OESTERREICHISCHE NATIONALBANK
EUROSYSTEM

Assessment of private sector credit developments in CESEE countries

VIENNA ECONOMIC TALKS

“The Financial Market Crisis: Effects and Implications for South-Eastern Europe”

Vienna, February 27, 2009

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Overview

1. Motivation and methodological framework

2. Deviation of realized private credit to GDP from its long-run equilibrium in 11 CESEE countries

3. Recent credit growth developments and sustainability considerations

Motivation

- **Rapid credit growth in CESEE: financial deepening or bubble?**

- ***Financial deepening*: catching-up process => adjustment of financial intermediation to levels of the euro area => convergence of credit growth to long-run equilibrium**

- ***Bubble*: credit growth exceeds its long-run equilibrium without adjustment, disconnected from economic fundamentals**

- **Deviations from long-run equilibrium credit growth as an indication of potential over- or undershooting**

How to get equilibrium levels? (1)

- **Two-stage panel "out-of-sample" approach**
  - As proposed by Maeso-Fernandez, Osbat, & Schnatz (2005), *Economic Systems*, or equilibrium exchange rate estimations

- **(1) Estimation stage (in-sample panel)**
  - Domestic private credit to non-banks in % of GDP increases as a function of underlying fundamentals:

$$C^P / GDP = f(\underset{+}{GDP_{pc}}, \underset{-}{C^G / GDP}, \underset{-}{i^{lending}}, \underset{-}{\pi^{PPI}}, \underset{-}{spread})$$

  - Verify for this baseline equation the presence of cointegration
  - Estimate the long-run relationship between C^p/GDP and the fundamentals in the panel framework (various subpanels)

How to get equilibrium levels? (2)

- **(2) Simulation stage: fit equilibrium levels**
  - Apply the structural relationship of stage (1) to get equilibrium private-sector credit to GDP levels,
  - i.e., calculate fitted values for C^p/GDP, using the estimated long-run coefficients of stage (1) and realized values for the fundamentals $\hat{Y} = \hat{\kappa} + \hat{\beta}' X$

- **Initial undershooting: "out-of-sample"-solution**
  - Upwards bias of stage-1-estimates b/c of adjustment from *initial undershooting* in the case of transition countries
  - Use stage-1-estimates for non-transition benchmark countries to calculate the fits in stage (2) for transition countries

Data

Country groups:

– Quarterly data for 43 countries (OECD, 11 CESEEs, 12 non-European emerging market economies (EMEs))

Time frame:

– For Stage (1): from 1975-1980 (OECD), 1980-1993 (EME), and 1996 (CESEE) until Q4/2004
– For Stage (2): data for realized values of fundamentals until Q1/2008

Source:

– International Financial Statistics of the IMF

Results for Stage (1)

Baseline Specification

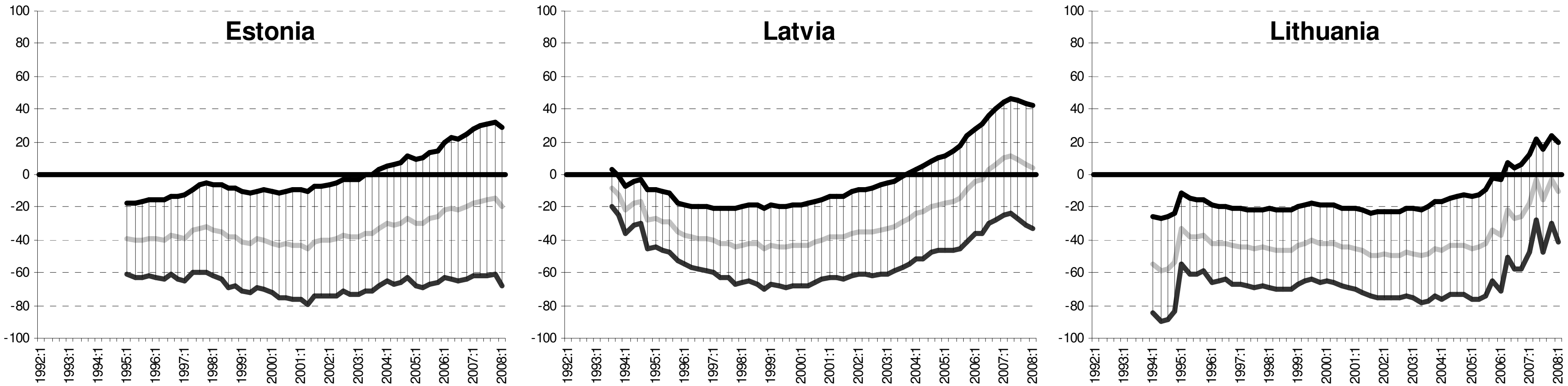
$$C^{P} = f(\overset{+}{CAPITA}, \overset{-}{C^{G}}, \overset{-}{i^{lending}}, \overset{-}{p^{PPI}}, \overset{-}{spread})$$

	$CAPITA$	C^{G}	$i^{lending}$	p^{PPI}	$spread$
Small OECD					
FE_OLS	0.480***	-0.170***	-0.068***	-0.178	-0.037***
DOLS	0.540***	-0.065***	-0.082	0.678***	-0.143***
MGE	0.643***	0.057	-0.171	-1.272	0.281
EMEs					
FE_OLS	0.492***	-0.120***	0.136***	-0.263***	0.069**
DOLS	0.715***	-0.064***	0.187***	-0.436***	-0.001
MGE	0.583***	-0.386***	0.454	-0.492***	-1.172
CEE					
FE_OLS	0.169	-0.276***	-0.031	-1.179***	-0.407***
DOLS	0.375***	-0.308***	-0.046	1.062***	-0.109*
MGE	-1.076	-0.222***	-0.057***	1.501	-0.985**
SEE					
FE_OLS	2.049***	0.455***	0.218***	-0.102**	-0.366***
DOLS	0.745***	0.013	-0.298	-0.479	-0.737***
MGE	1.654***	0.264	0.12	-0.616**	0.217

Note: *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

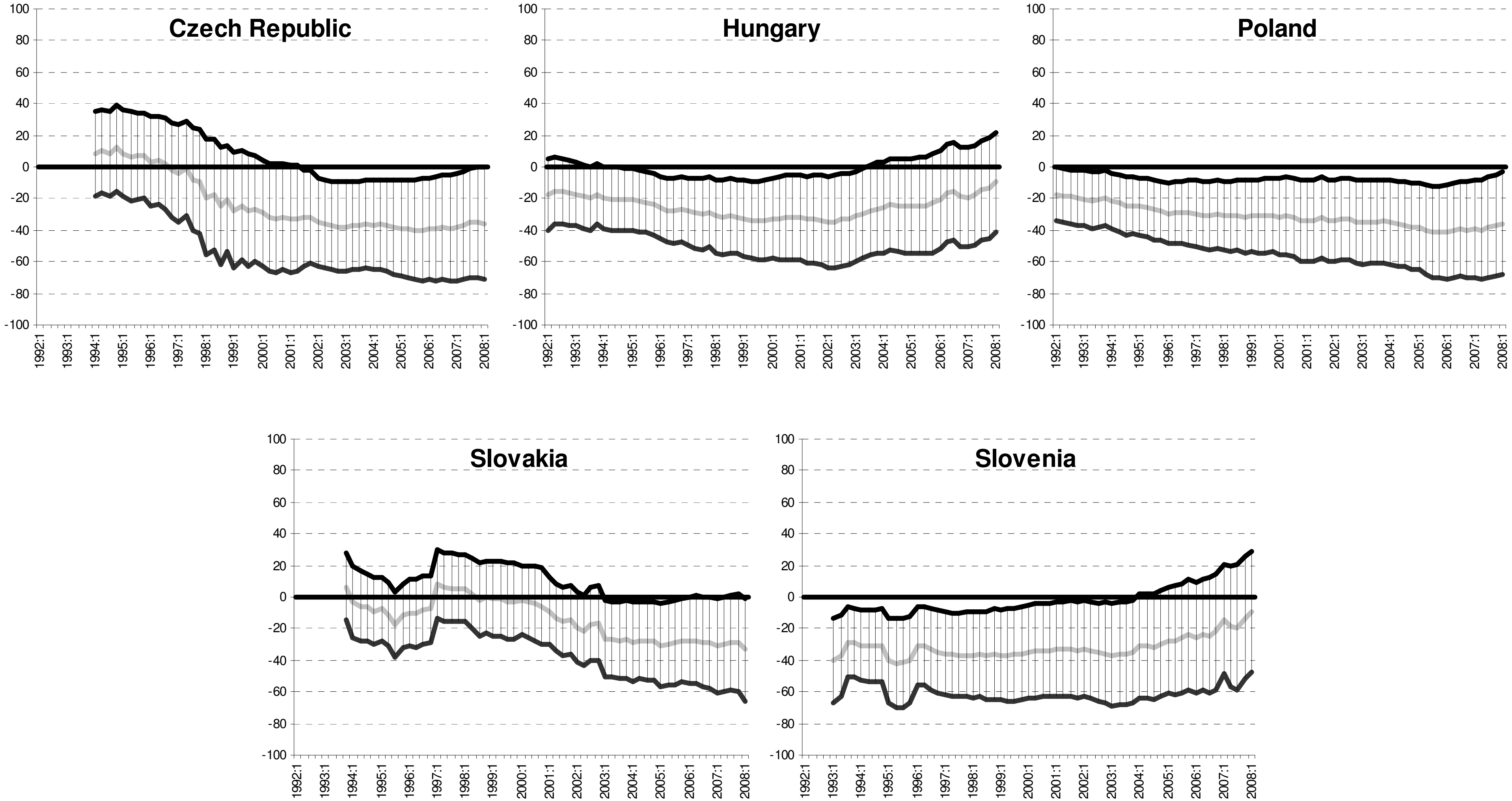
Results for Stage (2): Baltic States

- **Deviations of the observed private credit-to-GDP ratio from its long-run equilibrium, in percentage points, up to Q1/2008, BALTIC STATES**



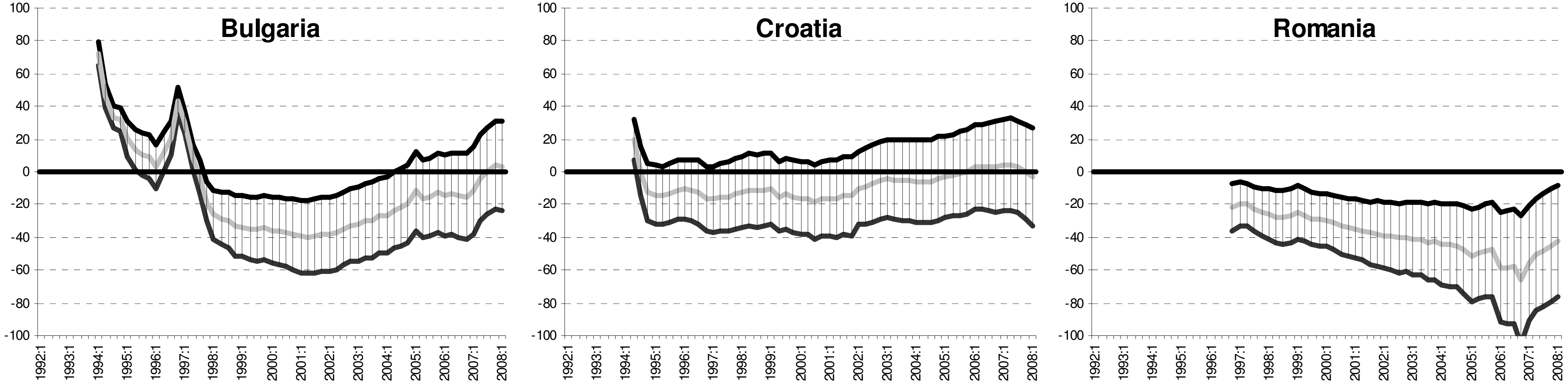
Results for Stage (2): Central Europe

- **Deviations of the observed private credit-to-GDP ratio from its long-run equilibrium, in percentage points, up to Q1/2008, CENTRAL EUROPE**



Results for Stage (2): Southeastern Europe

- Deviations of the observed private credit-to-GDP ratio from its long-run equilibrium, in percentage points, up to Q1/2008, SOUTH EASTERN EUROPE



Classifications of Results (1)

- **Type of deviations of the observed private credit to GDP ratio from its long-run equilibrium**:
  - *Within the estimated equilibrium range*, but more tilted towards a deviation at the *overshooting side*: Latvia and Bulgaria, indicating credit growth possibly beyond the equilibrium (catch-up) path
  - *Within the estimated equilibrium range*, but more tilted towards a deviation at the *undershooting side*: Estonia, Lithuania, Hungary, Slovenia, and Croatia
  - *Below but coming very close* to the estimated equilibrium range: Czech Republic, Slovakia, and Poland
  - *Still below* the estimated equilibrium range: Romania

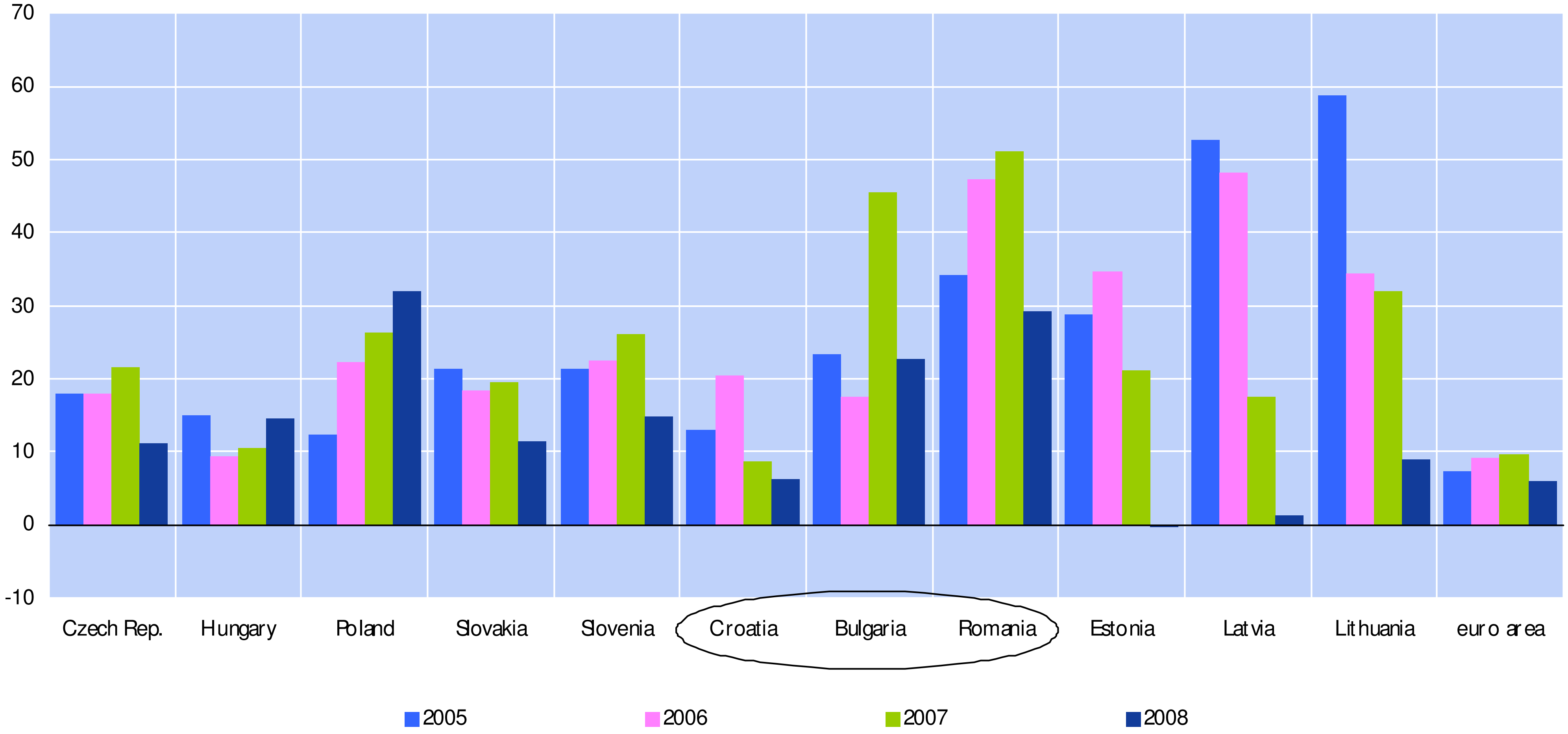
Classifications of Results (2)

- **Overall dynamics** of observed private credit levels relative to the long-run equilibrium:
  - *Strong upwards dynamics* until 2007 especially in the Baltic states and Bulgaria; continued until Q1/2008 in Hungary, Slovenia, and Romania
  - Indications of a *trend reversal* in Latvia and Croatia since Q2/2007; in Estonia, Lithuania, Bulgaria, and Slovakia since Q4/2007
  - *No major change* in observed relative to estimated equilibrium credit levels in the Czech Republic and Poland

Recent real private credit growth rates

Credit to the private sector

real average growth rates (% yoy, cpi-deflated)



Source: national central banks. Data for Croatia and Romania are as of end-November 2008.

Comparison of real private sector credit growth: 2007 vs. 2008

Credit to the private sector,
real average growth rates (% yoy, cpi-deflated)

	2007	2008
Poland	26.2	32.0
Romania	51.1	29.3
Bulgaria	45.5	22.7
Slovenia	26.1	14.7
Hungary	10.5	14.6
Slovakia	19.5	11.4
Czech Rep.	21.5	11.1
Lithuania	32.0	8.8
Croatia	8.7	6.3
euro area	9.5	6.0

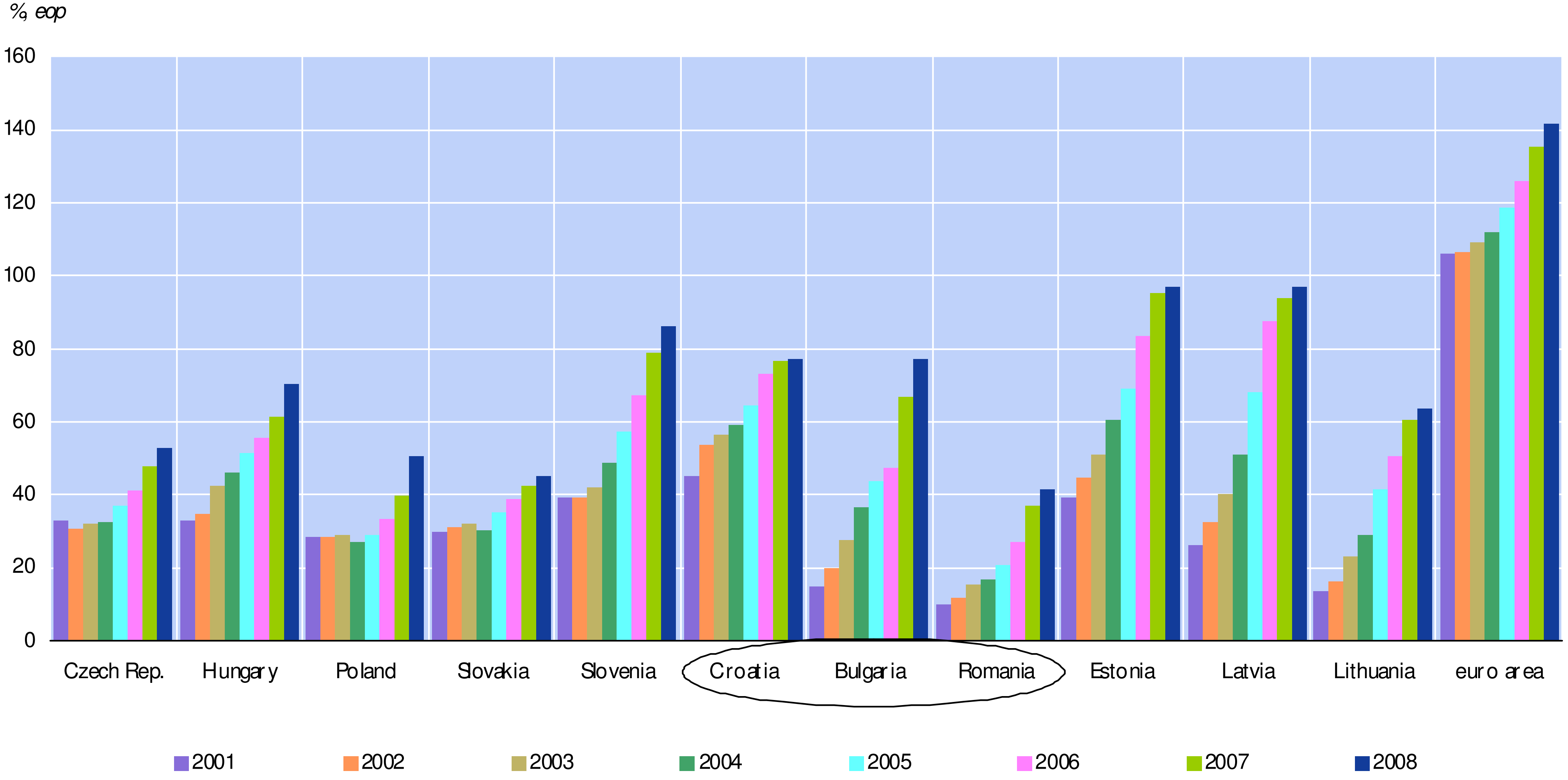
- Strong overall decline except for PL (trend since 2004 continues) and HU (back to the growth rate of 2005)
- Shutdown in LV and EE (trend reversal already started in 2007)
- Decline of growth rate b/w 70% and 100%: LT, LV, EE
- Decline of growth rate b/w 40% and 50%: SK, RO, SI, CZ, BG

Is 2008 already a strong downward outlier?

- Growth rate in 2008 is above 10-years average: HU (slightly), RO, CZ, SK; PL (clearly)
- Growth rate in 2008 is below 10-years average: EA, SI (slightly); HR, BG; LT, EE, LV (clearly)

Still comparatively low degree of financial intermediation

Private sector credit to GDP



Source: national central banks. Data for Croatia and Romania are as of end-November 2008.

General Assessment

- Private sector credit levels lie within or come close to their equilibrium ranges in most CESEE countries: *past* credit growth was largely connected to economic fundamentals.
- *Future* credit growth in CESEE countries will (have to) be more moderate and take place in line with further improvements in underlying fundamentals (real convergence, macro stability, financial sector development).
- The recent slowdown of credit growth in most CESEE countries seems to be a sign that credit developments are shifting towards a more sustainable path.
- At the current juncture, the policy challenge is to ensure that this process takes place in an orderly fashion as also undershooting is associated with macroeconomic costs.