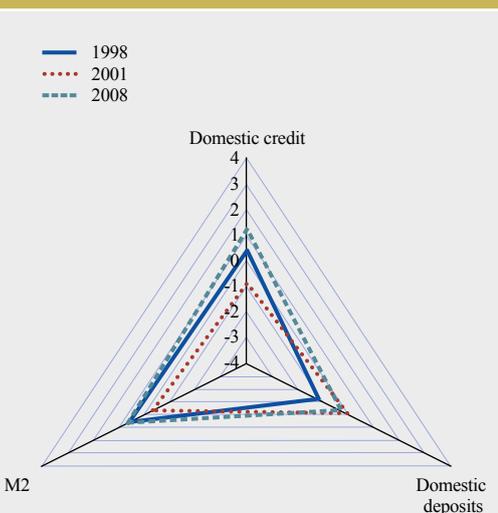
Sources: Datastream, Eurostat and OeNB.

Chart 3 Fiscal indicators



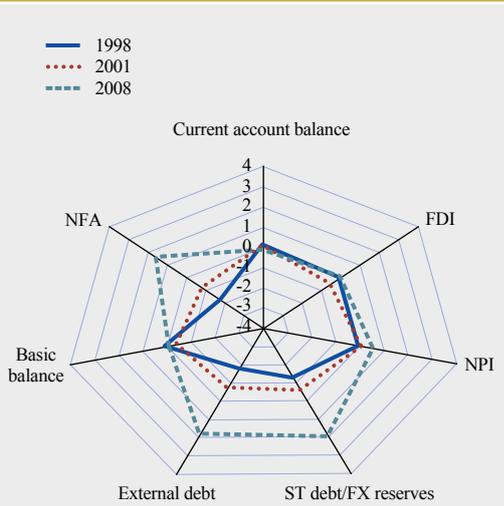
Sources: NCBs, Eurostat and OeNB.

Chart 4 Monetary indicators



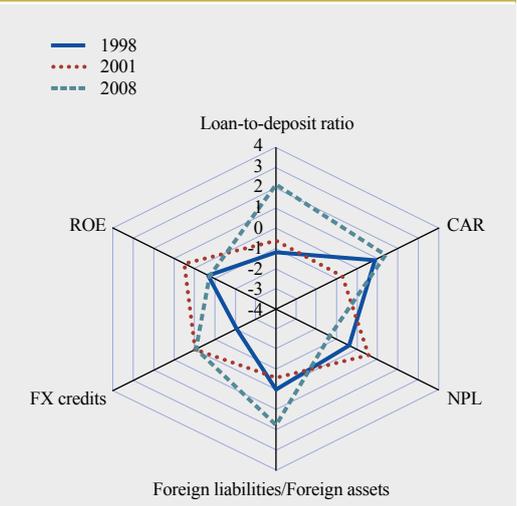
Sources: NCBs, Eurostat and OeNB.

**Chart 5 External indicators**



Sources: NCBs, Datastream and OeNB.

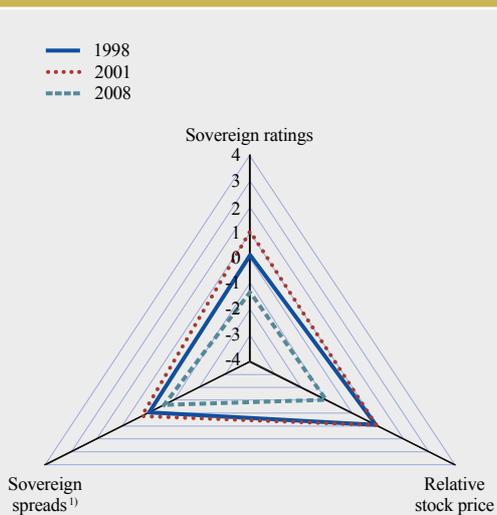
**Chart 6 Banking indicators**



Sources: NCBs, Datastream and OeNB.

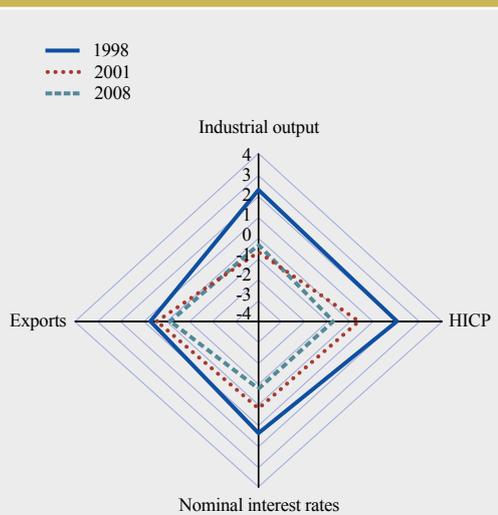
ROMANIA

Chart 1 Sentiment indicators



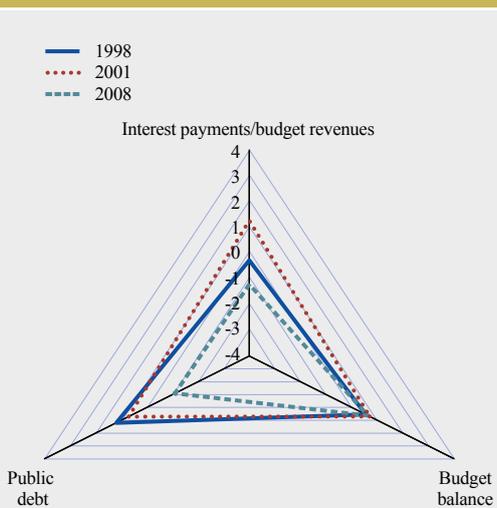
Sources: JP Morgan, Moody's, Fitch, Standard and Poor's, Datastream, Eurostat and OeNB.  
1) Proxied by JPM EMBIG for Europe.

Chart 2 Real and nominal indicators



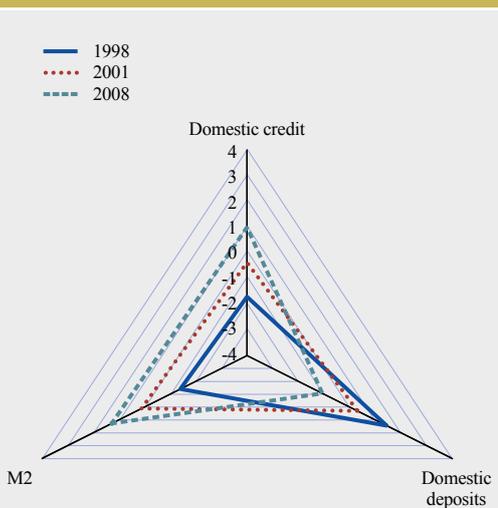
Sources: Datastream, Eurostat and OeNB.

Chart 3 Fiscal indicators



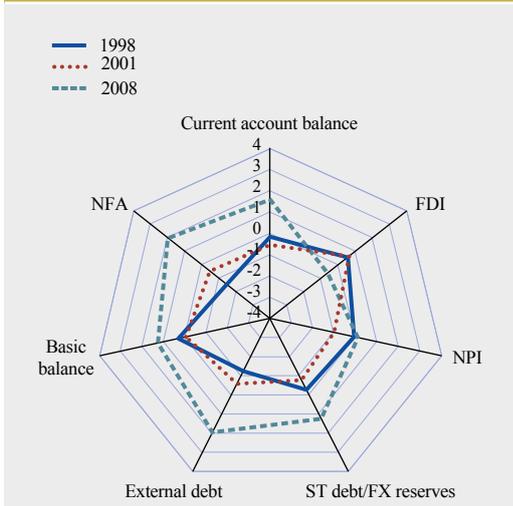
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Chart 4 Monetary indicators



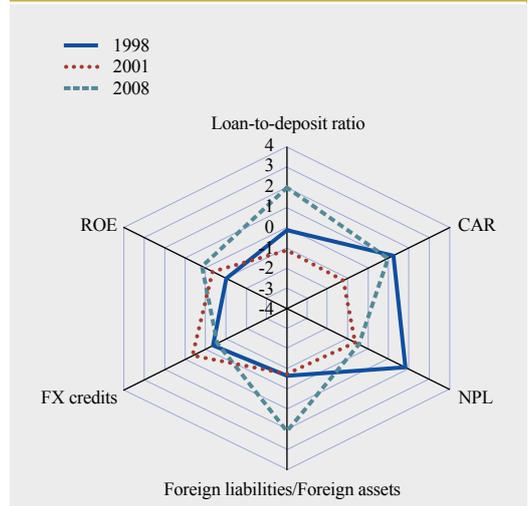
Sources: NCBs, Eurostat and OeNB.

**Chart 5 External indicators**



Sources: NCBs, Datastream and OeNB.

**Chart 6 Banking indicators**



Sources: NCBs, Datastream and OeNB.

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