



OESTERREICHISCHE NATIONALBANK
EUROSYSTEM

Credit Growth and Financial Deepening: Implications for Euro Adoption?

Peter Backé
Deputy Head of Foreign Research Division

National Bank of Poland
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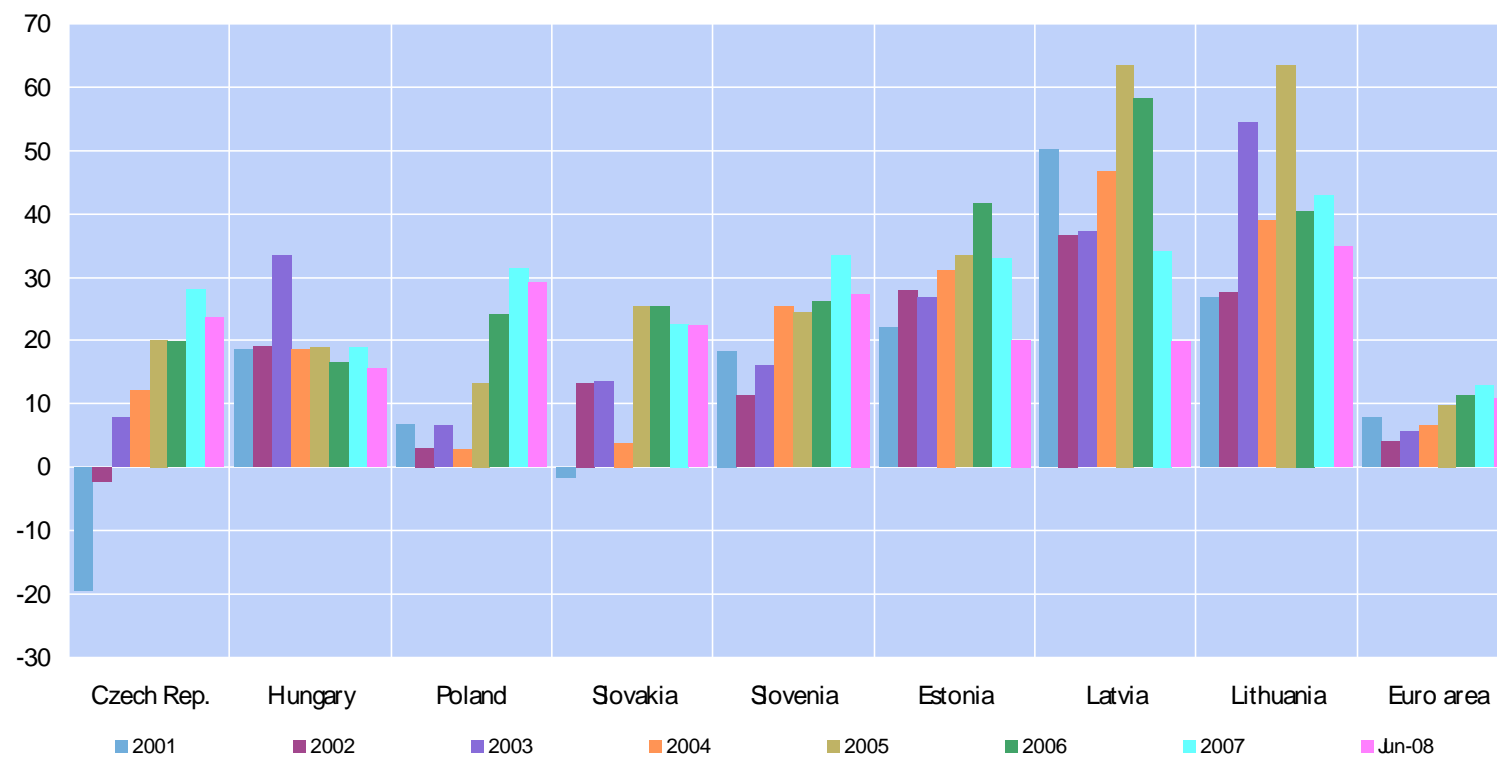
Introduction

- Country focus: Poland, Czech Republic, Hungary, the Baltic countries
- Credit developments & financial integration
 - Intertemporal optimization
 - Substitution between alternative sources and currency denominations of credit
- Interest rate convergence
 - Risk of a credit-fuelled demand boom
 - Stabilization and adjustment in monetary union
 - Financial stability issues
- Policy implications

Stylized facts (I): Private sector credit – nominal growth rates

Credit growth to the private sector (non-banks), nominal

year-on-year growth rates in %

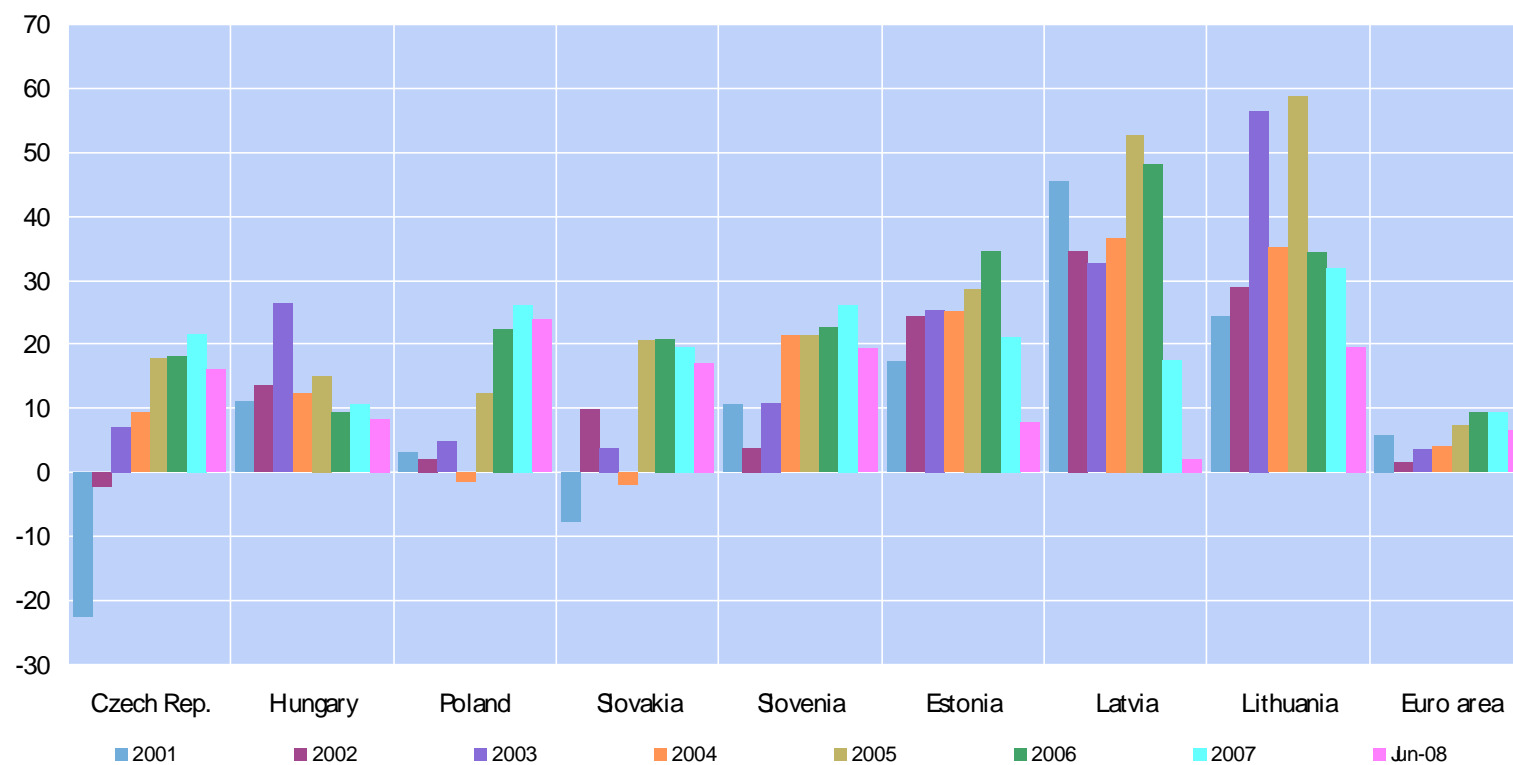


Source: NCBs, ECB, OeNB

Stylized facts (II): Private sector credit – real growth rates

Credit growth to the private sector (non-banks), HICP-adjusted

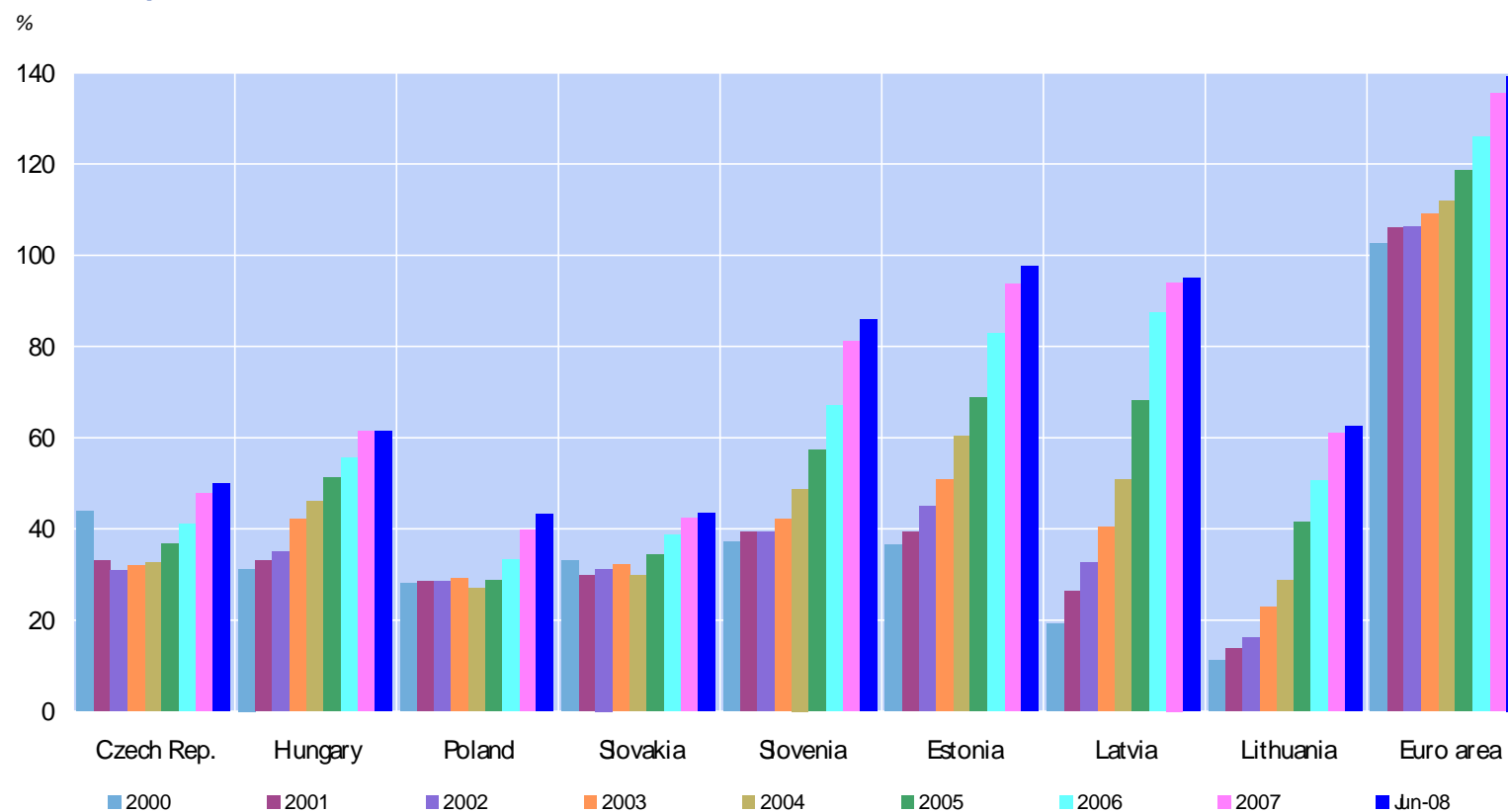
year-on-year growth rates in %



Source: NCBs, ECB, Eurostat, OeNB

Stylized facts (III): Private sector credit-to-GDP ratios

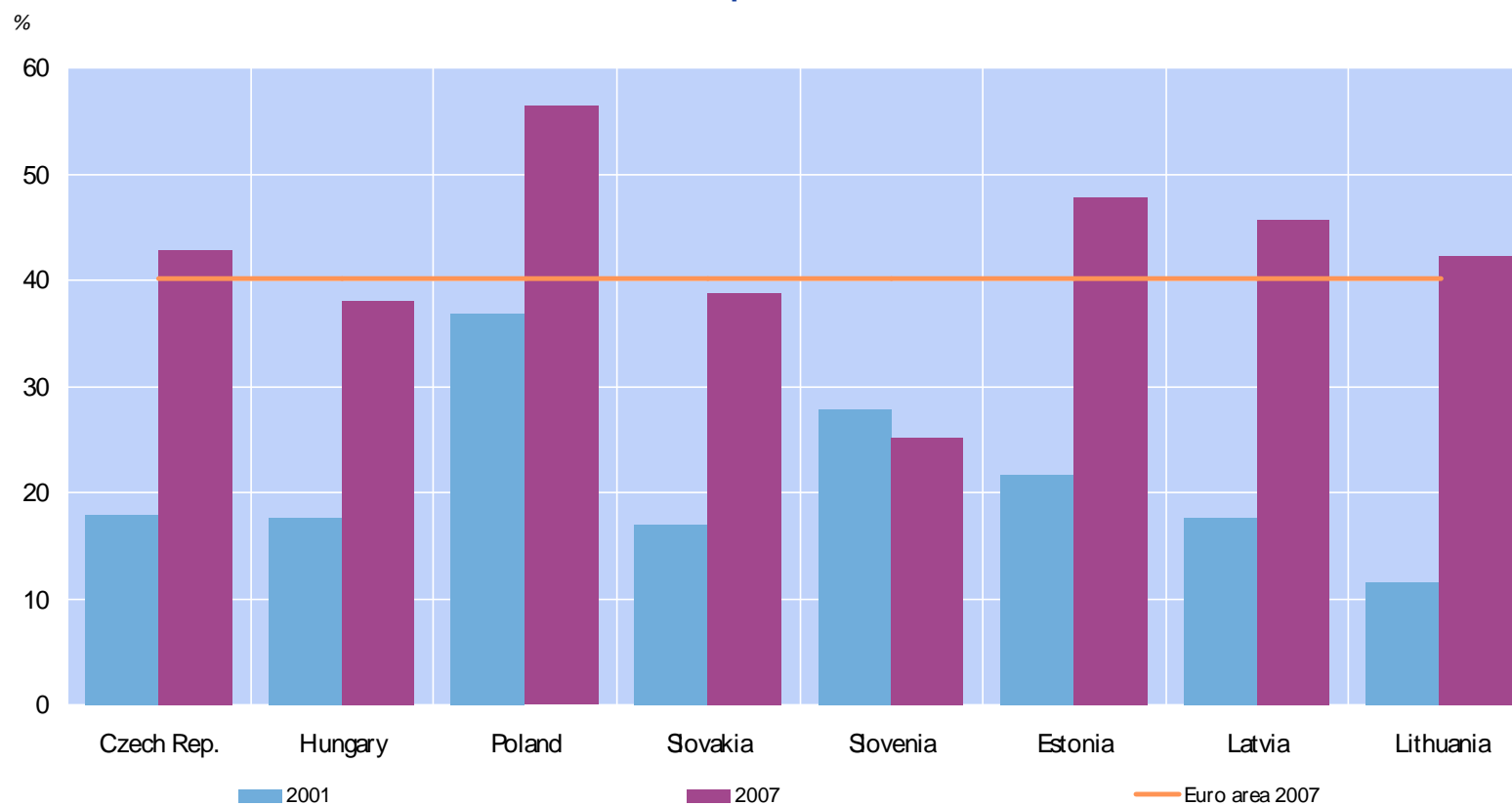
Non-bank private sector credit-to-GDP levels



Source: NCBs, ECB, Eurostat, OeNB

Stylized facts (IV): Household credit shares

Credit to households in % of credit to the non-bank private sector

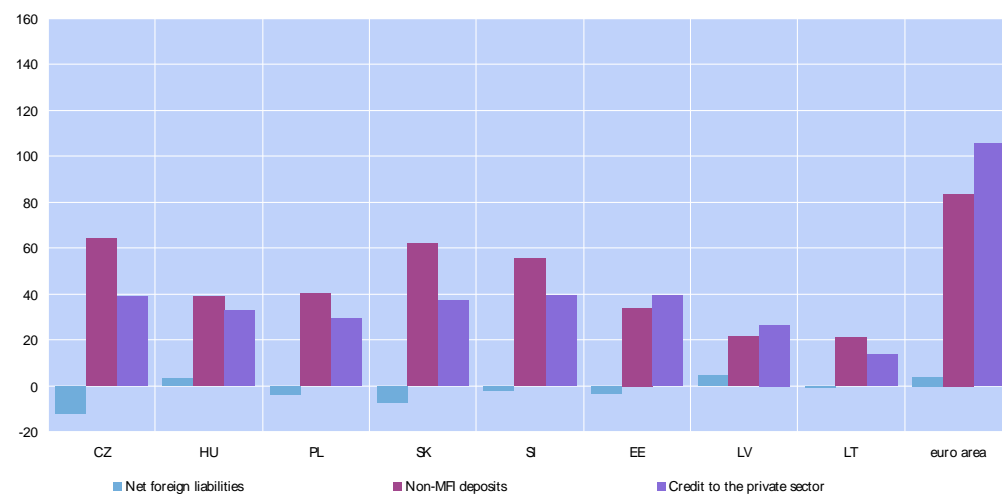


Source: NCBs, ECB, Eurostat, OeNB

Stylized facts (V): Selected banking sector assets and liabilities

Selected banking sector assets and liabilities - 2001

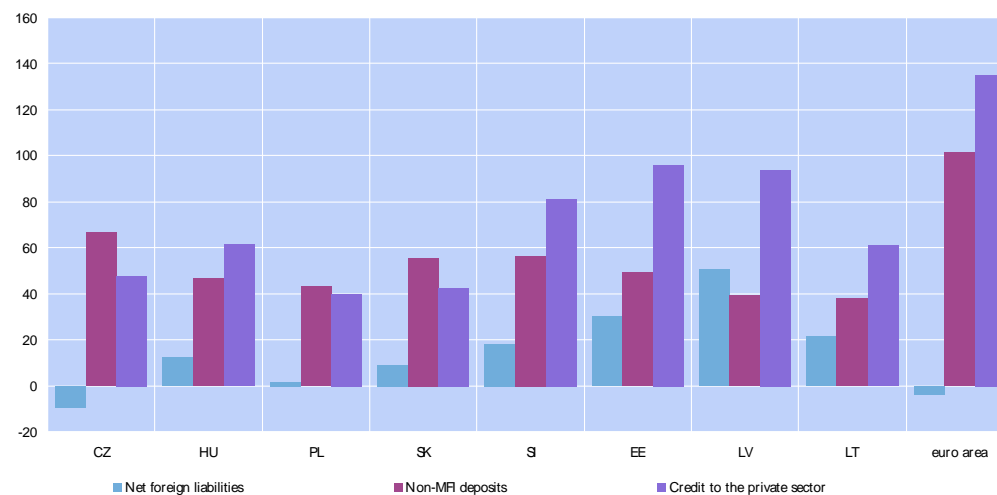
in % of GDP



Source: NCBs, ECB, Eurostat, OeNB

Selected banking sector assets and liabilities - 2007

in % of GDP

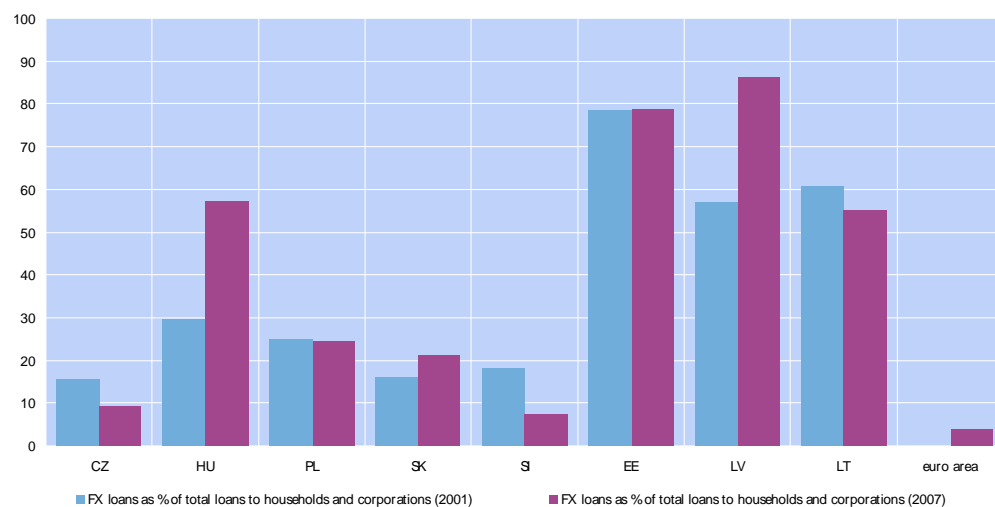


Source: NCBs, ECB, Eurostat, OeNB

Stylized facts (VI): Share of domestic foreign-currency loans

Foreign-currency loans in % of total loans - households and non-bank corporations

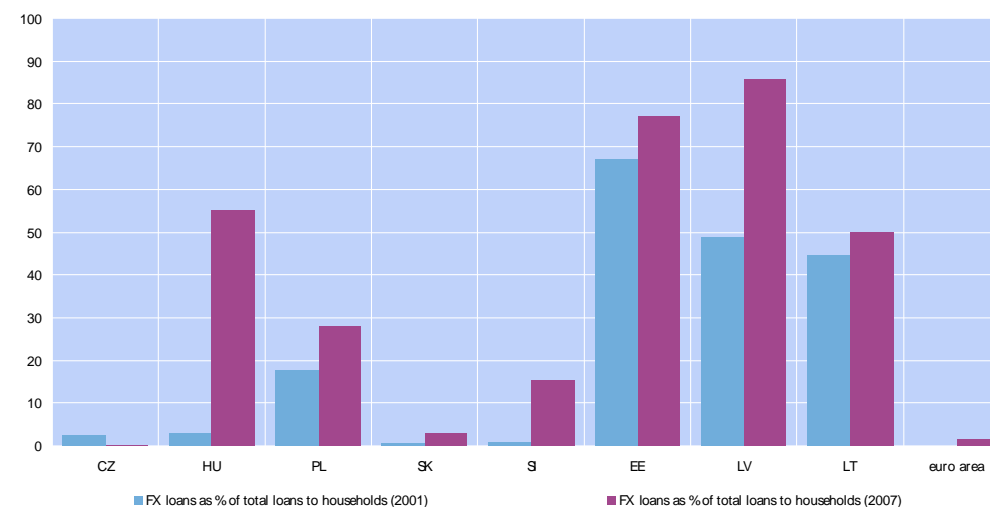
in % of total loans to households and non-bank corporations



Source: NCBs, ECB, OeNB

Foreign-currency loans in % of total loans - households

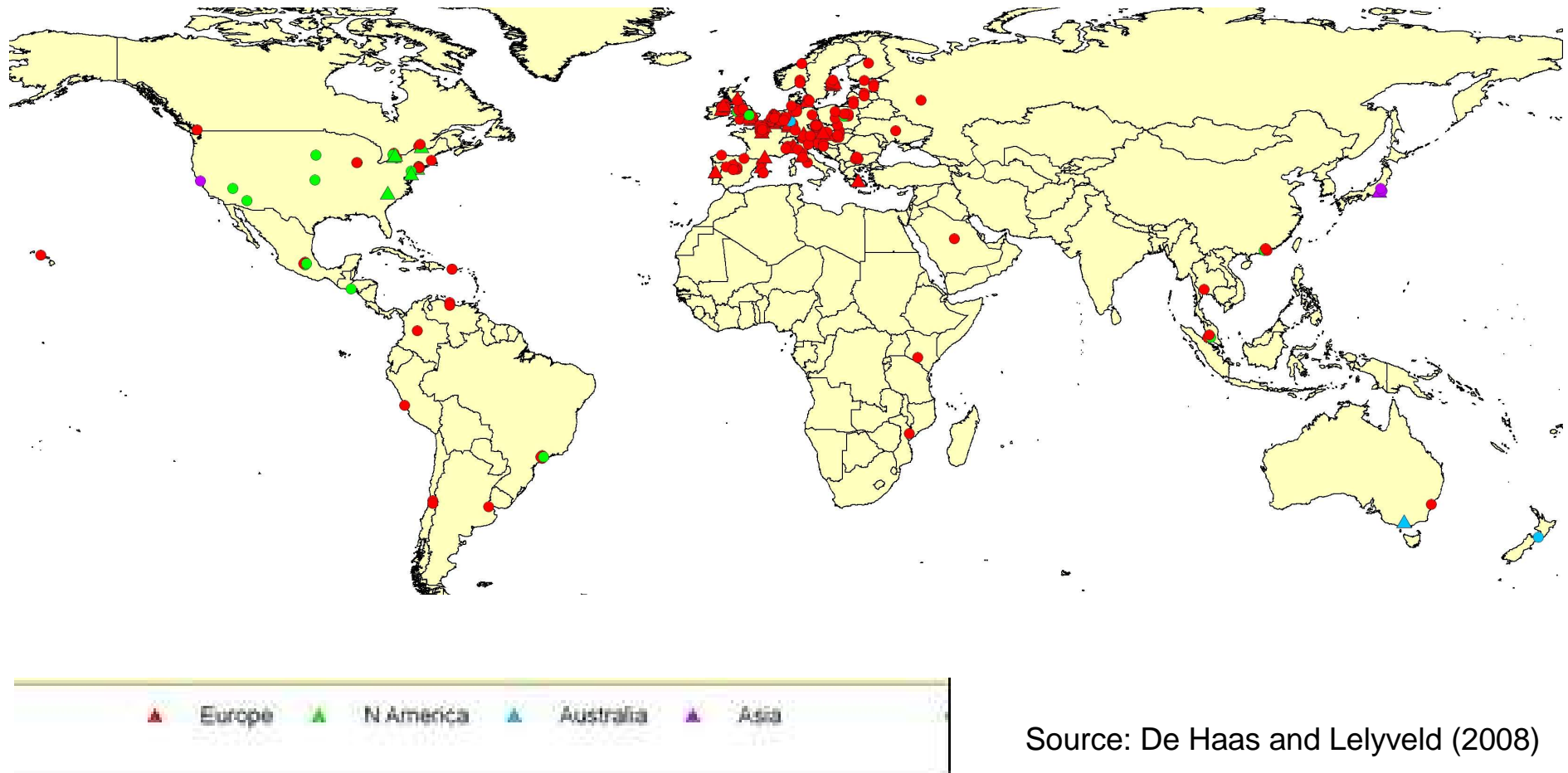
in % of total loans to households



Source: NCBs, ECB, OeNB

Parent banks and subsidiaries

triangles denoting parent banks, circles denoting subsidiaries (2004)

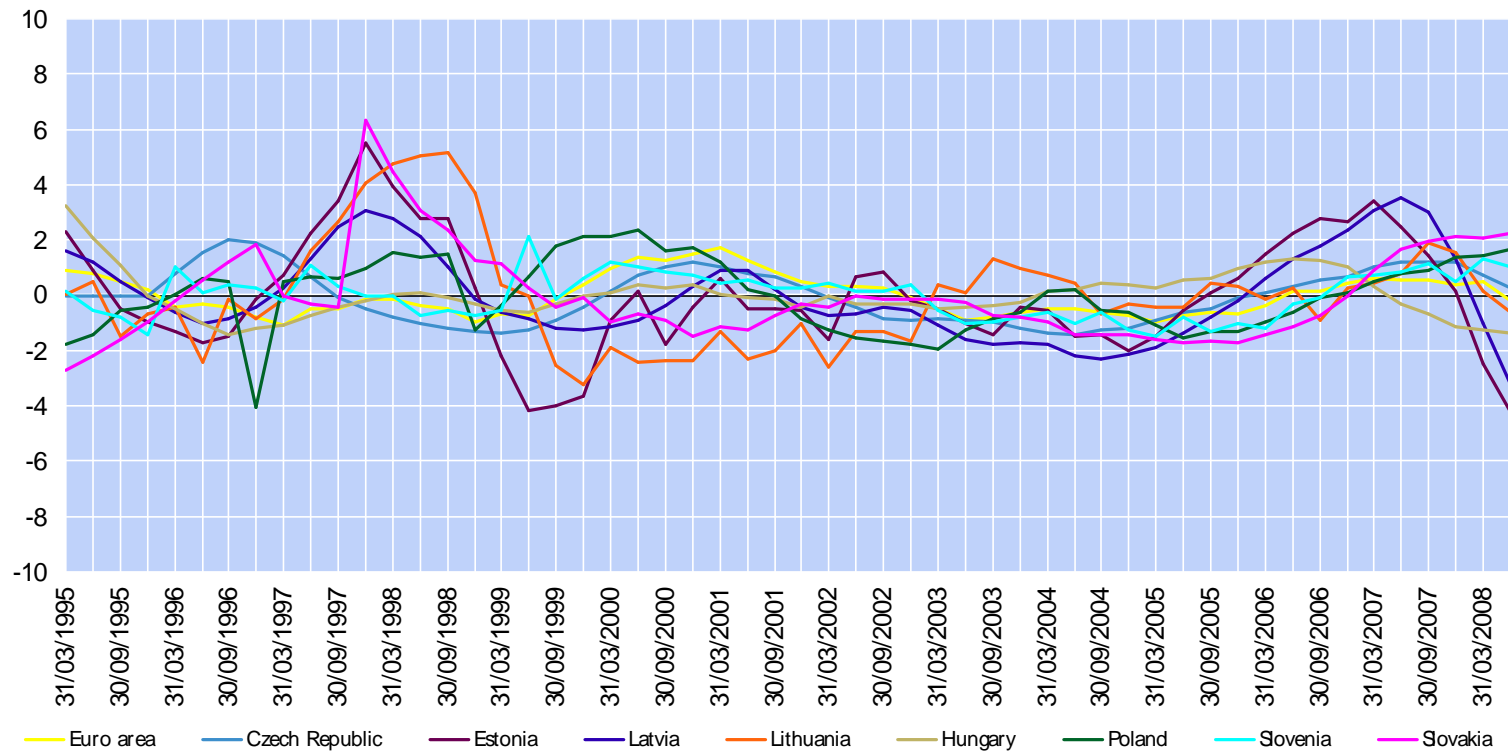


Source: De Haas and Lelyveld (2008)

Cyclical correlations - GDP

Correlation of GDP cycles

Deviations of actual GDP from HPfiltered trend, in %

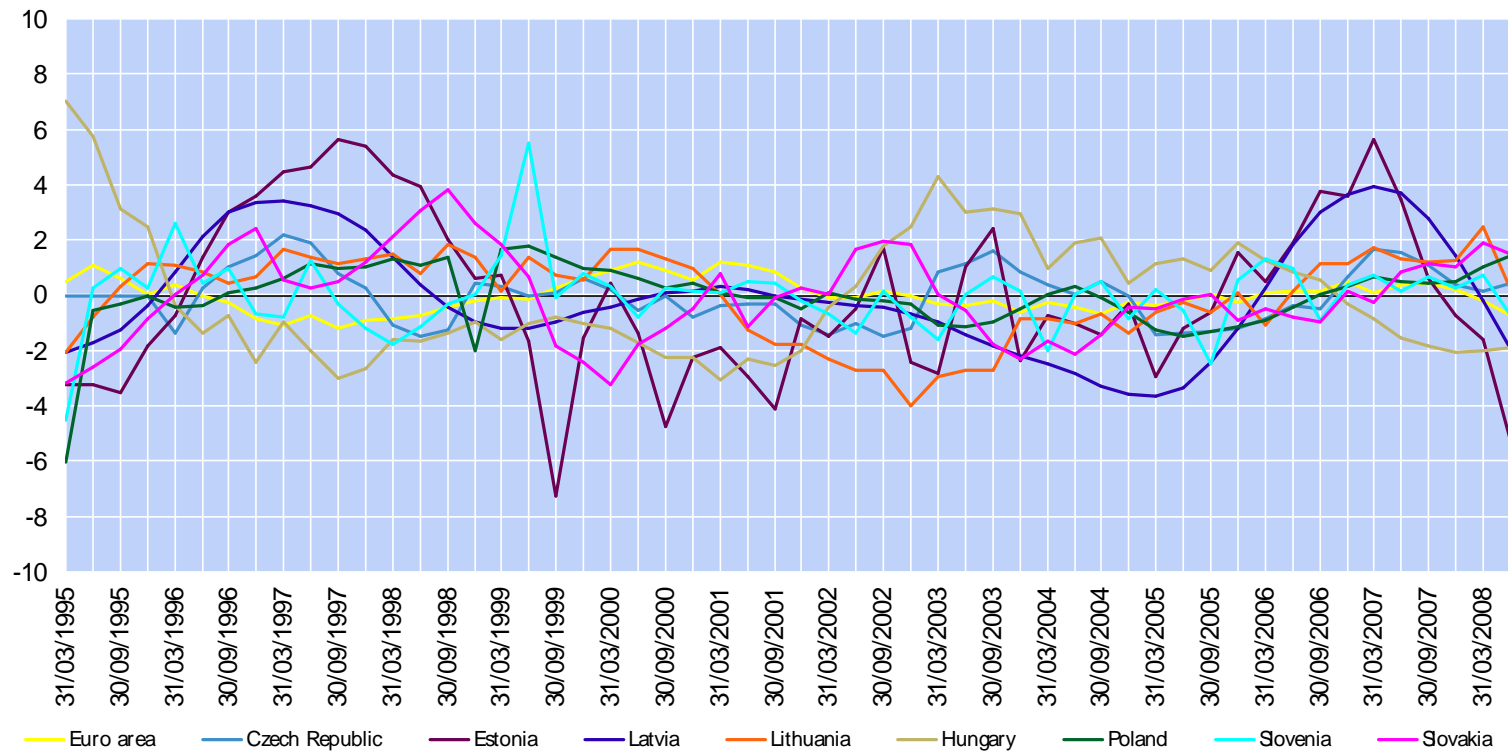


Source: Eurostat, OeNB

Cyclical correlations – household consumption

Correlation of household consumption cycles

Deviations of actual household consumption from HPfiltered trend, in %

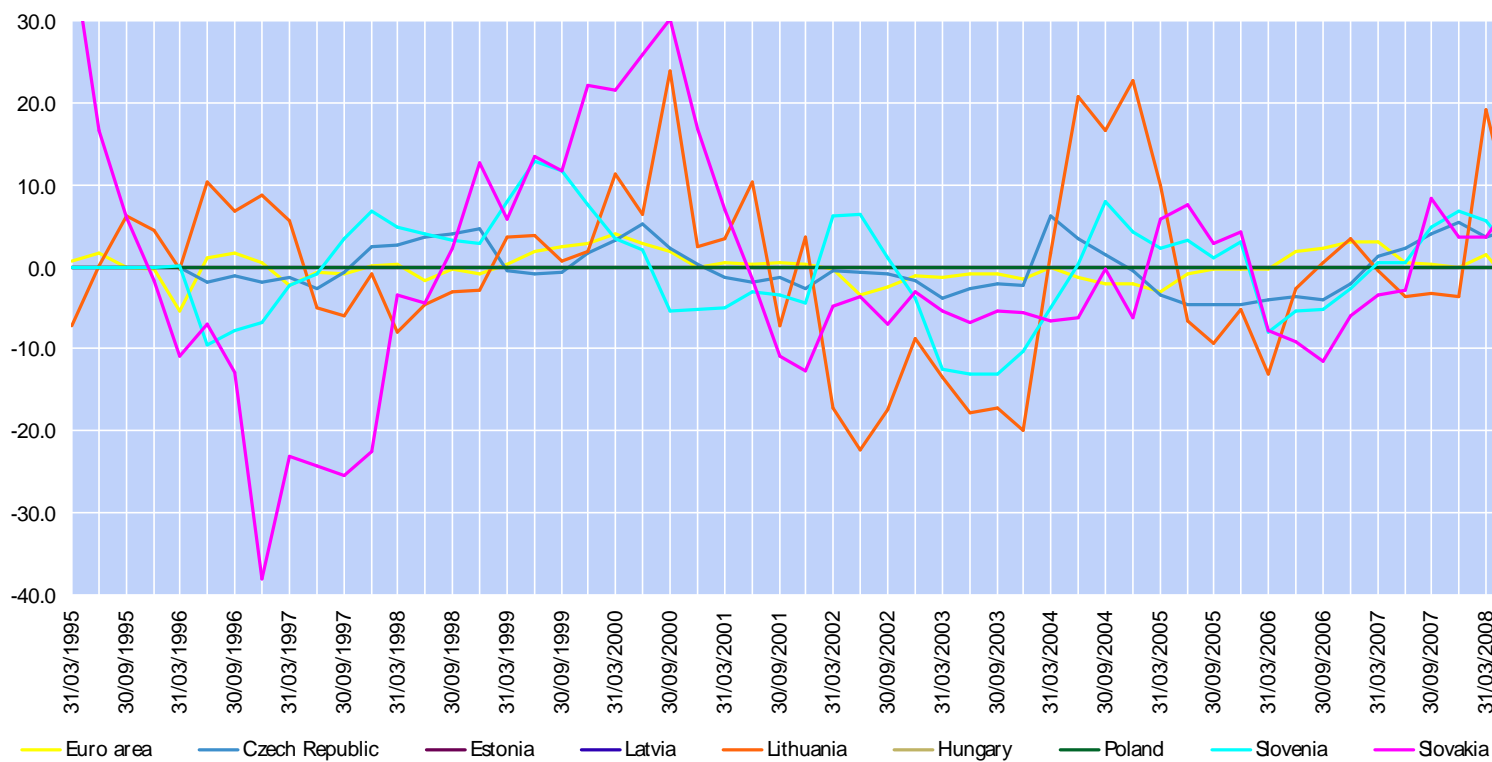


Source: Eurostat, OeNB

Cyclical correlations – housing investment

Correlation of housing investment cycles

Deviation of actual housing investment from HPfiltered trend, in %

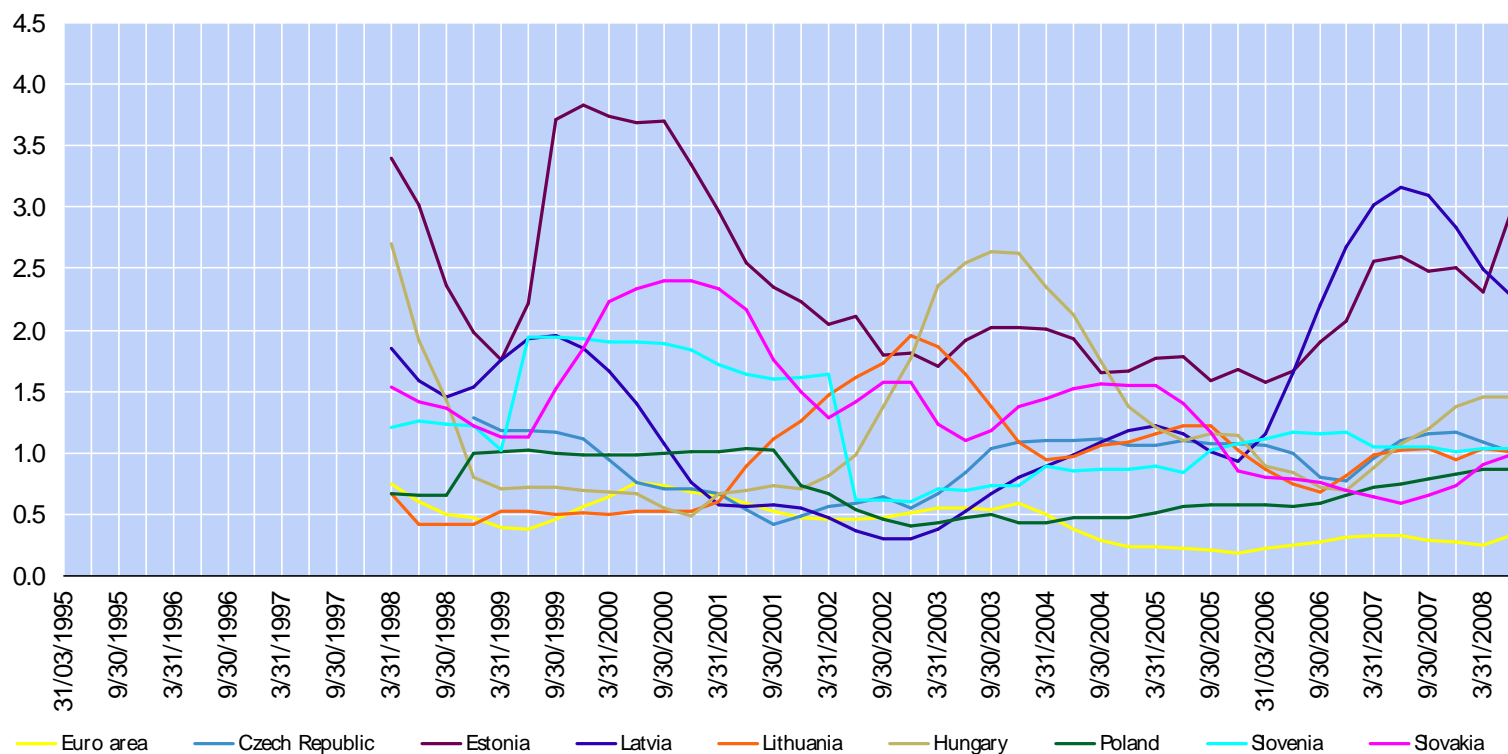


Source: Eurostat, OeNB.

Volatility of household consumption

Volatility of household consumption

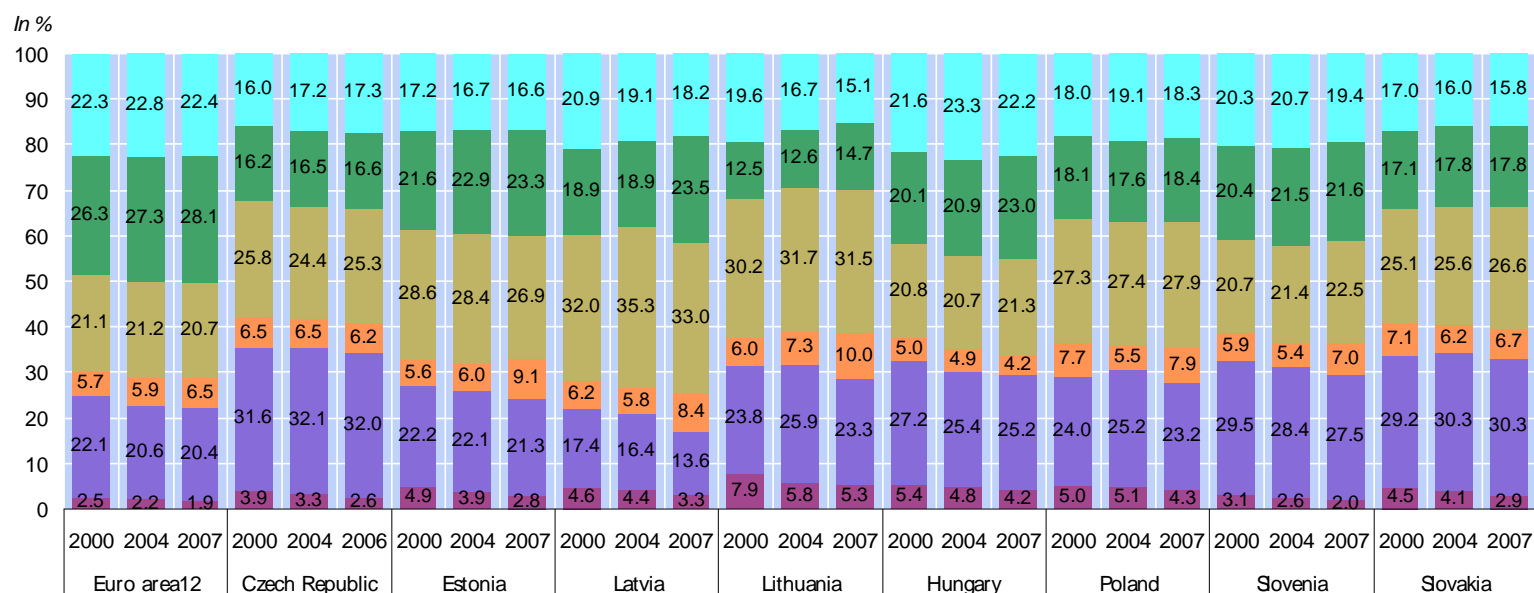
12-quarter standard deviation from HPfiltered trend



Source: Eurostat, OeNB

Economic structures (value-added)

GDP structure by 6 NACE branches (current prices)

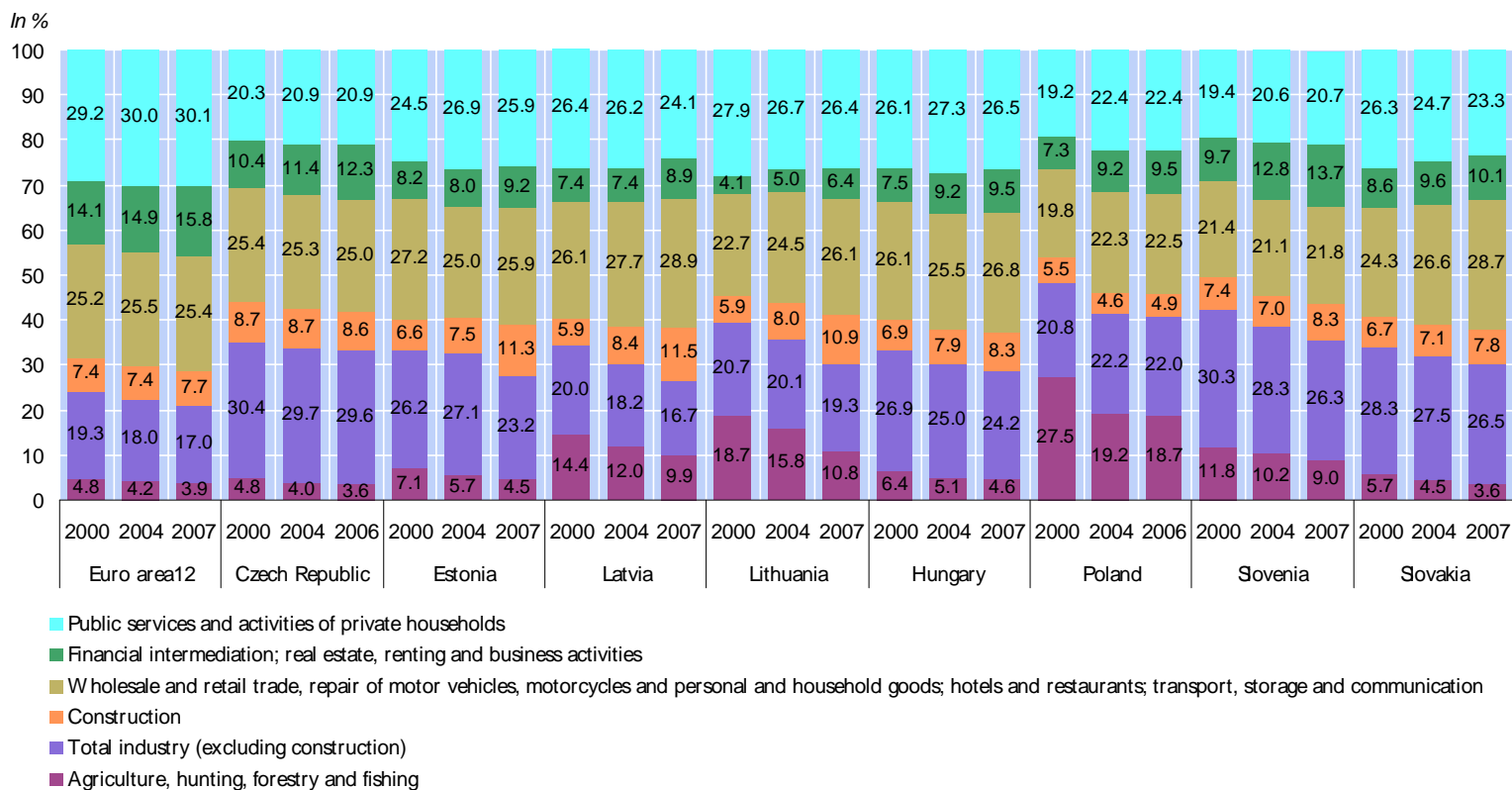


- Public services and activities of private households
- Financial intermediation; real estate, renting and business activities
- Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; hotels and restaurants; transport, storage and communication
- Construction
- Total industry (excluding construction)
- Agriculture, hunting, forestry and fishing

Source: Eurostat, OeNB

Economic structures (employment)

Employment structure by 6 NACE branches (current prices)

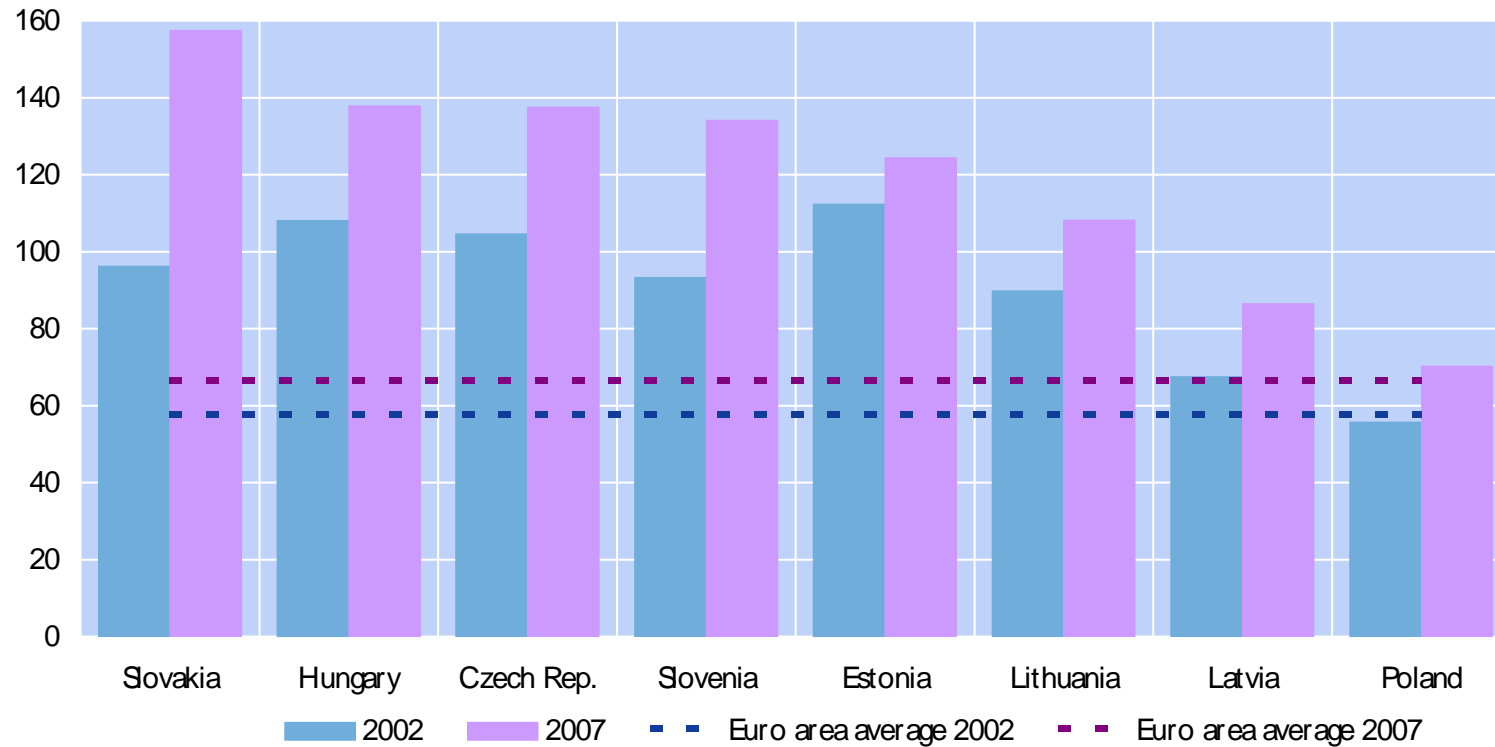


Source: Eurostat, OeNB

Trade openness

Degree of openness

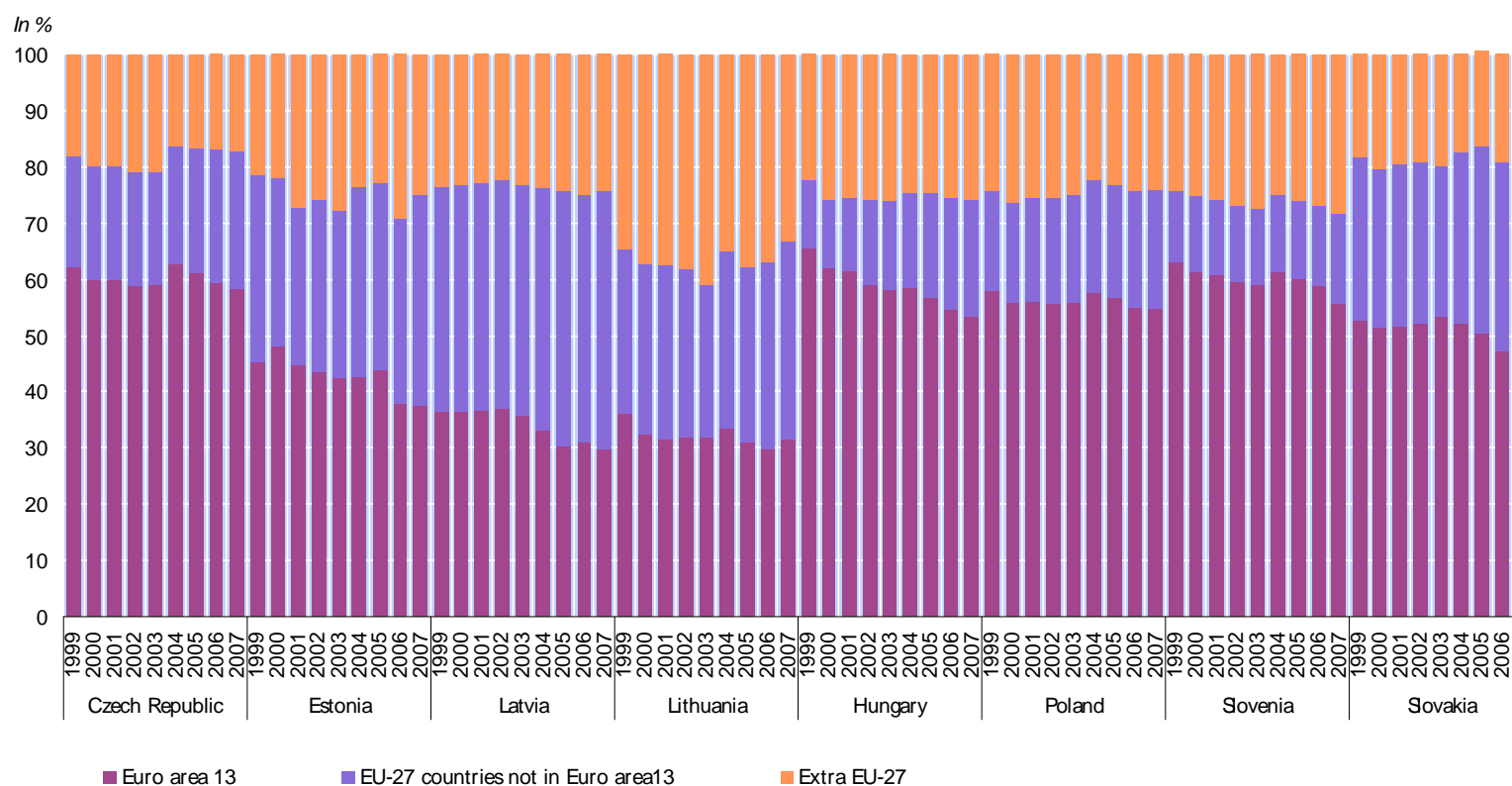
total exports and imports as a % of GDP



Source: Eurostat.

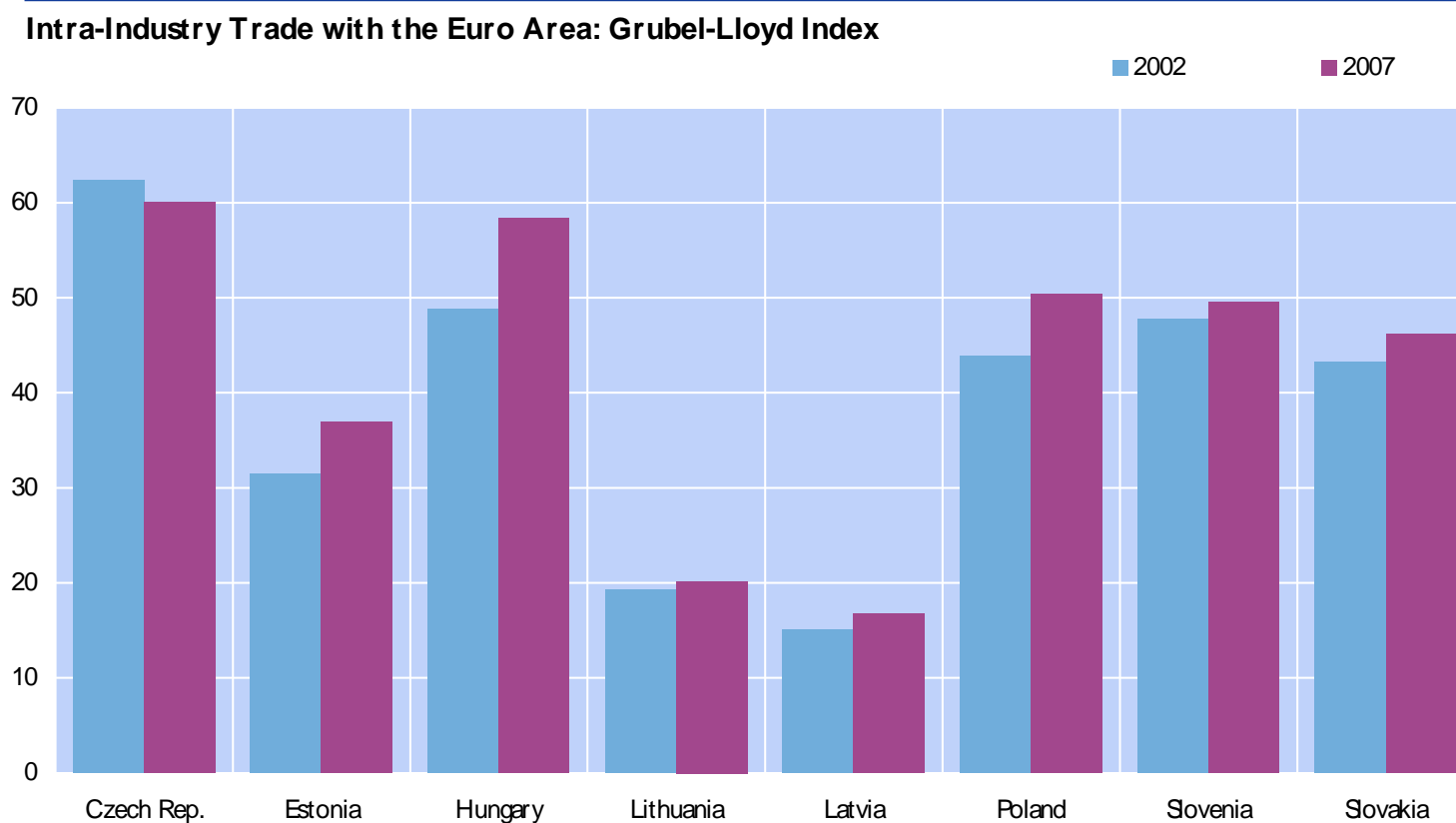
Trade integration with euro area and other regions

Share in total trade value (export plus imports)



Source: Eurostat, OeNB

Intra-industry trade (total trade)



Source: own calculations using COMEXT data (based on 3-digit SITC).

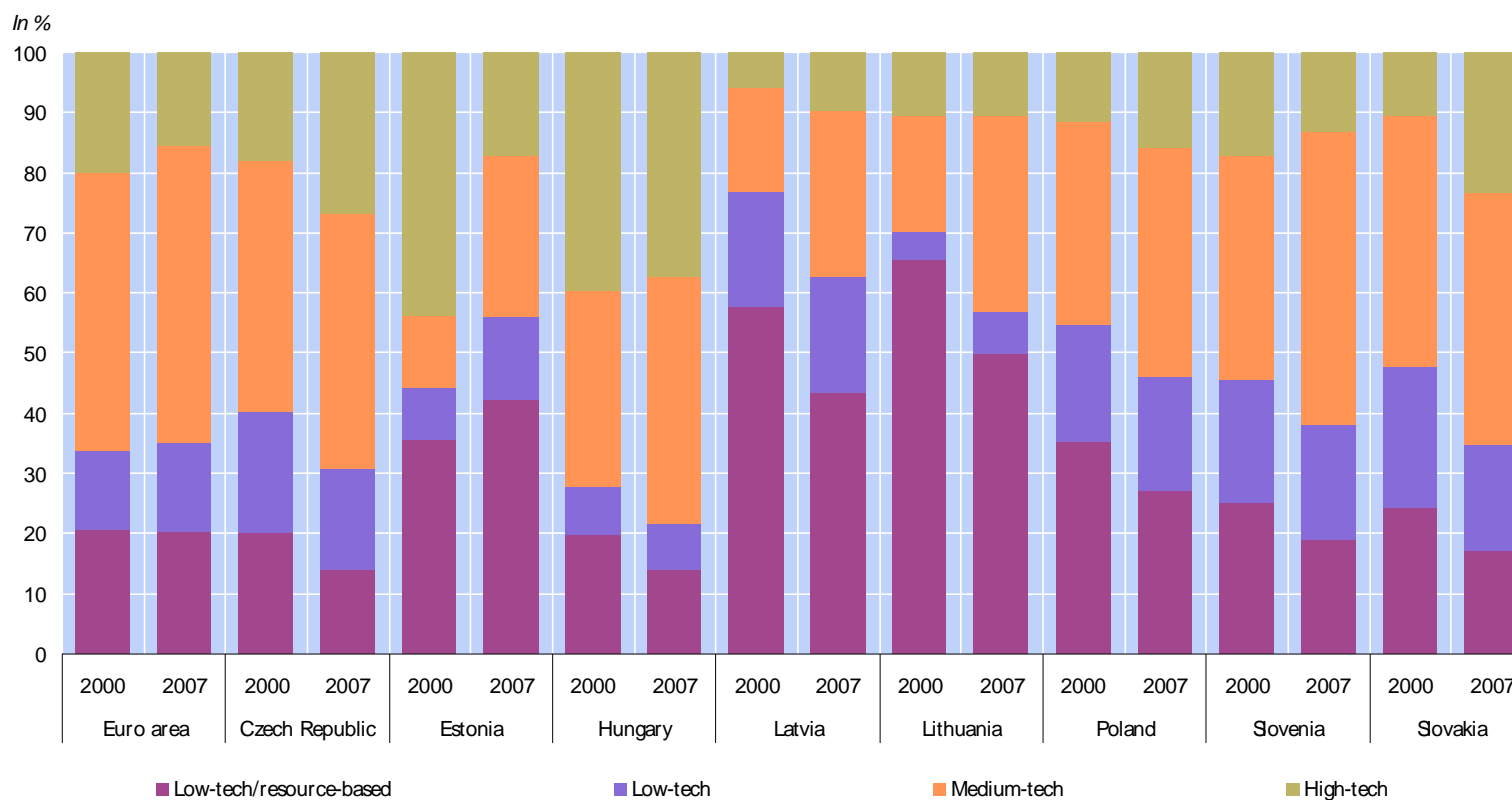
Intra-industry trade (manufacturing sectors)

Intra-Industry Trade with the Euro Area in Manufacturing Sectors: Grubel-Lloyd-Index, 2007



Technology content of exports

Technology content of exports

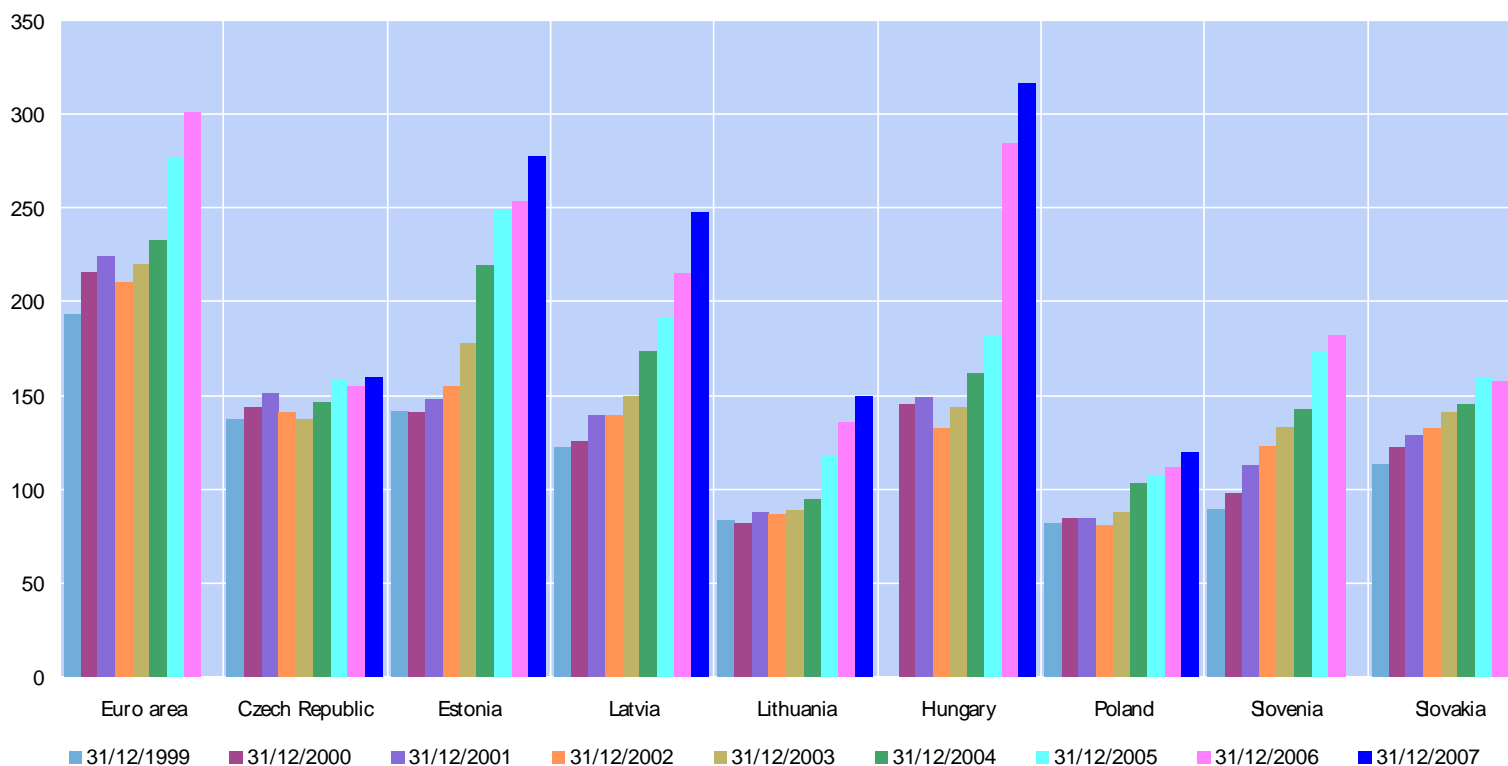


Source: Eurostat, OeNB

Financial integration

Financial integration: Sum of external assets and liabilities (international investment position)

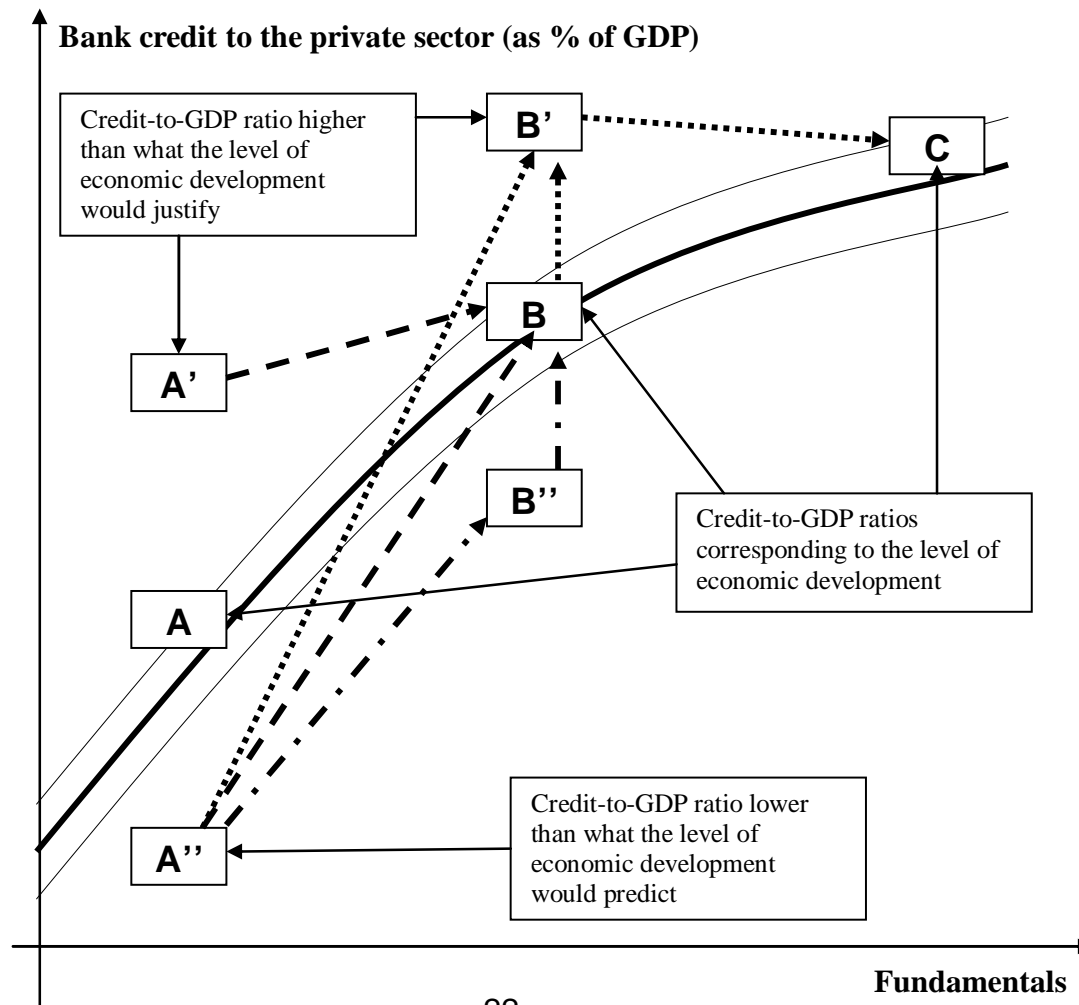
In % of GDP



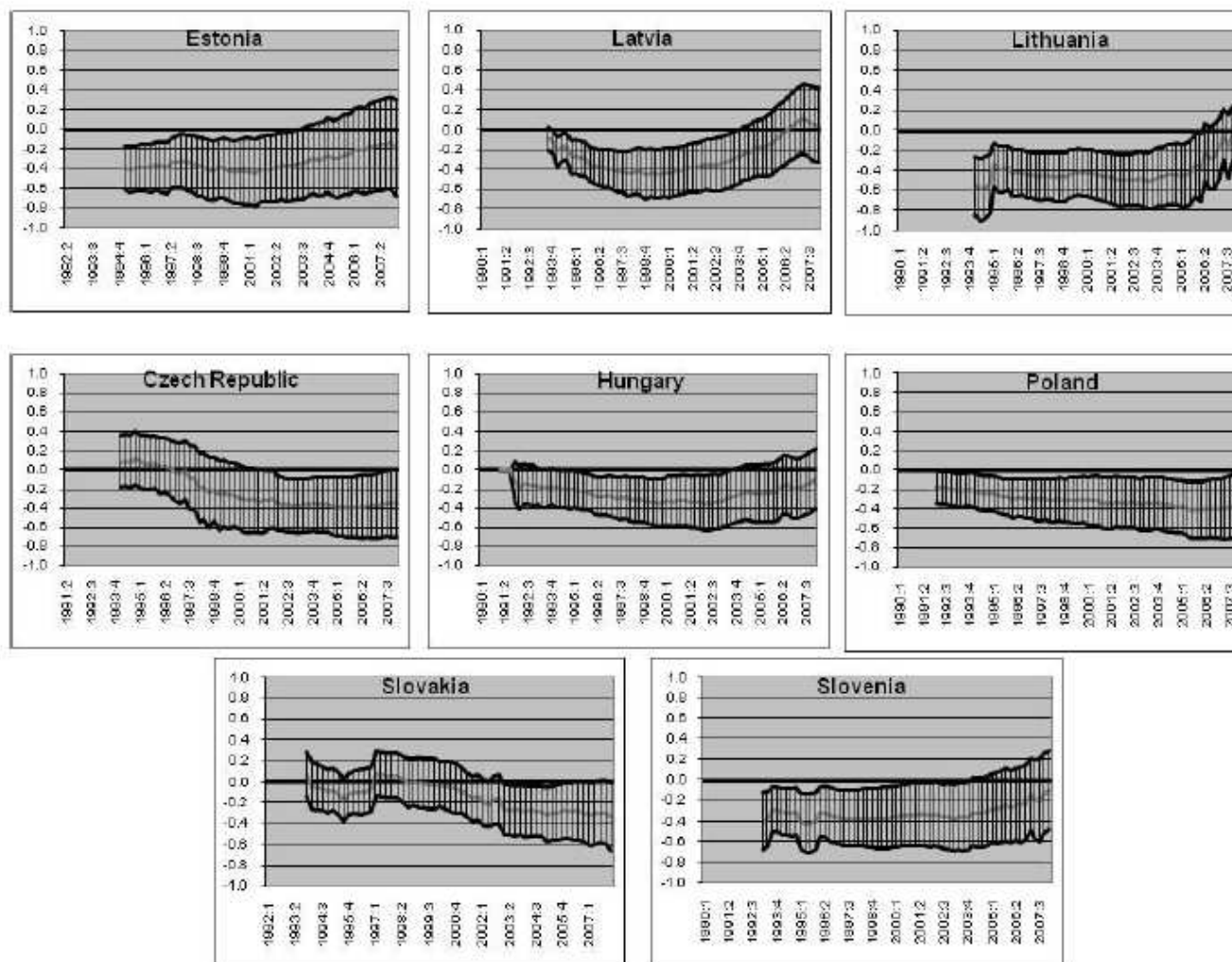
Source: ECB, Eurostat, Banka Slovenije, OeNB. Note: Since 2006, special purpose vehicles (especially holding companies) are included in the data. This explains much of the rise in the case of Hungary.

Credit levels and fundamentals

Figure 1. The evolution of the credit to GDP ratio over time



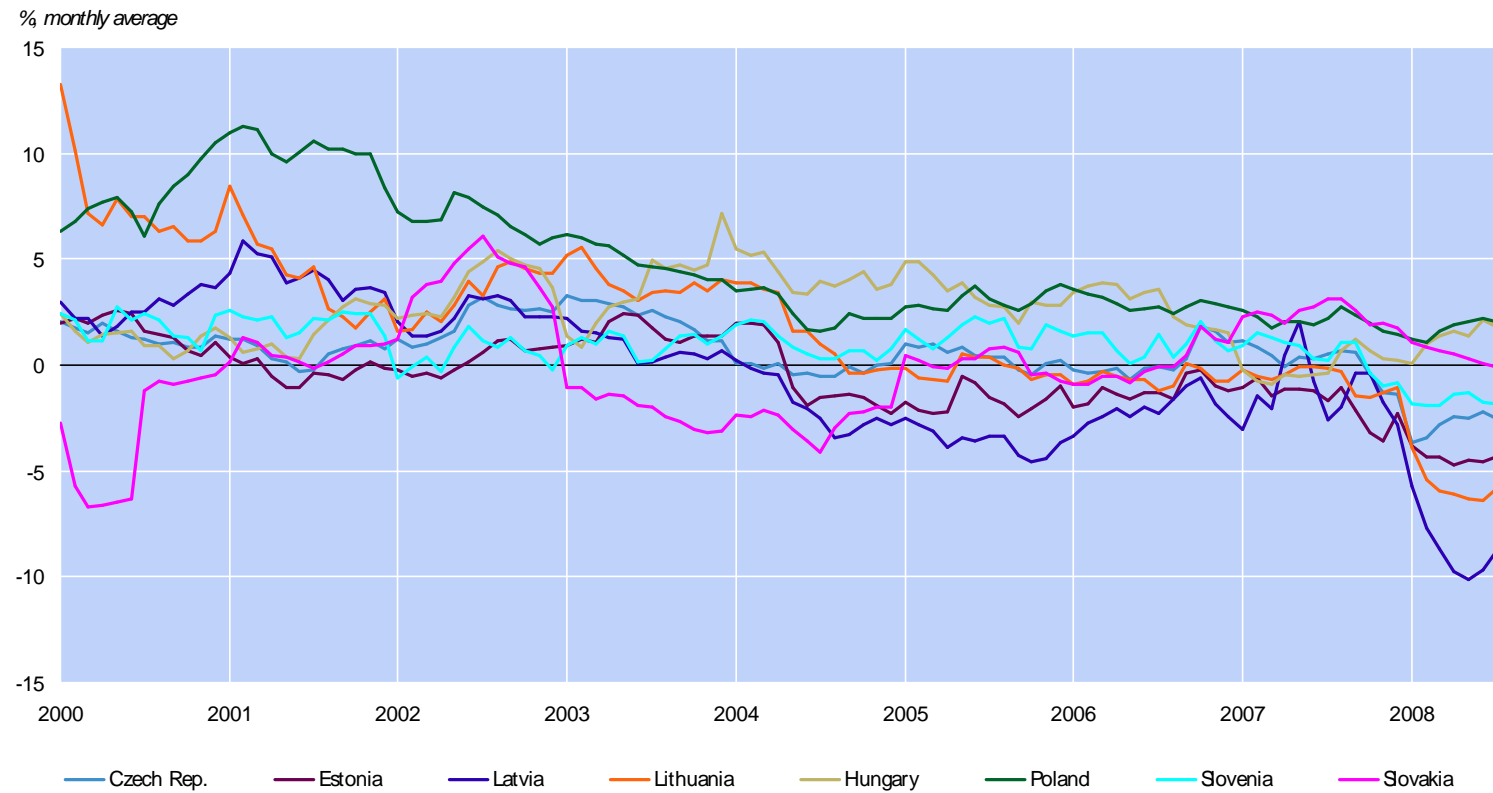
Actual credit levels: Deviations from equilibrium ranges



Real interest rates – money market rates

Grafik 1

3-month money market rates - deflated by contemporaneous year-on-year change in HICP



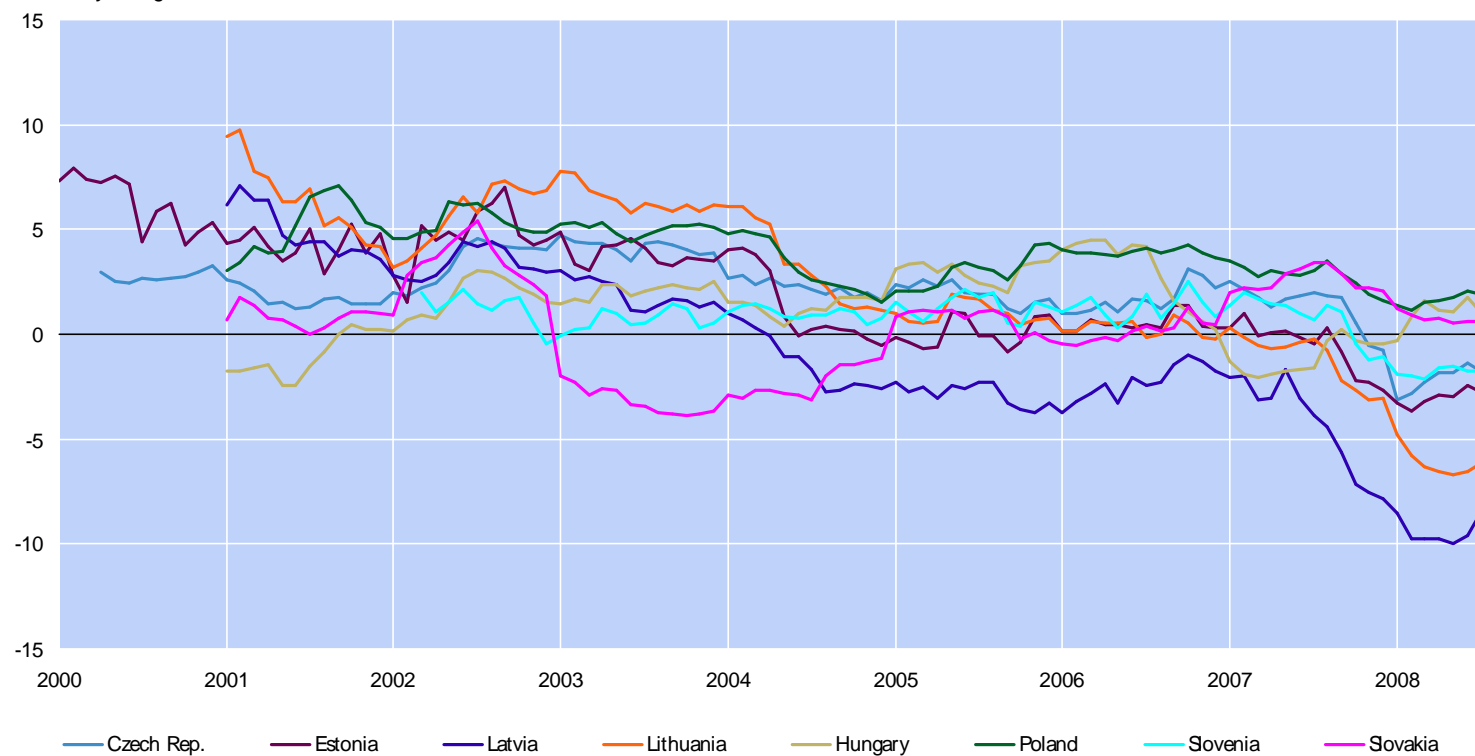
Quelle: Bloomberg, Eurostat, OeNB.

Real interest rates – long-term government bond yields

Grafik 1

10-year government bond yields - deflated by contemporaneous year-on-year change in HICP

% monthly average

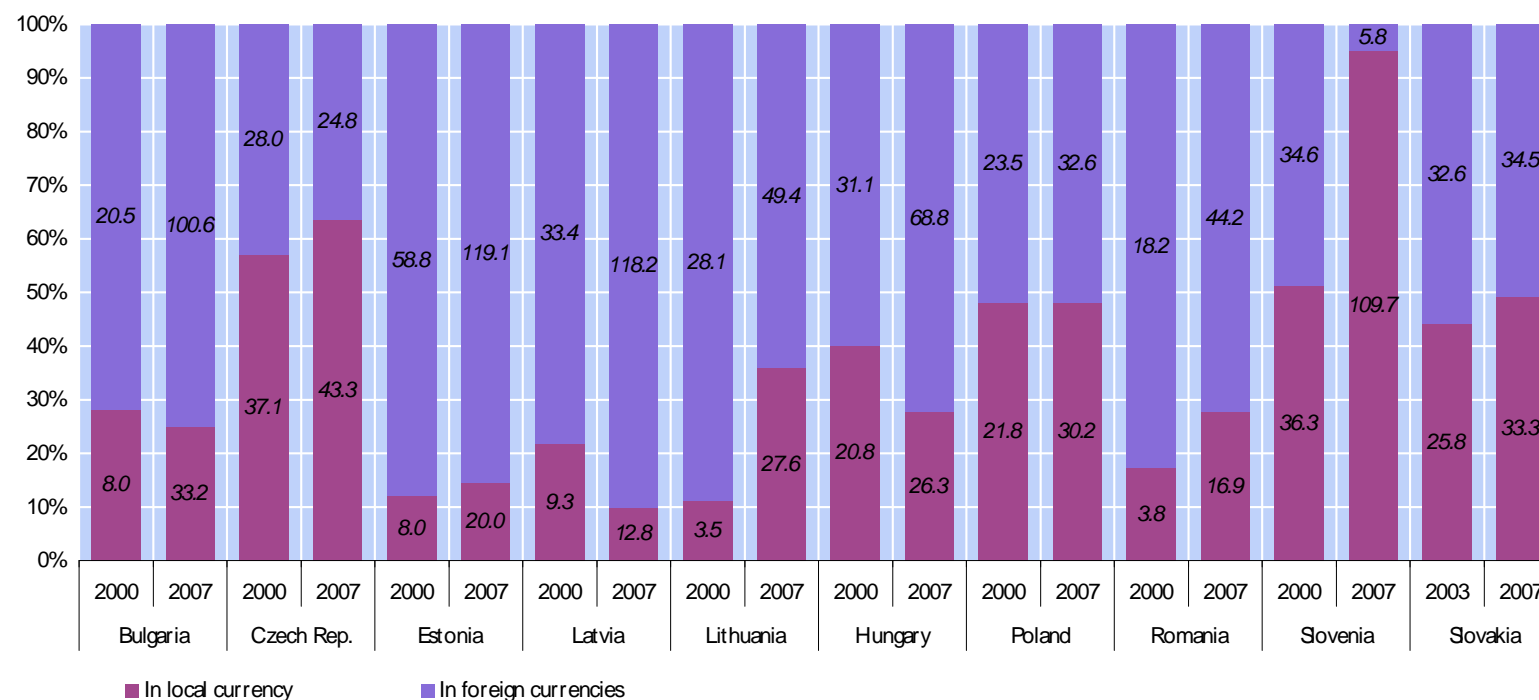


Quelle: Eurostat, OeNB

Currency structure of non-bank private sector debt

Structure of total debt (to domestic banks and cross border) of the nonbank private sector

In % of the total debt of the nonbank private sector



Note: Cross-border debt is classified as foreign currency debt (except Slovenia since euro adoption in 2007).

The figures in the bars indicate the outstanding amount of debt denominated in local and foreign currencies, respectively, in % of GDP.

Source: NCBs, Eurostat, OeNB

Policy implications

- Some factors will likely mitigate the magnitude of euro-related credit booms
- Still, managing prospective shifts in credit levels will be challenging
- Benign versus excessive credit booms
 - Credit booms cum asset price bubbles
- Policy responses to booms
- Over time, more risk sharing

Thank you very much for your attention!

Disclaimer

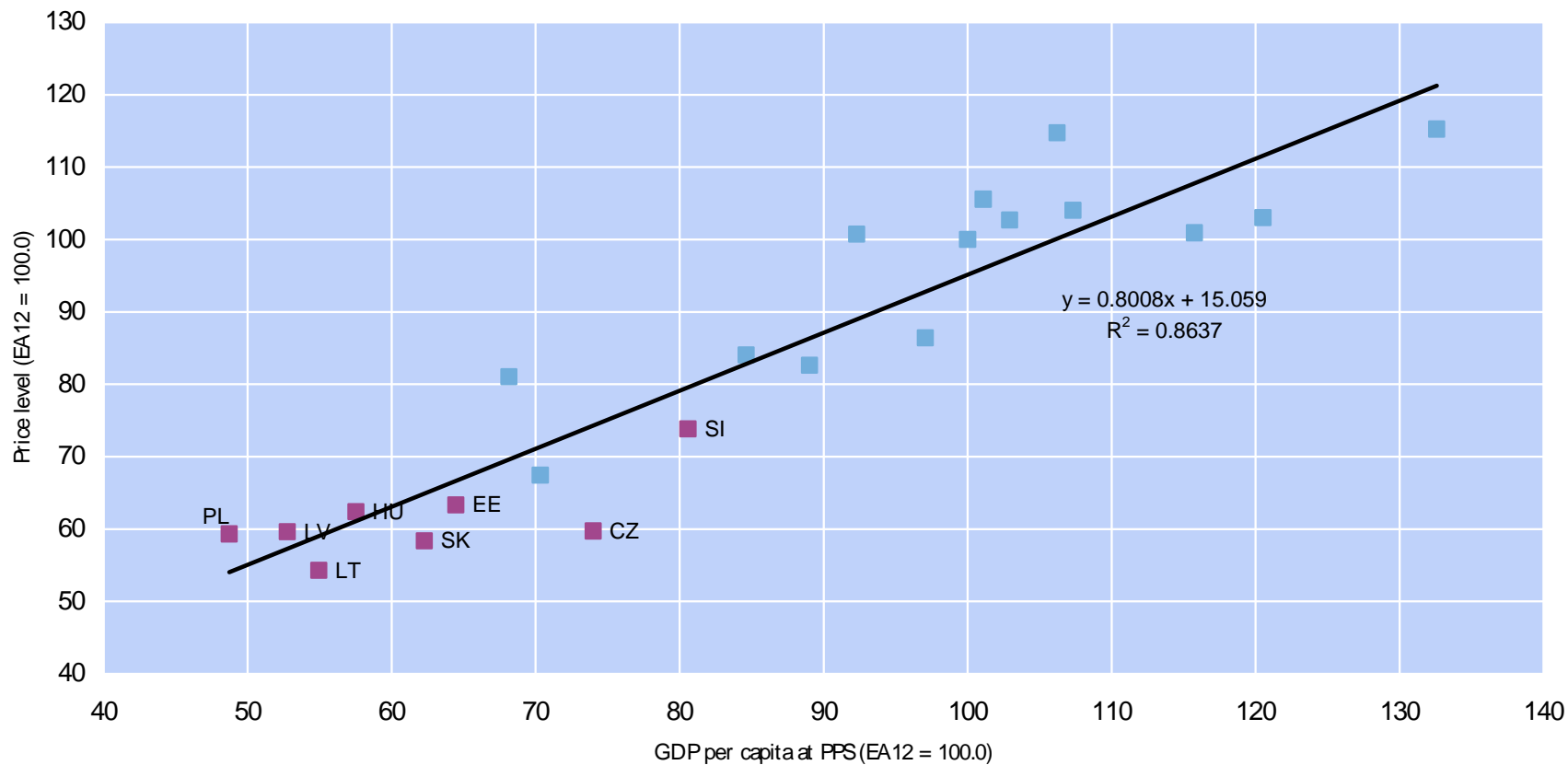
The views expressed in this presentation do not necessarily reflect the official viewpoint of the Oesterreichische Nationalbank (OeNB) or the European System of Central Banks (ESCB).

Supplementary charts

Per-capita income and relative price levels

GDP per capita and relative price levels 2007

in % of euro area 12

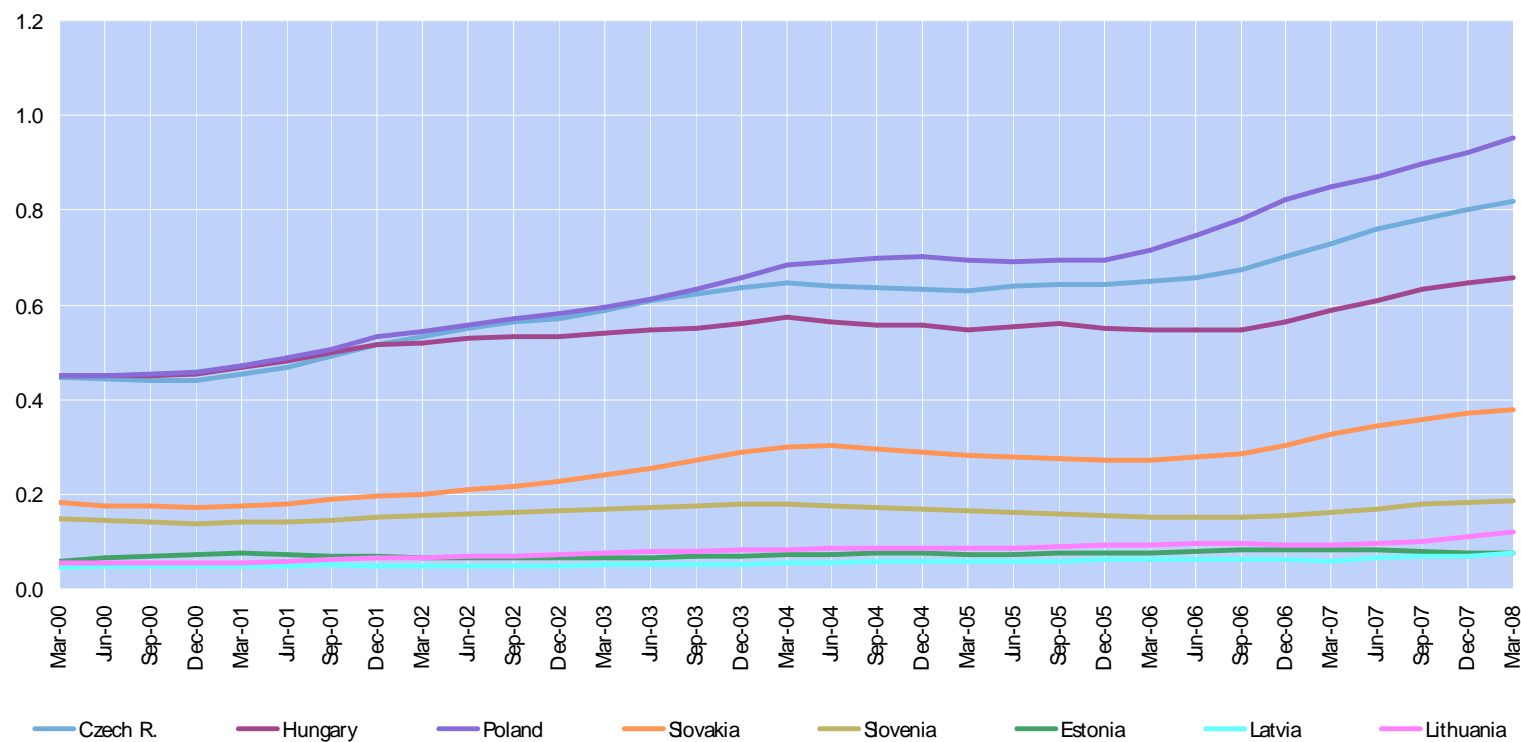


Source: Eurostat, OeNB

Market share in world imports

Market share in world imports

% 4-quarter moving average

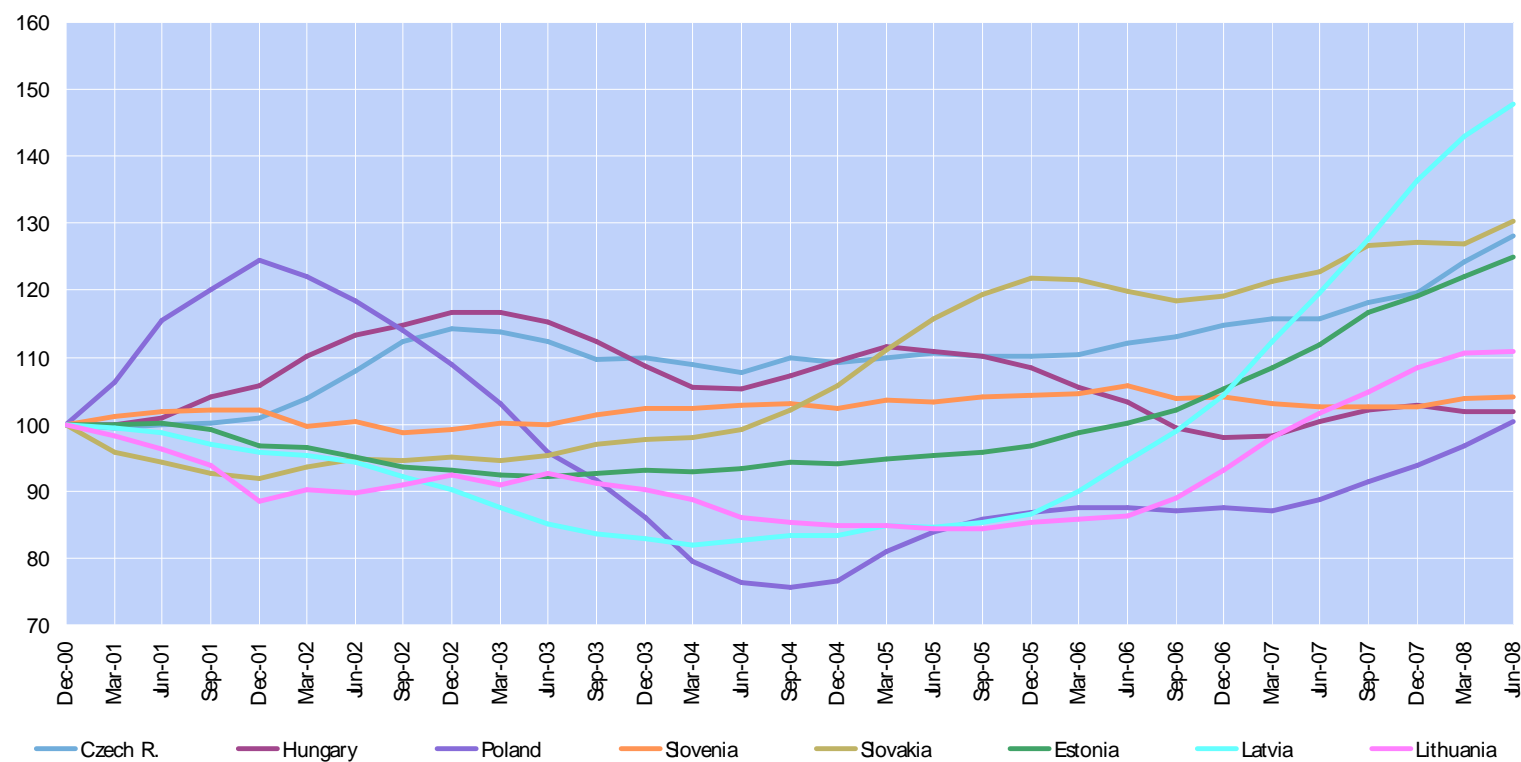


Source: IMF, OeNB

Real exchange rate developments

Real exchange rate versus the euro, based on manufacturing unit labor costs

4-quarter moving average, rebased to Q4 2000 = 100.0

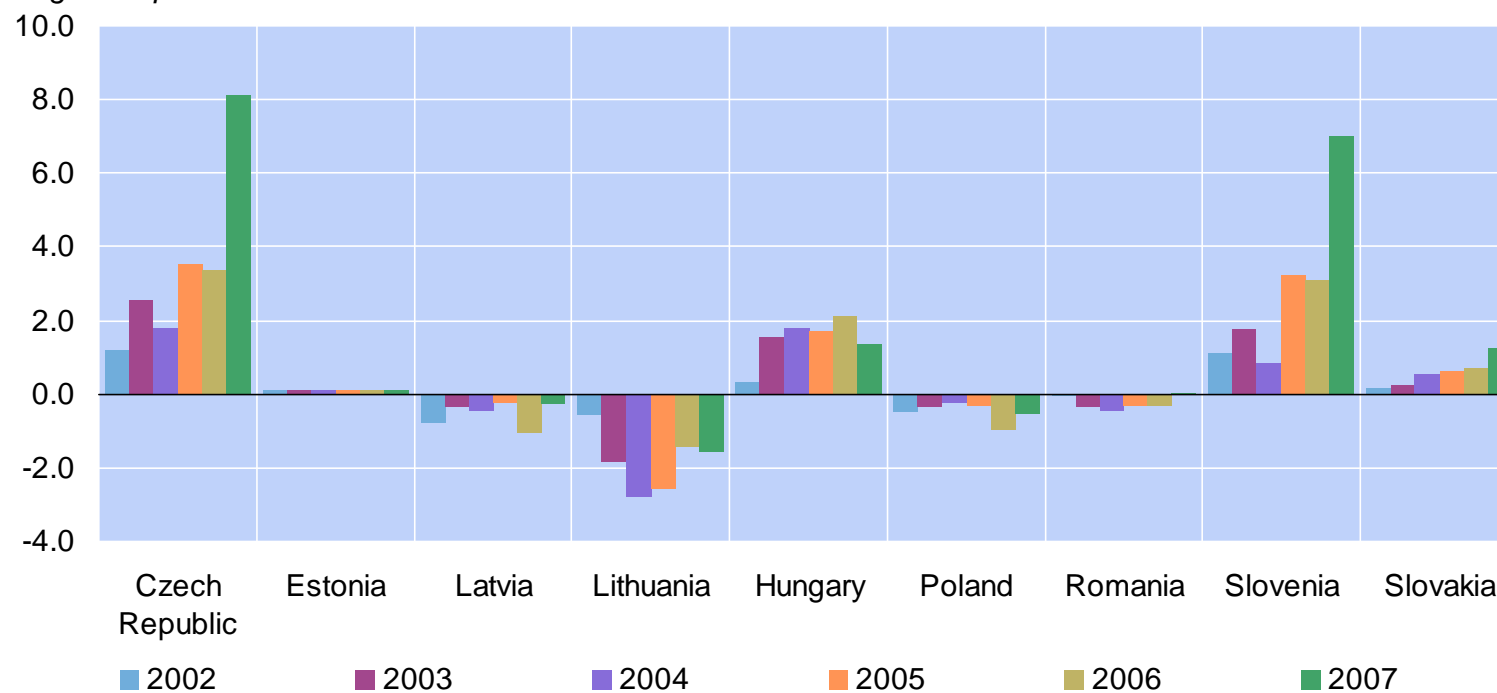


Source: Eurostat, OeNB

Net migration developments

CEE Member States: Net migration

Migration per 1000 inhabitants



Source: Eurostat.

Financial deepening or bubble?

- Approach to address this question: Comparing realized private-sector credit/GDP ratios in CEE MS with estimated equilibrium levels (Égert, Backé and Zumer, 2006)
- Dynamic panel data analysis
- Country panels and sub-panels
- Specifications and estimation methods

Baseline specification

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

- Out-of sample approach to avoid estimation bias as argued by Maeso-Fernandez et al. (2005)
- Results based on small OECD country panel

Determinants of private-sector credit

Baseline Specification

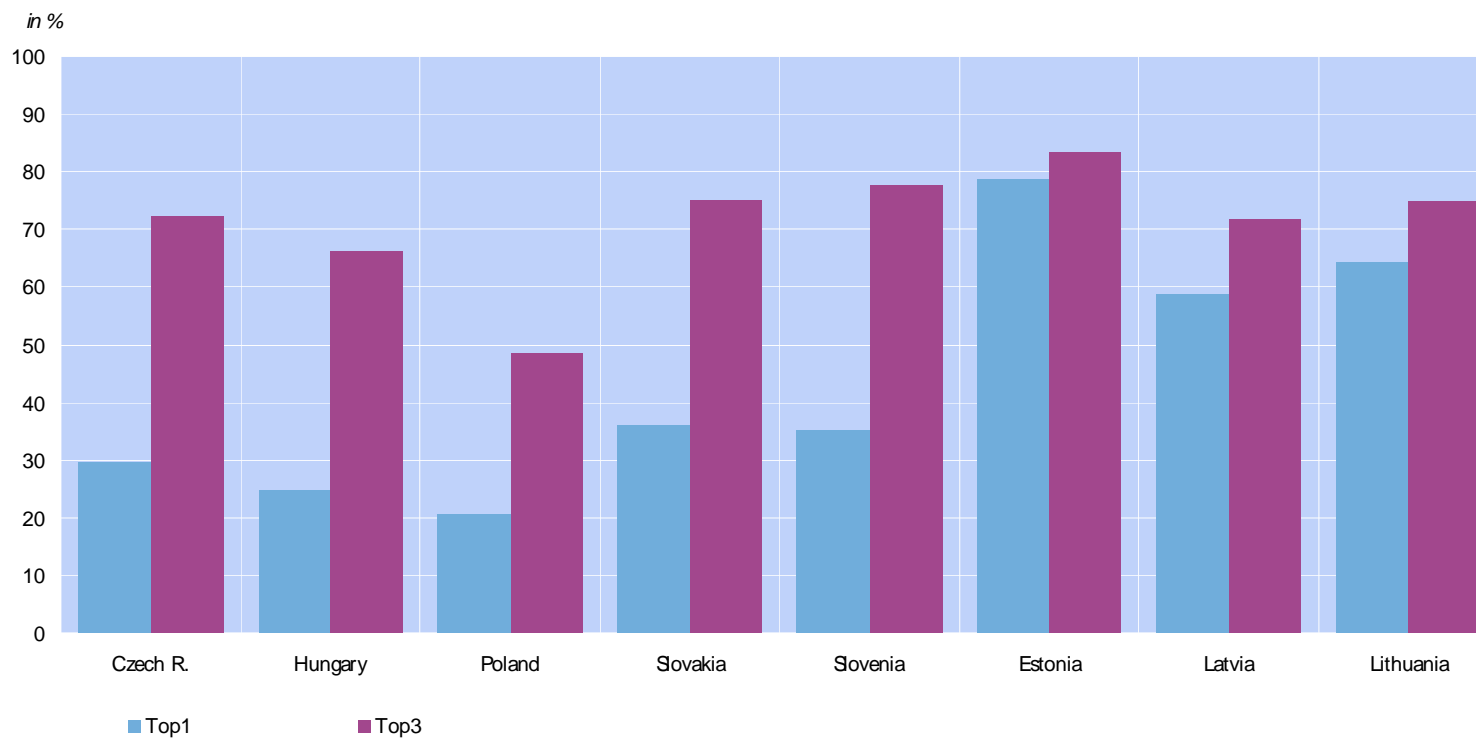
$$C^P = f(CAPITA^+, C^G, i^{lending}, p^{PPI}, spread)$$

	$CAPITA^+$	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.

Concentration of creditor banks in terms of country of residence

Share of Top1/Top3 creditor countries in total consolidated foreign claims of reporting banks, immediate borrower basis, 2007



Source: BIS, OeNB