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

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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

Dotted line indicates authority to request information, but no examination authority to request information, but no examination authority State Regulatory Authorities and AG's Green indicates new agency Financial Stability Oversight Council or new powers and authornit Identify risks to the financial stability of the U.S. from activities of large, interconnected financial companies. Authority to gather enformation from financial institutions. Make recommandations to the Fed and other primary financial regulatory agencies regarding heightened prudential standards. Power to enforce rules Gold indicates old agency promulcated by Bureau of Consumer Financial Protection OFAC / **FinCEN** Federal Reserve SEC CFTC FDIC Office of the Comptroller Office of Financial Focus on safety and Focus on protecting deposits of the Currency Research soundness-Supervisor f through insurance fund; safety Regulates securities Market oversight or bank holding companies: Office within Treasury which may collect data from financial institutions on behalf of Council. No examination authority exchanges; mutual and soundness; manage bank and enforcement Focus on safety and monetary policy: funds and investment receiverships. functions. soundness. Primary payment systems advisers. Examination regulator of national Authority over Supervisor for systemically Examination authority² authority for banks and federal savings swaps, swap dealers important financial Orderly liquidation of broker-dealers associations. Examination and major swap institutions and their systemically important authority. Examines loan Authority over participants. subsidiaries. financial institutions Regulates trading portfolio, liquidity, internal security-based Establish heightened controls, risk management swaps, security-based markets, clearing prudential standards on audit compliance, foreign swap dealers and organizations and its own and based an branches. major security-based intermediaries council recommendations. swap participants Examination authority. Bureau of Consumer FINRA Financial Protection Focus on protecting Regulates brokerage consumers in the financial firms and registered products and services securities representatives. markets. Authority to Writes and enforces write rules, examine institu rules. Examination tions and enforcement. No authority over securities prudential mandate. firms. Commercial Broker-dealer Investment Derivates Consumer Retail Alternative Investment Payment Lending Lendina and Clearing investments Institutional Advisory Futures. Banking Banking and retail Systems commodities Credit cards; student and auto loans Commercial and industrial lending Hedge funds: Mutual and Securities Deposit and privare equity securities Payments processing; custody and clearing money market derivatives products underwriting ending; prime mortgages and home M&A financia funds; wealth Management: trust services proker services advisory services

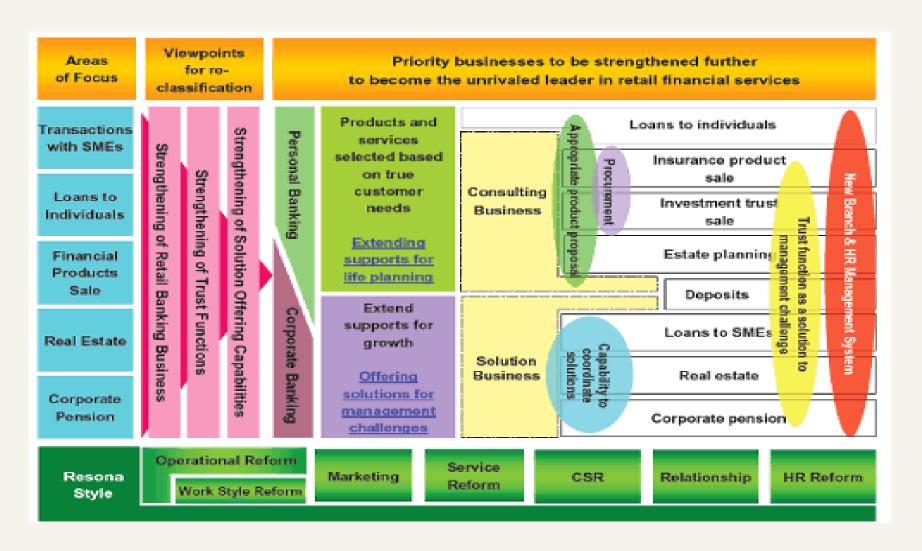
This chart assumes activities are conducted a systematically important bank holding company (BHC)
1 The Council, through Office of Financial research, may request report from systematically important BHCs
2 FDIC may conduct exams of systematically important BHCs for puposes of implementing its authority for
order liquidations, but may not examine those in generally sound condition.

3 The Dodd-Frank Act expanded the FDIC's authority when liquidating a financial institution to include
the bank holding company, not just entitles that house FDIC-insured deposits.

Note: Green lines from SEC anf CFTC represent enhanced authority over existing relationships

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.

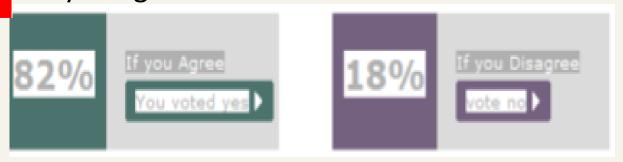
M. Draghi:

"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

Should big banks be broken up? **Economist** Do you agree with the motion?

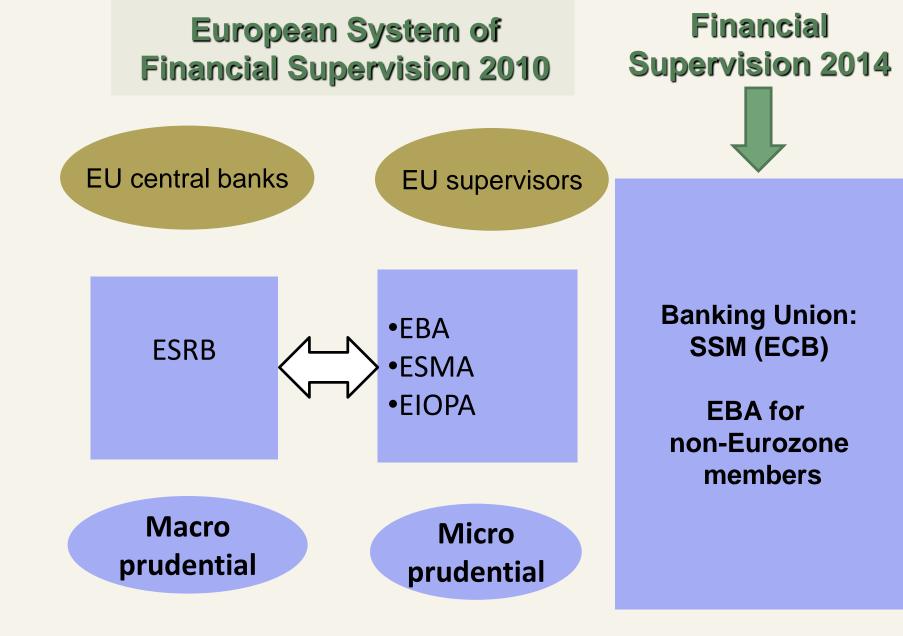


Too big to fail

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.

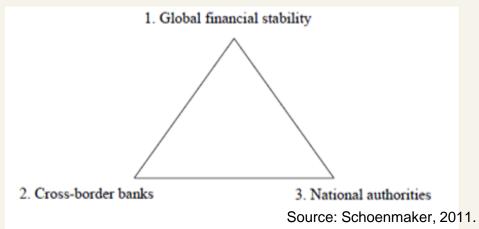


What reforms do we already have in the EU?

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:



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.

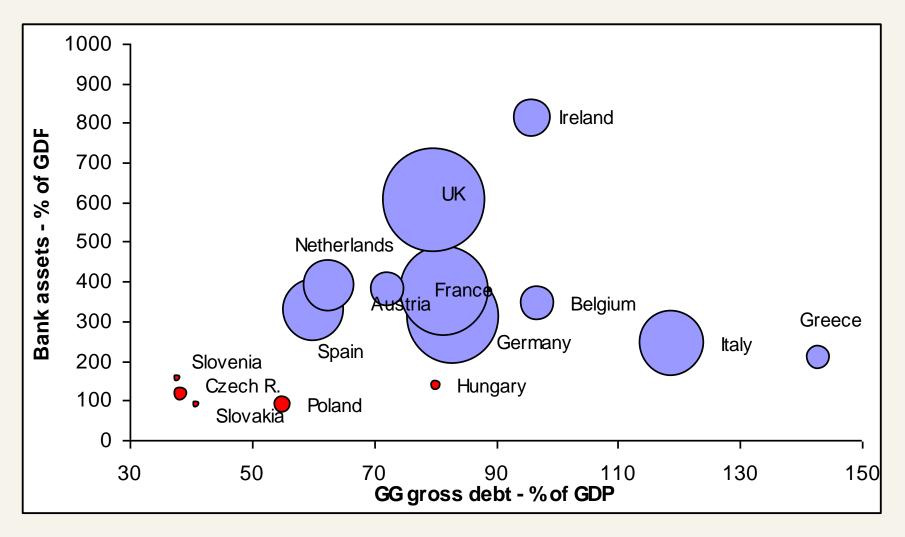
This alternative disregards the diverse structures of the EU banking systems;

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

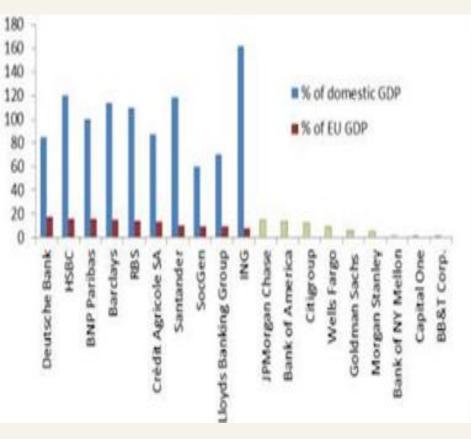
Bank business models: globally and in Poland

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

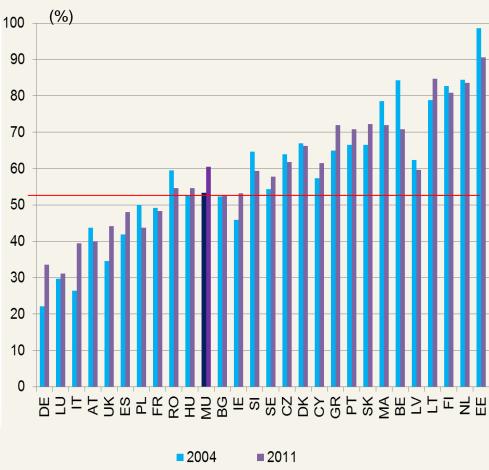
The size of banking sector (2009) vs. general government debt (2010) in selected EU and CEE countries



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



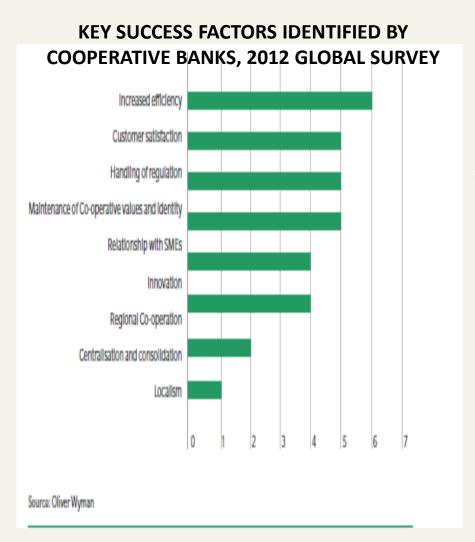
Bank concentration in the EU, CR5 for 2004 and 2011

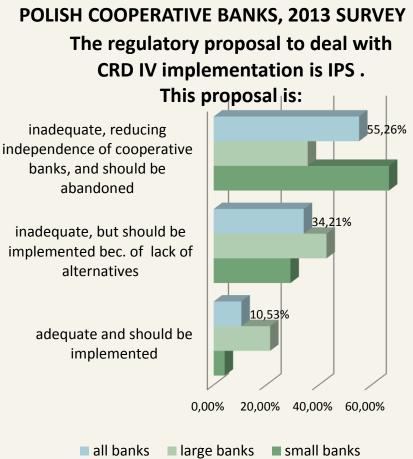


Source: own analysis, ECB data.

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





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 subperiods: 2002-2007 (H₁), 2008-2009 (H₂)
 - ✓ 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: (y₁) total loans net, (y₂) liquid assets, (y₃) 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

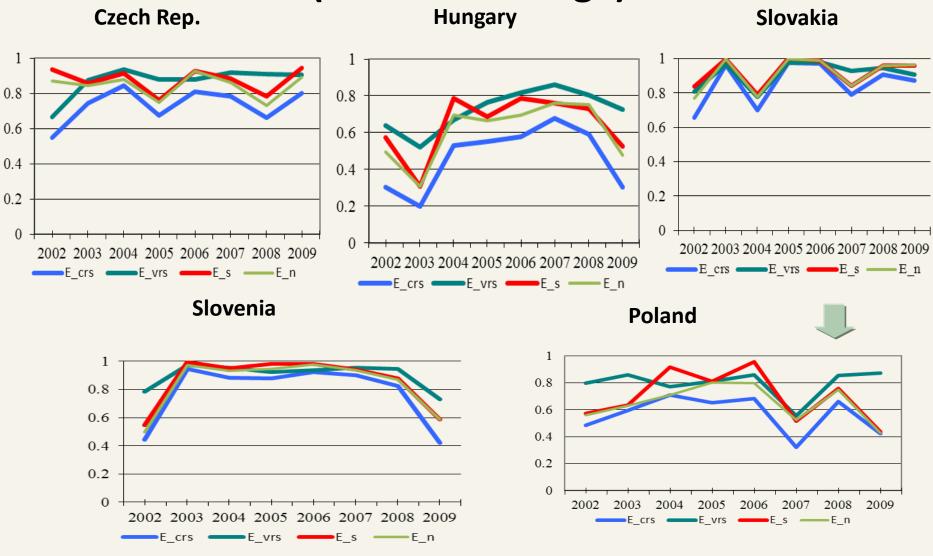
Efficiency measures (e_vrs) of CEE-5 countries



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	0.67	0.88	0.94	0.88	0.88	0.92	0.91	0.90	27
CEE-5									

Source: own analysis.

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



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

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

• II – dependent variable	(II/TA) - interest income/total assets or (II) - interest income				
• w _I – 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)				
• c _i - constant , e _{it}	constant, error				

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

Estimations results with		Dependent variable: Interest Income						
time interaction terms for overall sample:		Czech Republic	Hungary		Slovakia	Slovenia	Poland	
H ₁ 2002 – 2007		0.28	0.34		0.19	0.27	0.30	
H ₂	2008 – 2009	0.07	0.003		0.11	-0.012	0.09	
p(F-test)	$H_0: H_1 = H_2$	(0.037)	(0.000)		(0.612)	(0.034)	(0.002)	
Н	2002 – 2009	-0.25 ²	0.35 ¹		0.28 ¹	0.30 ¹	0.16 ²	
Estimation	Estimations results with		Dependent vari <mark>ab</mark> le: Interest In <mark>c</mark> ome/ Total As <mark>se</mark> ts					
time interaction terms for		Czech	Цирати		Slovakia	Slovenia	Poland	
overall sample:		Republic	Hungary		Siovakia	Sioveilla	Polatiu	
H ₁	2002 – 2007	0.48	0.85		0.85	0.44	0.83	
H ₂	2008 – 2009	0.38	0.98		0.76	0.39	0.44	
p(F-test)	$H_0: H_1 = H_2$	(0.290)	(0.526)		(0.276)	(0.851)	(0.003)	
Н	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: $H_0: H \le 0$ versus $H_1: H > 0$ and for perfect competition: $H_0: H = 1$ versus $H_1: H = 1$,

¹Null hypothesis H=0 and H=1 has been rejected at 1% significance level. ²Hypothesis 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

$$Z - score = \frac{\sum_{t=1}^{n} \frac{2\pi_{t}}{A_{t} + A_{t-1}}}{\sigma_{ROA}} + \frac{\sum_{t=1}^{n} \frac{E_{t} + E_{t-1}}{A_{t} + A_{t-1}}}{n} = \frac{ROA + CAR}{\sigma_{ROA}}$$
(2)

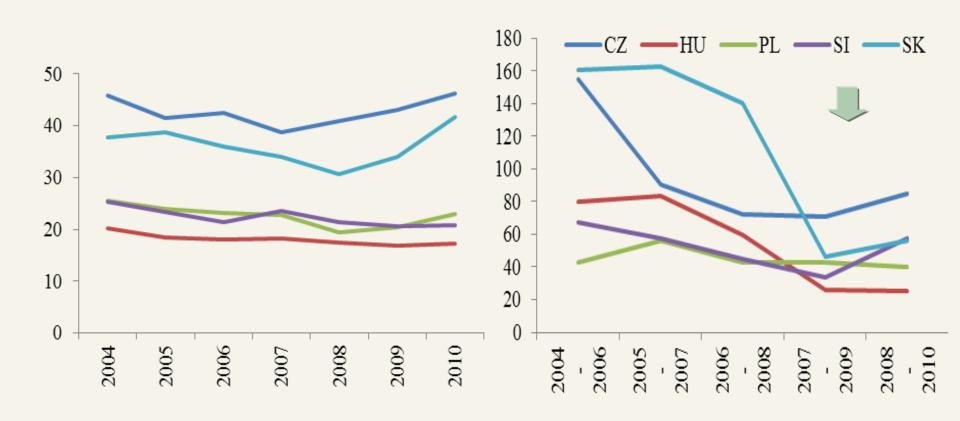
where:

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A_t – assets in a period t, \pi_t – net profit in t, 2\pi_t /(A_t + A_{t-1}) denotes the average value of ROA in t; \sigma_{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