Do safe banks create a safe system? Post-crisis financial architecture and Central and East European Banks

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**The views expressed by the Authors do not reflect the official position of the National Bank of Poland*

Euroframe Conference, 24.05.2013, Warsaw:

Towards better governance in the EU?

Source: www.cartoonstock.com.

Motivation/ Hypotheses

- Since 2008, the global banking industry has been undergoing fundamental regulatory changes (Basel 3, the EU CRD Directives, the US Dodd-Frank Act).
- The European supervisory model is constantly evolving, both on the Pan-European level (EBA of 2010, Banking Union of 2014) and on national levels (i.e. dismantling of FSA in Britain).
- The crisis was of fundamental importance in major countries, while the transition and emerging countries were hit only secondarily. However, the consequences of post-crisis restructuring, both direct (changing strategies of foreign-owned banks) and indirect (adaptation to new global and European regulations) will be borne by all countries.
- The paper takes a critical look at recent regulatory development in the EU, stressing its ad hoc basis and lack of long-term vision.

Q: Post-crisis regulatory architecture: what will be its impact on CEE banking?

H 1: European regulatory developments, in particular the Banking Union project, creates a no-win dilemma: both joining and not-joining the plan will not benefit Poland/CEE in the LR (EM)

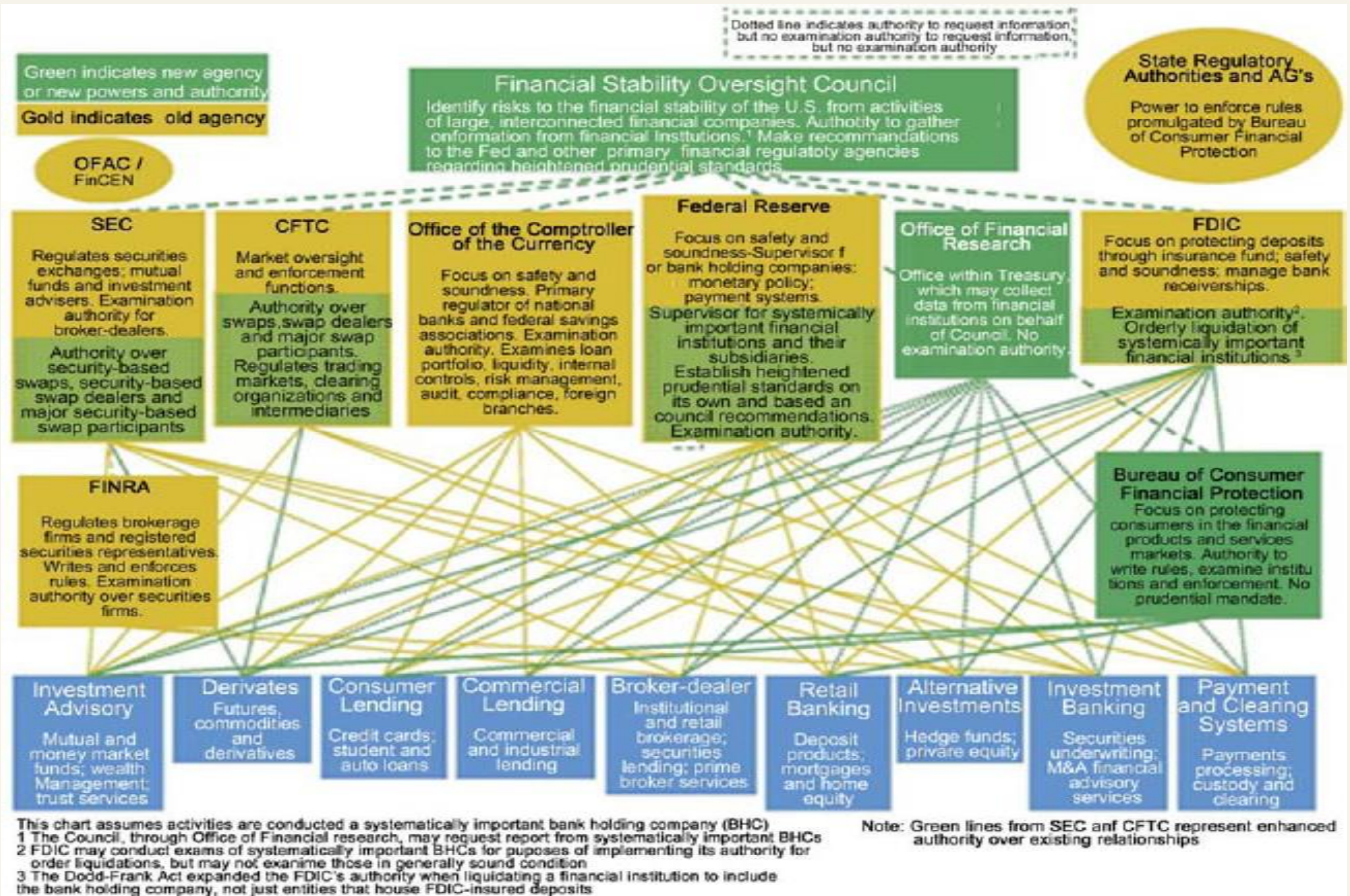
H2: In a competitive and well regulated banking markets, such as the CEE, strong banks create a sound system (MP)

Building Post Crisis Financial Architecture

- **Scale: global, regional, national?**
- **Scope: micro (prudential) or macro (systemic) focus?**
  - Micro focus: for the financial system to be sound it is sufficient that each institution is sound.
  - Macro focus: „it is neither necessary nor sufficient”.

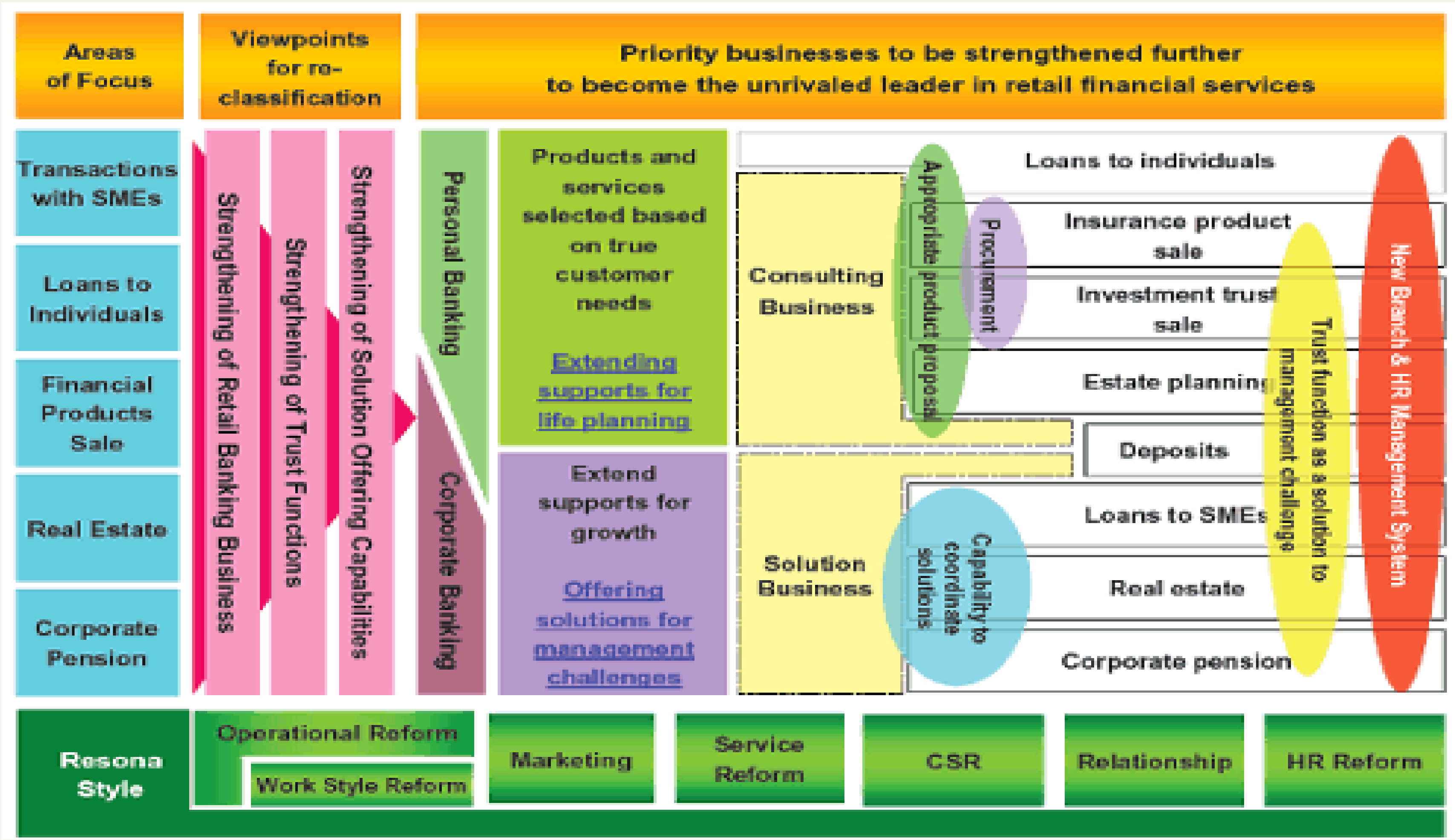
The EU and US new institutional regulatory structures were based on the perceived necessity to deal with systemic risk. Macro-prudential regulations entail considerable costs and regulatory burdens, particularly for countries for which systemic risk is not a major problem, such as CEE.

Example: replacing market discipline by post-crisis overregulation: Dodd-Frank Act 2010



The structure of regulation reflects the structure of the market?

Example: Business Strategy, Resona Group



Wall Street and Main Street Perspective…

Instead of deleveraging big banks, the EU will create another rescue vehicle for them, increasing moral hazard behavior.

M. Draghi:

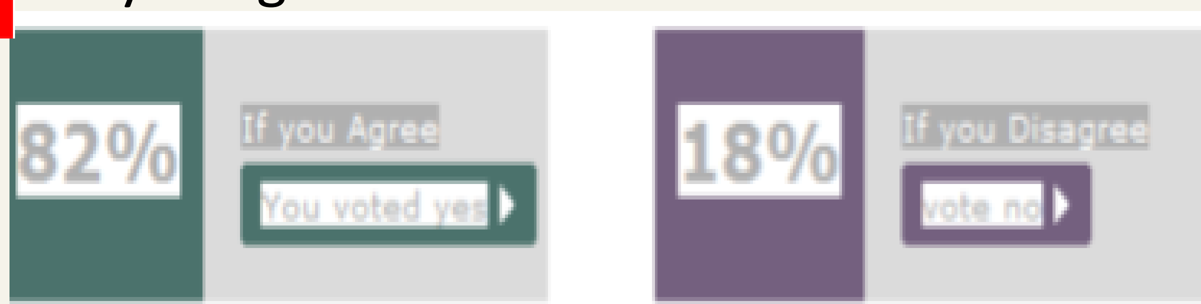
„The main aim (of the Banking Union) is to ***break the link between the sovereigns and the banks****. It is to make the banks basically reliable…****regardless*** *of the place where they have their headquarters and where they exercise their business"*

https://mninews.marketnews.com, Dec. 6, 2012.

The Economist

Should big banks be broken up?

Do you agree with the motion?



http://www.economist.com/debate/debates/overview/253, May 22,2013.

Too big to fail

The largest by assets global banks (mil. $)

1995		2004		2009		2011	
Bank	Akt.	Bank	Akt.	Bank	Akt.	Bank	Akt.
Deutsche Bank	503	UBS	1 533	**BNP Paribas**	2 965	**Deutsche Bank**	2 803
Sanwa Bank	501	Citigroup	1 484	**RBS**	2 750	**Mitsubishi UFJ**	2 741
Sumitomo Bank	500	Mizuho FG	1 296	**Credit Agricole**	2 441	**HSBC**	2 555
Dai-Ichi Kangyo B.	499	**HSBC**	1 277	**HSBC**	2 364	**BNP Paribas**	2 545
Fuji Bank	487	**Credit Agricole**	1 243	**Barclays**	2 235	Japan Post Bank	2 543
Sakura Bank	478	**BNP Paribas**	1 234	Bank of Am.	2 223	**Crédit Agricole**	2 449
Mitsubishi Bank	475	**JP Morgan**	1 157	**Deutsche Bank**	2 162	**Barclays**	2 431
Norinchukin Bank	430	**Deutsche Bank**	1 144	**JP Morgan**	2 032	ICBC	2 400
Credit Agricole	386	**RBS**	1 119	**Mitsubishi FG**	2 026	**RBS**	2 343
IC Bank of China	374	Bank of America	1 110	Citigroup	1 857	**JP Morgan**	2 266

Source: own presentation, data from the Banker, *Top 1000 World Banks*.

European System of Financial Supervision 2010

Financial Supervision 2014

EU central banks

EU supervisors

ESRB

- EBA
- ESMA
- EIOPA

Banking Union: SSM (ECB)

EBA for non-Eurozone members

Macro prudential

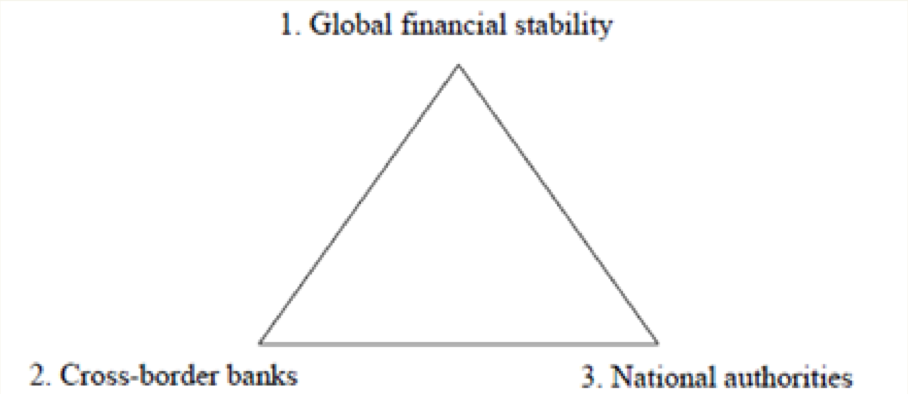
Micro prudential

What reforms do we already have in the EU?

Banking Union: rationale for reform

- Breakup of the Eurozone would be expensive , only ECB can stop the crisis and help to generate growth
- We need global (European) solutions for global banks

The financial trilema:



Source: Schoenmaker, 2011.

- **Q: Has the 2008 crisis been properly diagnosed?**

Bank restructuring focus: liquidity, solvency, systemic risk (stability), GDP growth

The impact of the new regulatory architecture on CEE

- The idea of a “Banking Union” has sometimes been depicted as a result of an alternative (OFCE, 2013):
  - either “returning to the past”, where banks focus their activities in their countries of origin, under supervision of their national authorities,
  - or establishing a banking union, where banks would be encouraged to diversify across the EU to spread risks and where supervision would be at the European level.

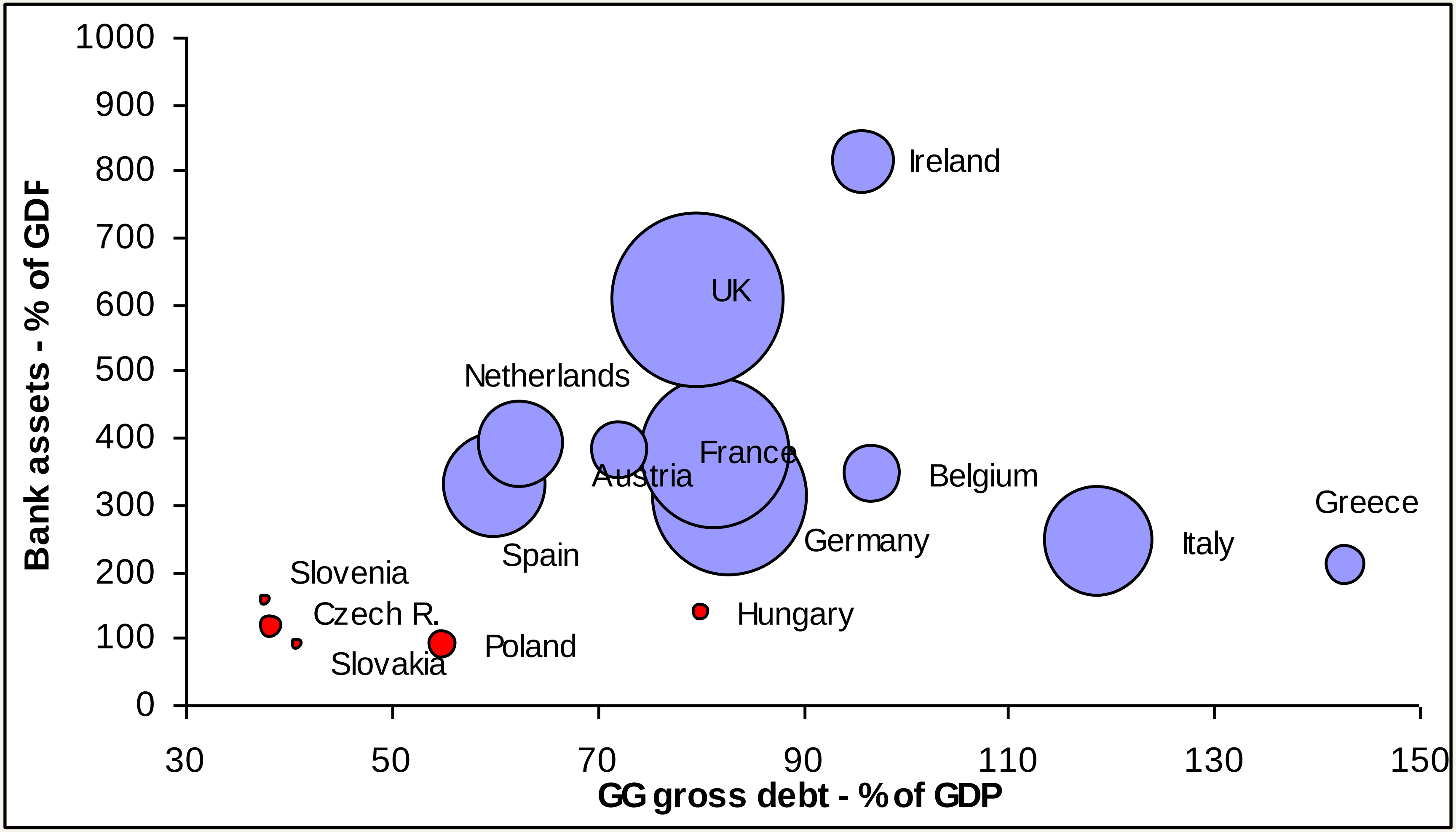
This alternative disregards the diverse structures of the EU banking systems;

For CEE countries, with competitive and relatively healthy banking sectors, the new architecture is likely to increase costs rather than produce benefits.

Bank business models: globally and in Poland

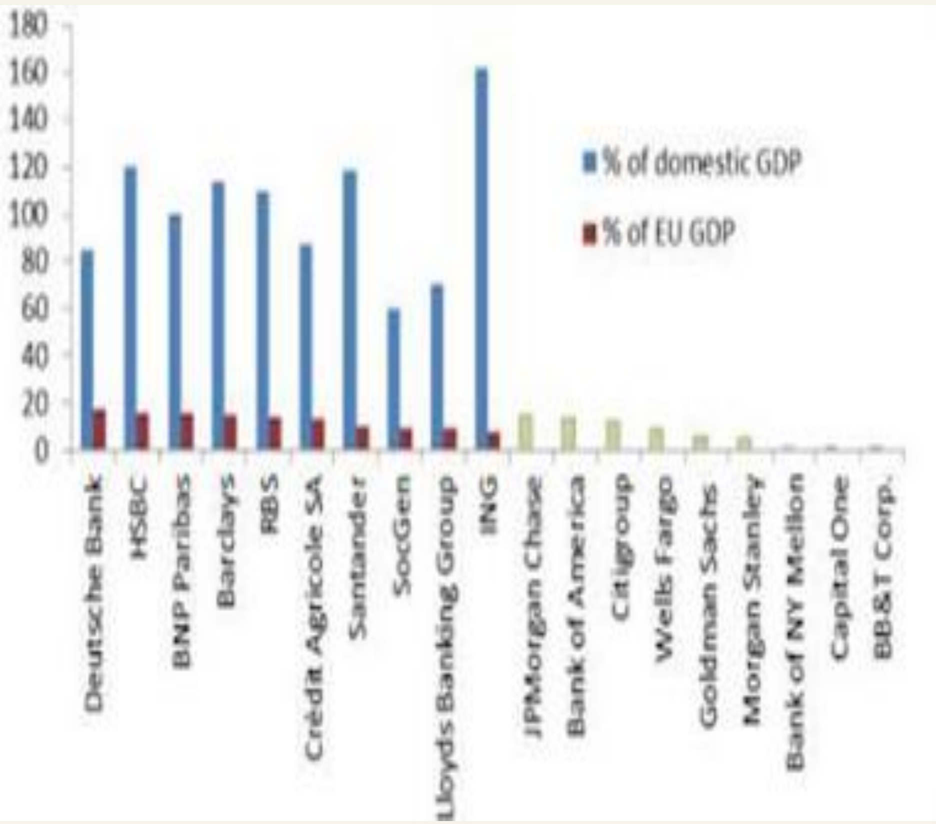
	Large global banks	Polish banks
Funding risk	High: L/D > 100%	Low: L/D ar. 100%
Systemic risk	High: concentrated market structure, large banks	Low: competitive market structure (largest five banks' assets <50 of GDP)
Organisational structure	Complex: conglomerate model	Simple: concentration in consumer market
Profitbility/risk	High	High profitability, moderate risk
Innovations	High	Moderate

The size of banking sector (2009) vs. general government debt (2010) in selected EU and CEE countries

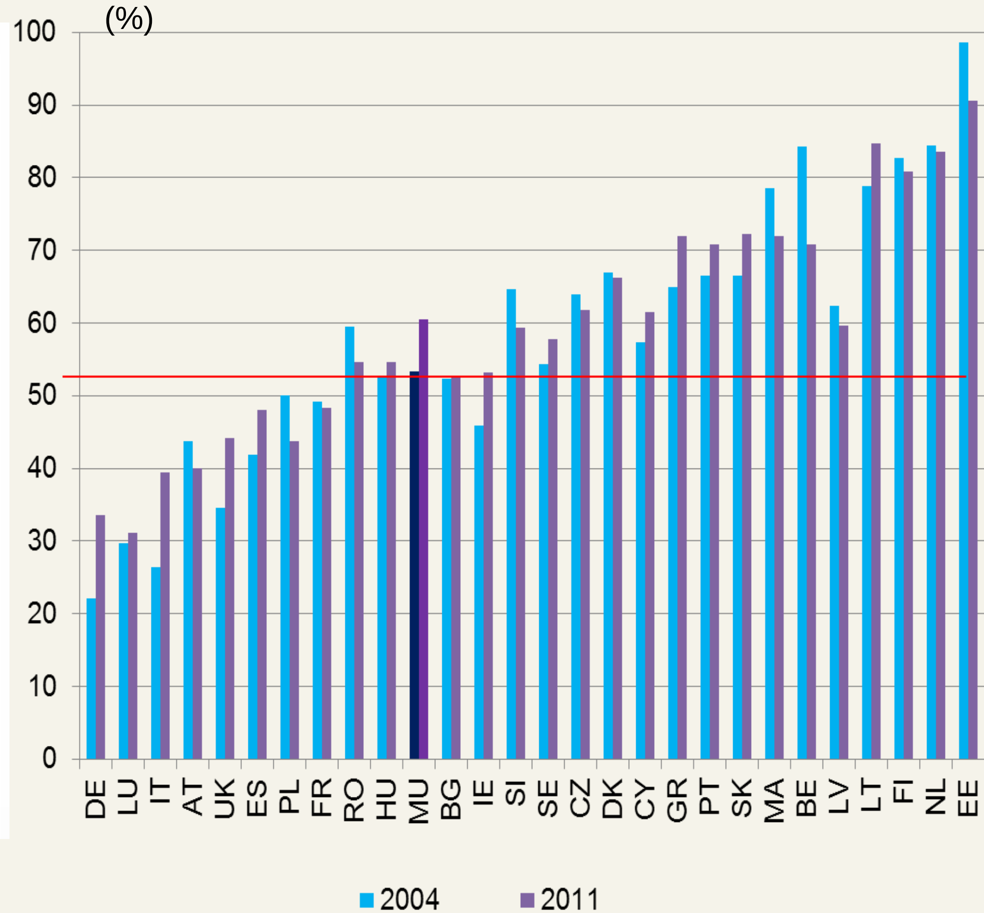


Source: Source: own analysis, data from Eurostat and ECB, 2010.

Assets of largest EU and US banking groups, 2011, % of GDP



Bank concentration in the EU, CR5 for 2004 and 2011

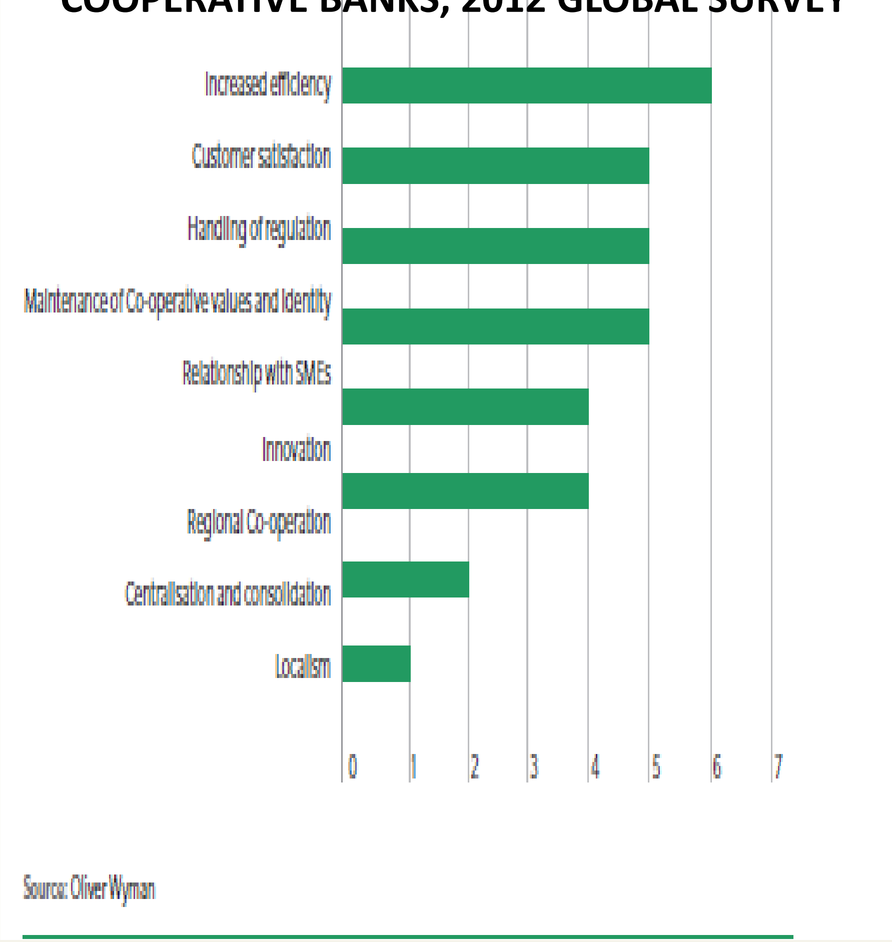


Source: own analysis, ECB data.

Small Bank Perspective

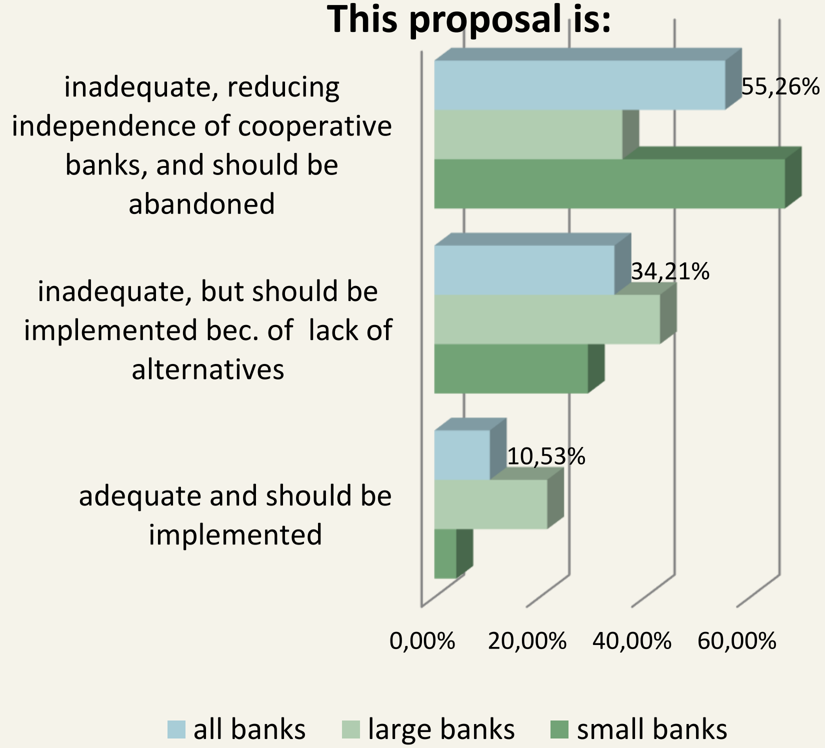
Focusing on systemic stability and Pan-European supervision, the new architecture undermines the position and marginalize the impact of small, domestic-oriented banks

KEY SUCCESS FACTORS IDENTIFIED BY COOPERATIVE BANKS, 2012 GLOBAL SURVEY



POLISH COOPERATIVE BANKS, 2013 SURVEY

The regulatory proposal to deal with CRD IV implementation is IPS . This proposal is:



Source: own survey, 2013.

CEE bank efficiency, competitive conduct and financial stability condition - empirical results before and after the crisis

Data Sources & Estimation

BankScope database: annual data for the period 2002 to 2010 for the Czech Republic, Hungary, Slovakia, Slovenia, Poland

Three different models:

- DEA measures of technical efficiency - efficiency were calculated for each year over the period: 2002-2009
- Panzar and Rosse (P-R) model - the H-statistics) - competitive conduct were calculated for the period: 2002-2009 and for two sub-periods: 2002-2007 (H_1), 2008-2009 (H_2)
  - ✓ Diff.-in-diff. Estimation
  - ✓ *Two variants of the dependent variable equation were estimated: The first variant was based on the natural logarithm of interest income divided by total assets (II/TA), the second on the natural logarithm of interest income (II)*
- Z-score indicies - bank sensitivity were calculated for each year over the period: 2004-2010 and as averaged for 3 years rolling windows (2004-2006,…,2008-2010)

Efficiency of CEE banks: DEA model

The model chosen for estimation of bank efficiency takes into account scale effects and is output-oriented (*output maximization*).

- The inputs taken from BankScope were:

  (x_1) - personnel expenses, (x_2) - total fixed assets, (x_3) - interest expense.
- The outputs: (y_1) - total loans net, (y_2) - liquid assets, (y_3) - total deposits.

The following symbols have been applied:

✓ E_crs – *measure of technical efficiency under constant returns to scale assumption,*

✓ E_vrs - measure of technical efficiency under variable returns to scale assumption,

✓ *E_n – measure of technical efficiency under non-increasing returns to scale assumption*

✓ *E_s - measure of scale efficiency*

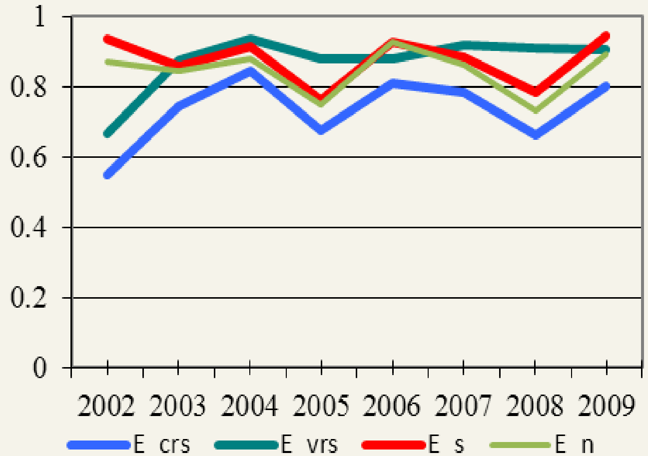
Efficiency measures (e_vrs) of CEE-5 countries

Year	2002	2003	2004	2005	2006	2007	2008	2009	No. of banks
the Czech R.	0.67	0.88	0.94	0.88	0.88	0.92	0.91	0.90	**27**
Poland	0.80	0.86	0.77	0.81	0.86	0.56	0.85	0.87	**41**
Slovakia	0.81	0.97	0.78	0.98	0.98	0.93	0.95	0.91	**17**
Slovenia	0,78	0.97	0.96	0.93	0.94	0.96	0.94	0.73	**19**
Hungary	0.64	0.52	0.67	0.76	0.82	0.86	0.80	0.73	**32**
average CEE-5	0.67	0.88	0.94	0.88	0.88	0.92	0.91	0.90	**27**

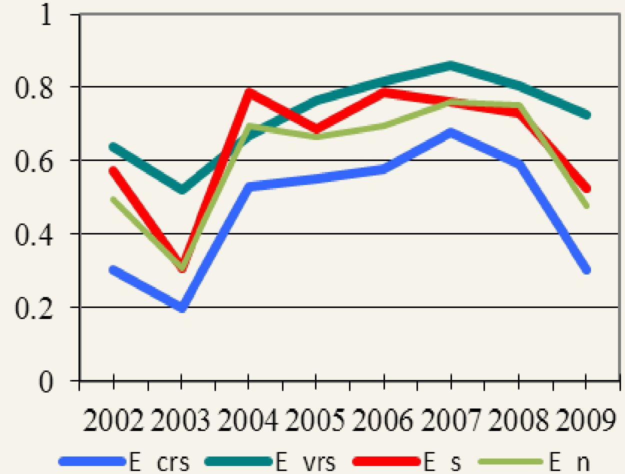
Source: own analysis.

DEA indicators for banking sectors of CEE-5 (2002-09 average)

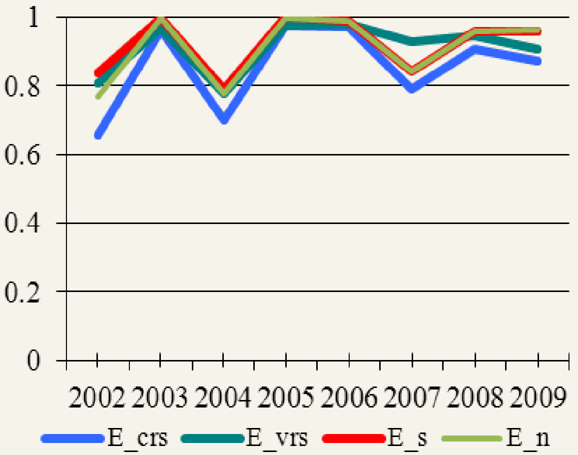
Czech Rep.



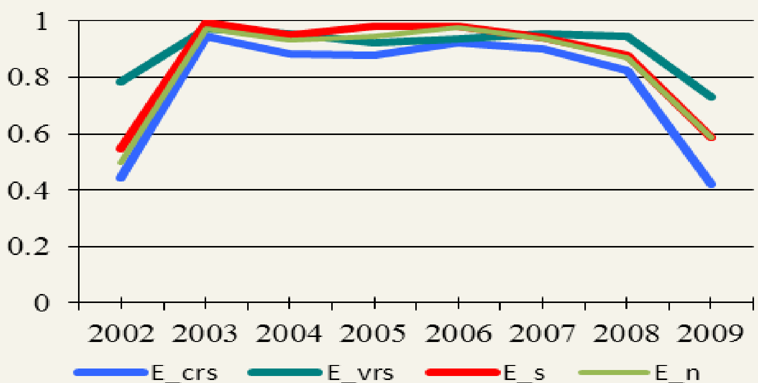
Hungary



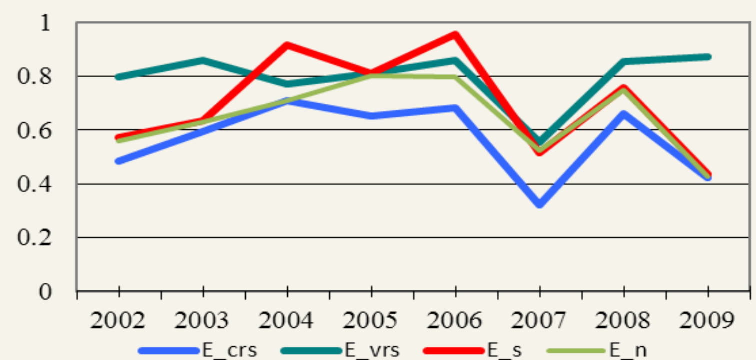
Slovakia



Slovenia



Poland



Source: own analysis. In 2009 in Poland (for the majority of banks E_n = E_crs).

Revenue Equation for banking sector of CEC-5 Panzar and Rosse (P-R) model

$$\ln(II_{it}) = C_i + a_1 * \ln w_{lit} + a_2 * \ln w_{pit} + a_3 * \ln w_{kit} + d * (OI/II) + e * oth_{it} + e_{it} \quad (1)$$

• ***II*** *– dependent variable*	*(II/TA)* - **interest income/total assets** or *(II)* - **interest income**
• w_l – *unit price of labour* :	personnel expenses/total assets
• w_p – *unit price of funds* :	interest expenses/total deposits
• w_k – *unit price of capital* :	other expenses/fixed assets
OI/II – (the ratio of other income to interest income)	the ratio of other income to interest income
• oth – *bank specific variables*	size of nonperforming loans (npl), loan/deposit (LTD)
• $\mathbf{c_i}$ **-** *constant* **,** e_{it}	constant, error

Value of H-statistic for banking sectors in CEC5 *countries (BankScope)*

Estimations results with time interaction terms for overall sample:		***Dependent variable: Interest Income***				
		Czech Republic	**Hungary**	**Slovakia**	**Slovenia**	**Poland**
$\mathbf{H_1}$	2002 – 2007	**0.28**	**0.34**	**0.19**	**0.27**	**0.30**
$\mathbf{H_2}$	2008 – 2009	**0.07**	**0.003**	**0.11**	**-0.012**	**0.09**
p(F-test)	$\mathbf{H_0 : H_1 = H_2}$	(0.037)	(0.000)	(0.612)	(0.034)	(0.002)
H	2002 – 2009	**-0.25**[2]	**0.35**[1]	**0.28**[1]	**0.30**[1]	**0.16**[2]
Estimations results with time interaction terms for overall sample:		***Dependent variable: Interest Income/ Total Assets***				
		Czech Republic	**Hungary**	**Slovakia**	**Slovenia**	**Poland**
$\mathbf{H_1}$	2002 – 2007	**0.48**	**0.85**	**0.85**	**0.44**	**0.83**
$\mathbf{H_2}$	2008 – 2009	**0.38**	**0.98**	**0.76**	**0.39**	**0.44**
p(F-test)	$\mathbf{H_0 : H_1 = H_2}$	(0.290)	(0.526)	(0.276)	(0.851)	(0.003)
H	2002 – 2009	**0.43**[1]	**0.55**[1]	**0.70**[1]	**0.53**[1]	**0.68**[1]

Source: own calculations. Note: to test the value of H the Wald tests were used:
for monopoly: H_0 : H≤0 versus H_1: H>0 and for perfect competition: H_0 : H = 1 versus H_1:H 1,
[1]Null hypothesis H=0 and H=1 has been rejected at 1% significance level. [2]*Hypothesis of H≤0 was not rejected at the significance level of 1%.*

Z-score: Index of bank stability (distance to bankruptcy)

- The index measures the number of standard deviations the ROA must decrease before the bank 's equity is depleted

- The more stable the returns, the higher the Z-score. The higher the score, the safer the bank. Safe banks are those which have relatively little equity to prevent the absorption of losses and are characterized by unstable profits

$$Z - score = \frac{\dfrac{\sum_{t=1}^{n} \dfrac{2\pi_t}{A_t + A_{t-1}}}{n} + \dfrac{\sum_{t=1}^{n} \dfrac{E_t + E_{t-1}}{A_t + A_{t-1}}}{n}}{\sigma_{ROA}} = \frac{ROA + CAR}{\sigma_{ROA}} \qquad (2)$$

where:

A_t – assets in a period t,

π_t – net profit in t,

$2\pi_t / (A_t + A_{t-1})$ denotes the average value of ROA in t;

σ_{ROA} –standard deviation of ROA,

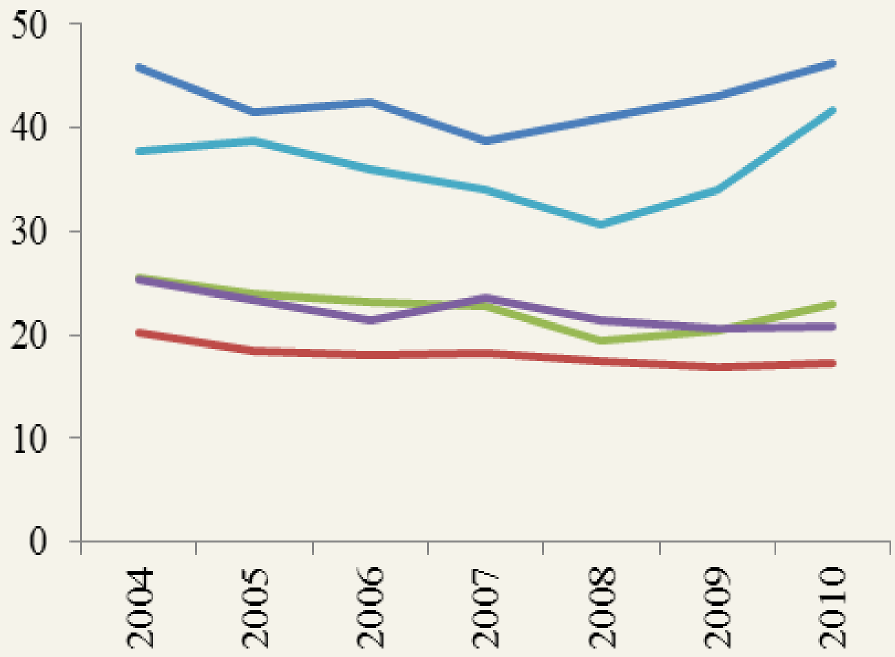
E_t - bank equity in t,

$(E_t + E_{t-1}) / (A_t + A_{t-1})$ denotes CAR in t;

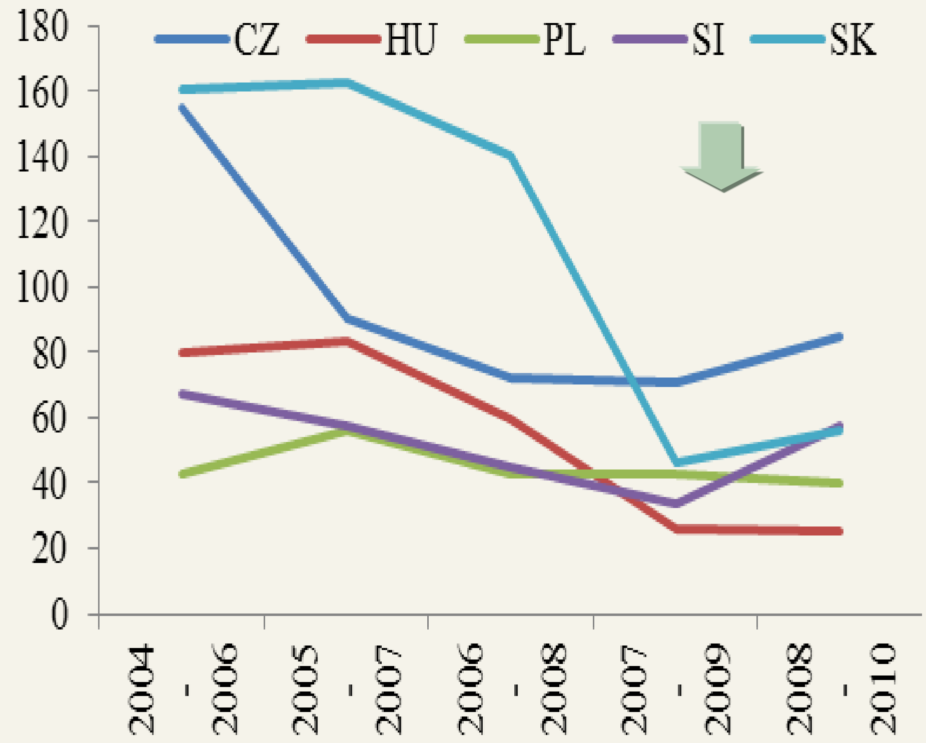
n – number of researched periods (years).

Z-Score for banks in CEE-5 countries

1) calculated for the period: 2004-2010



2) averaged for 3 years rolling windows



Source: own analysis.

Conclusions

CEE banks entered the crisis in good shape, after the successful restructuring of the 1990s and boom years after EU accession

- **Macro-risks:** banking sector in CEE-5 cs has remained relatively small and bank concentration is low, posing low threat of a systemic risk

- **Micro-risks:** the crisis has demonstrated the virtues of the traditional intermediation bank business model conducted in a relatively competitive bank environment