

**SIBR-Thammasat Conference on  
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**Macroeconomic stability and foreign bank  
competition: South East Europe and Macedonia.**

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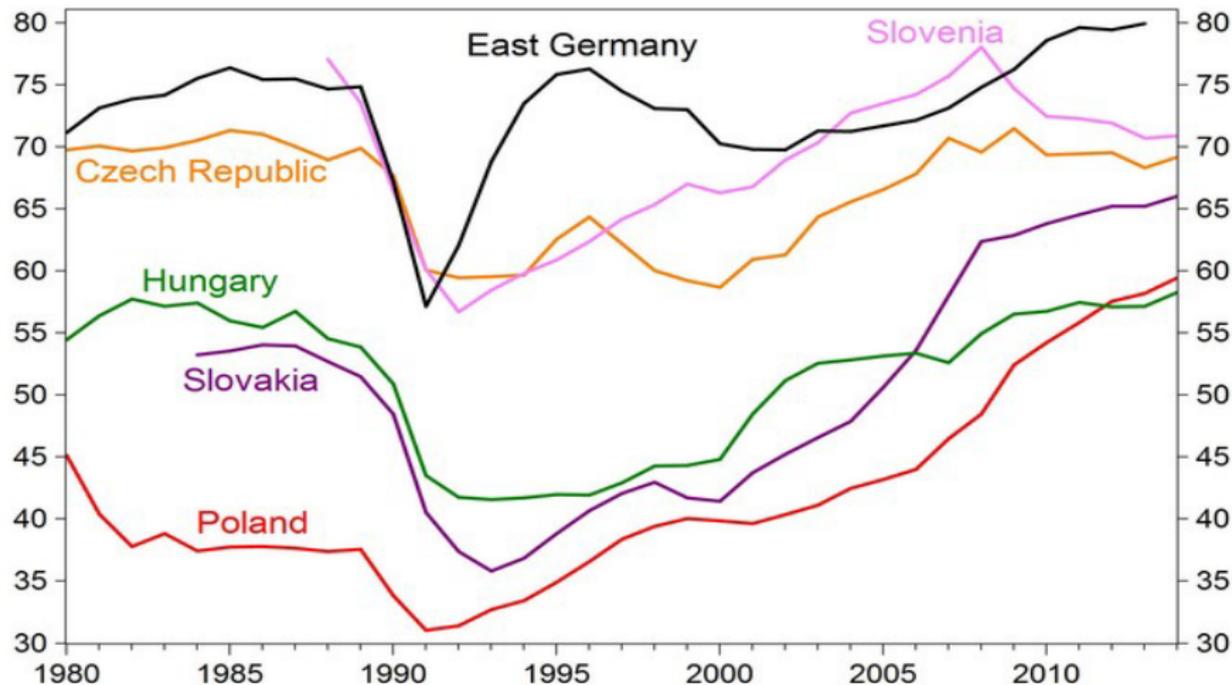


**25+ years of economic  
and banking reforms in  
Eastern Europe**

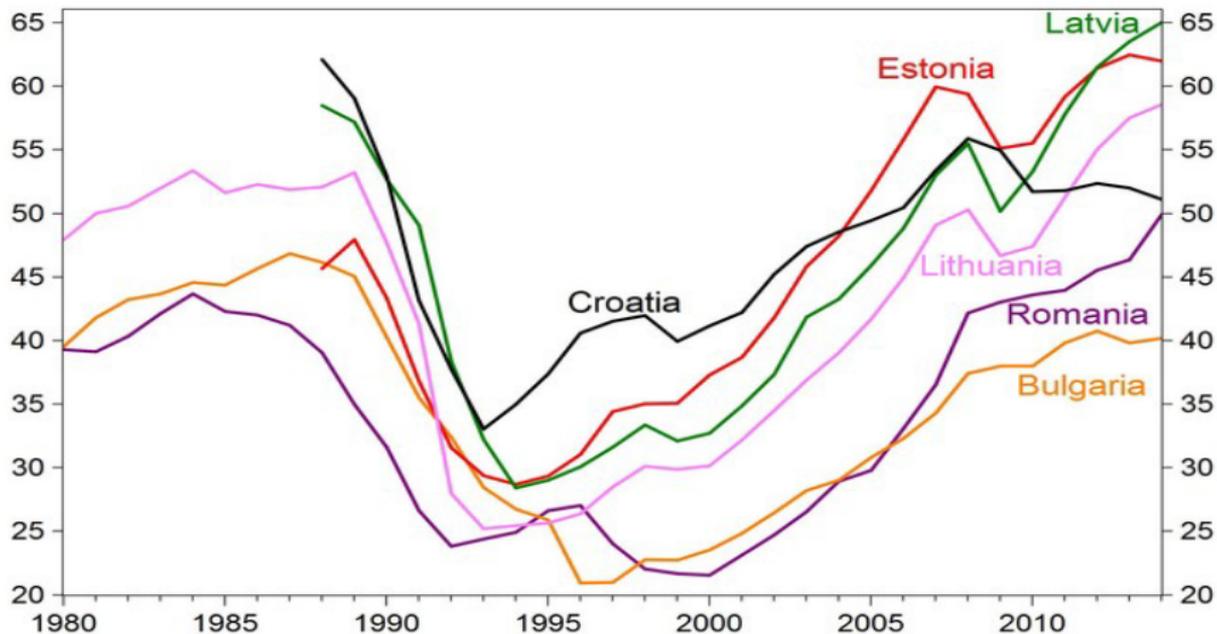
## Reforms Strategies

Sustained Big-Bang	Advanced Start/Steady	Aborted Big-Bang
Estonia	Croatia	Albania
Latvia	Hungary	Bulgaria
Lithuania	Slovenia	Macedonia
Czech Republic		
Poland		
Slovakia		

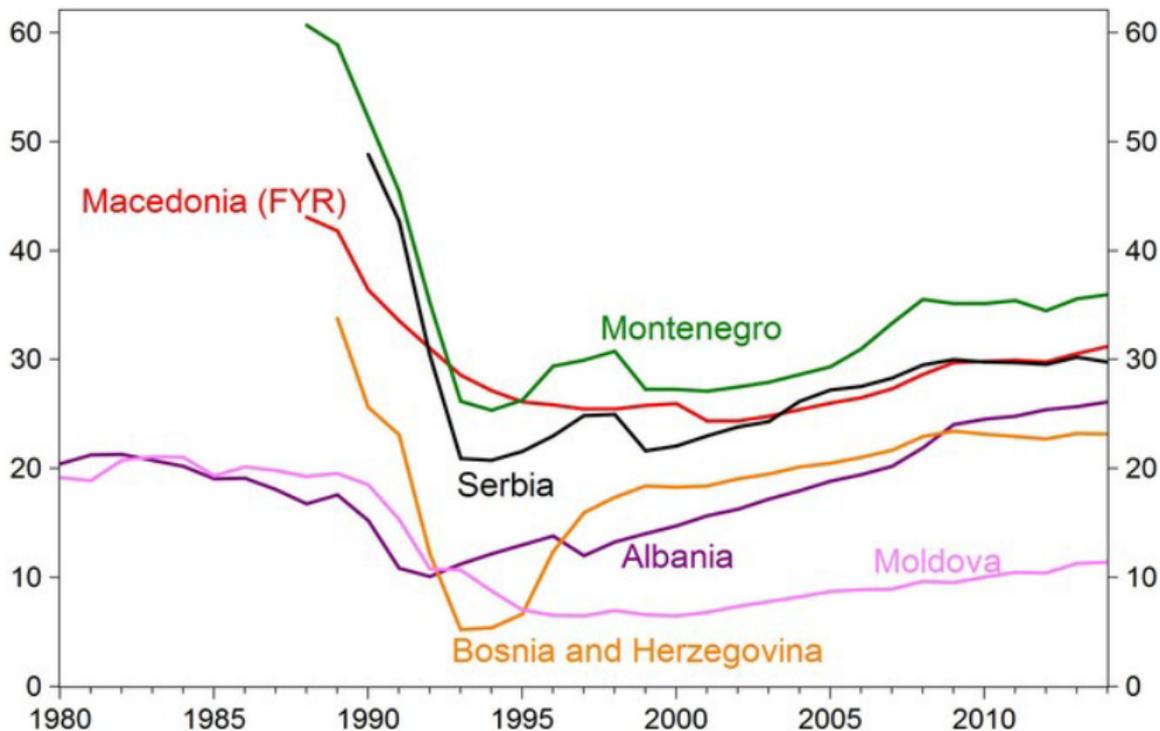
# GDP per capita at purchasing power parity (% of 10 advanced EU countries), 1980-2014



# GDP per capita at purchasing power parity (% of 10 advanced EU countries), 1980-2014



# GDP per capita at purchasing power parity (% of 10 advanced EU countries), 1980-2014



# Banking Systems



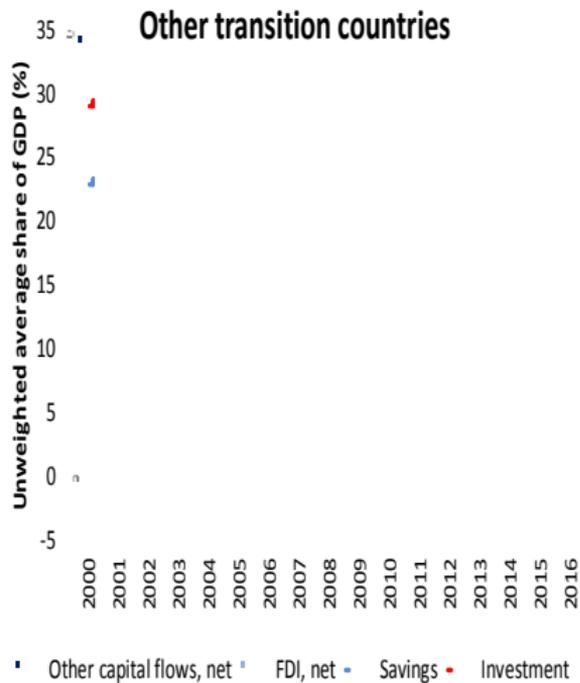
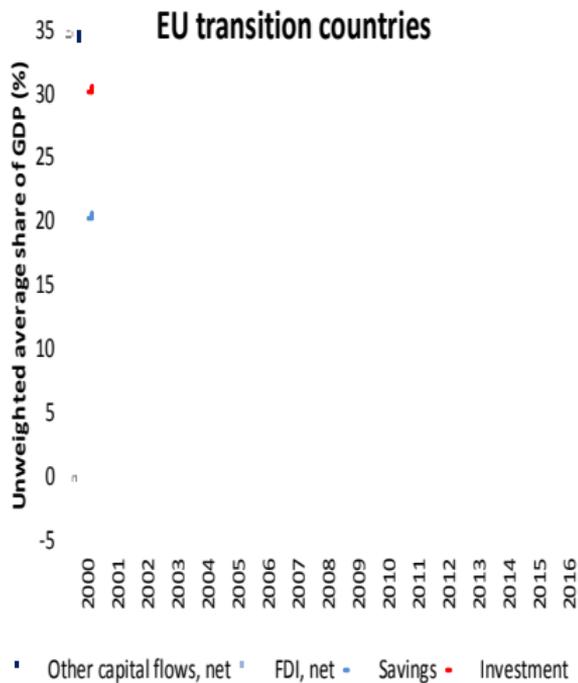
Evidence that **different transitional paths** of financial markets development lead to a very **similar financial architecture**.

State-owned and domestic commercial banks played the key role in terms of credit allocation and from the early 2000s foreign owned banks that provided mostly short-term credits to government and blue chip companies.

SMEs were mostly financed or had to be financed from the retained earnings.

Capital market remained illiquid and highly volatile. FDI remained the only source for financing long-term capital investment.

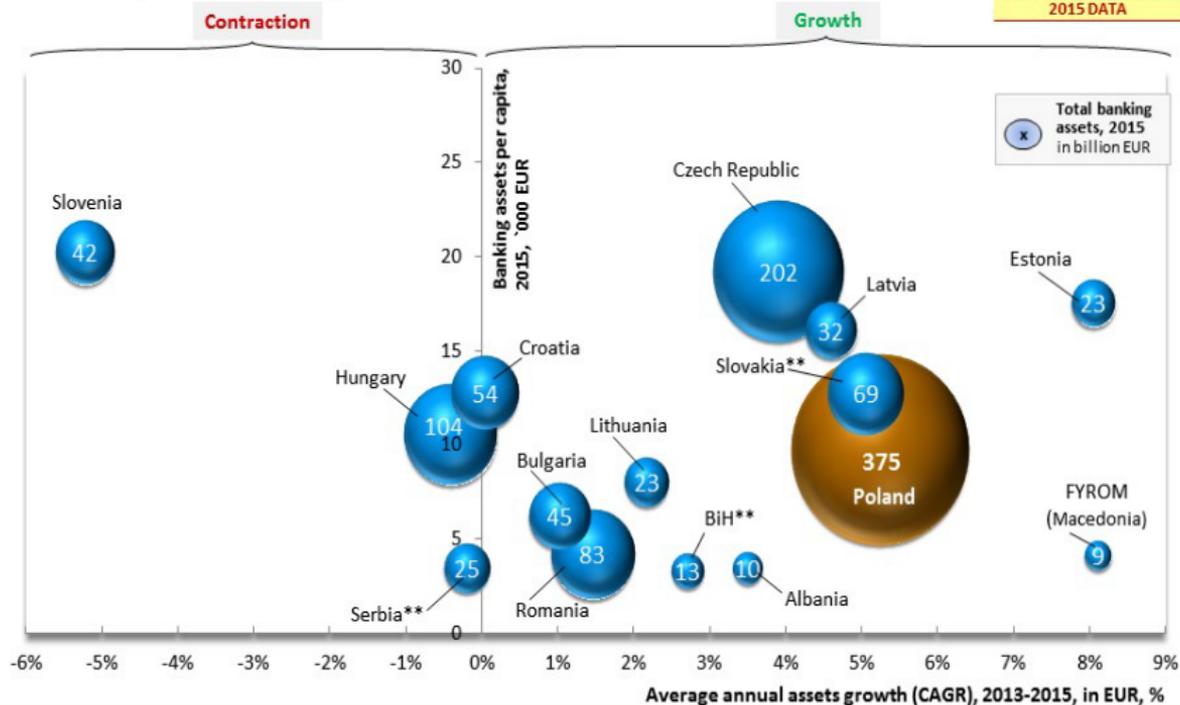
# Source of Financing



# POLAND HAS THE LARGEST BANKING MARKET IN CEE15\*

CEE15\* banking markets - Size vs. growth matrix, 2013-2015

BASED ON PRELIMINARY  
2015 DATA



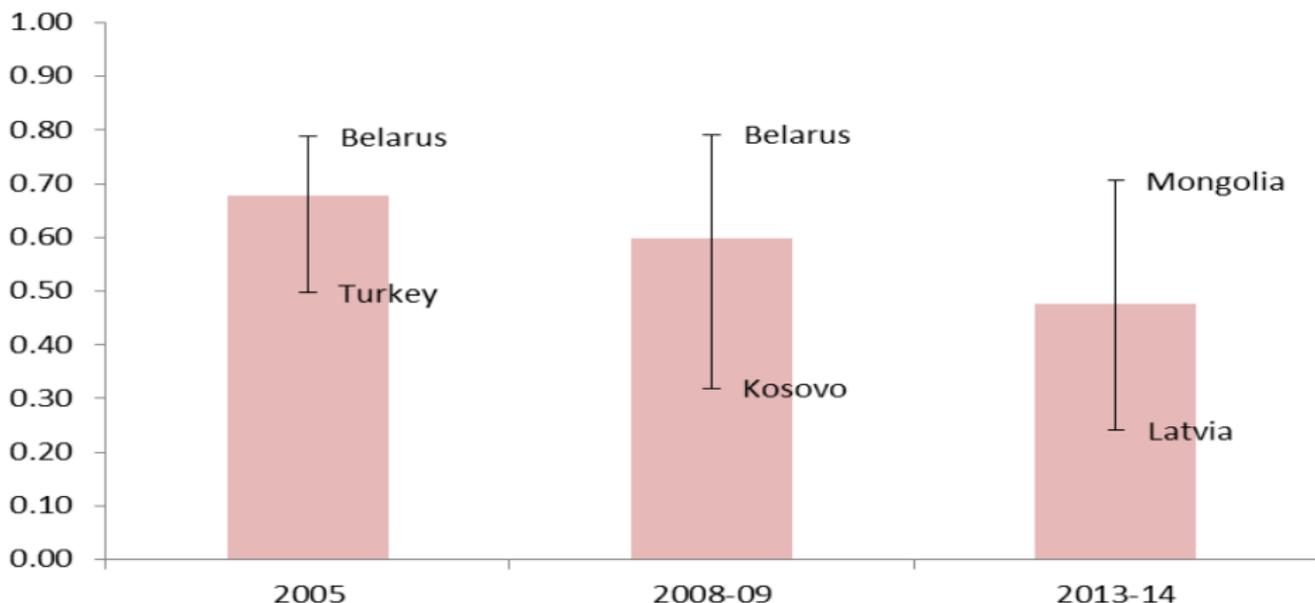
\* Major 15 CEE countries. Russia, Ukraine and Belarus not included

\*\* Assets as of Q3 2015

Source: Central banks, IMF, Inteliace Research

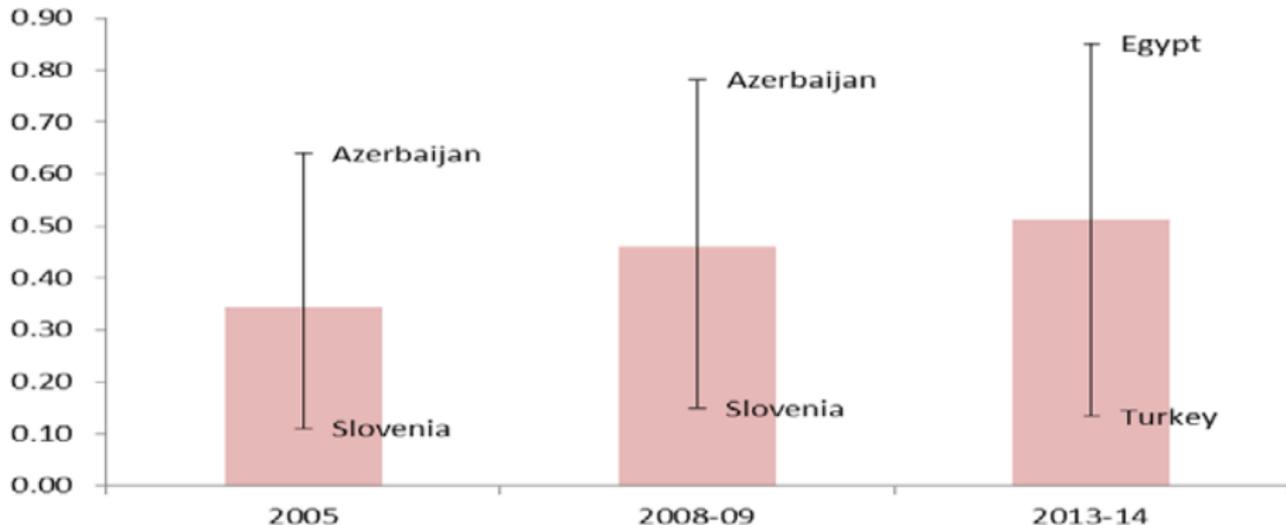
Over the past 10 years the **demand for bank credit** has declined among SMEs (across the EBRD region) and this fact reflects that in an environment of slow economic growth fewer firms needed loans to expand their production capacity.

### Share of firms that need a loan

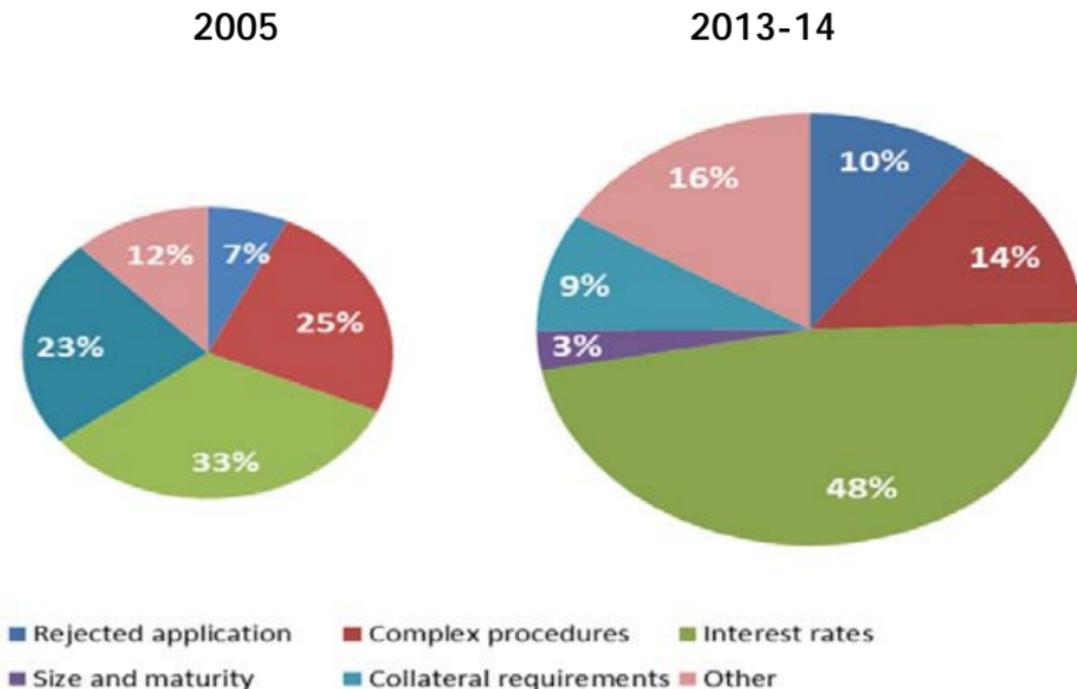


The **supply of bank credit**: credit-constrained firms were either rejected when they applied at a bank or were discouraged from applying. The percentage of credit-constrained firms in the EBRD region increased significantly during the global financial crisis, from 34% in 2005 to 46% in 2008-09.

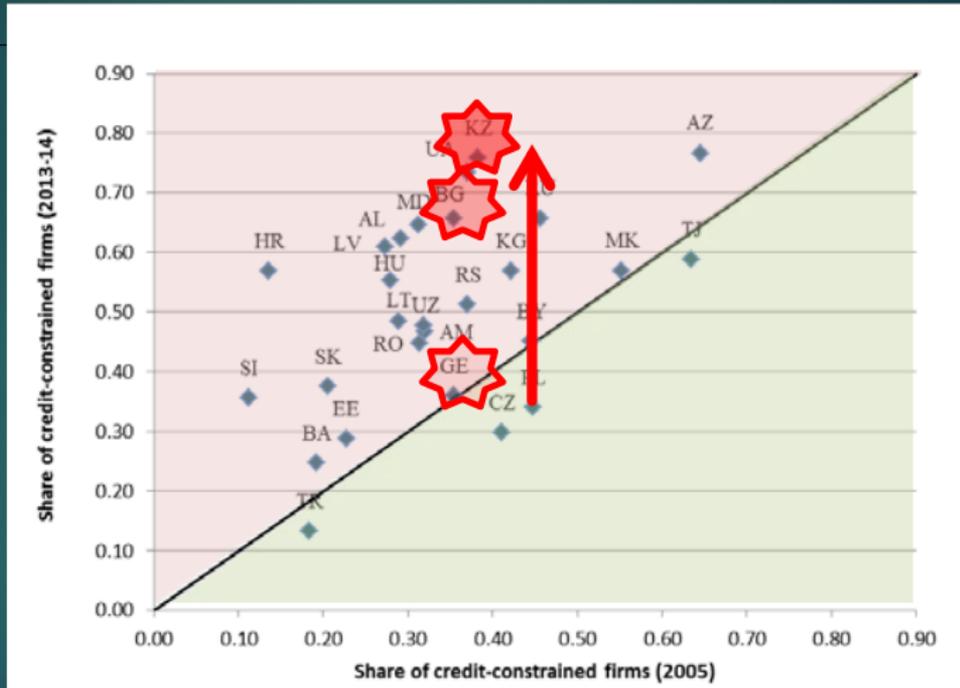
### Share of firms that are credit constrained



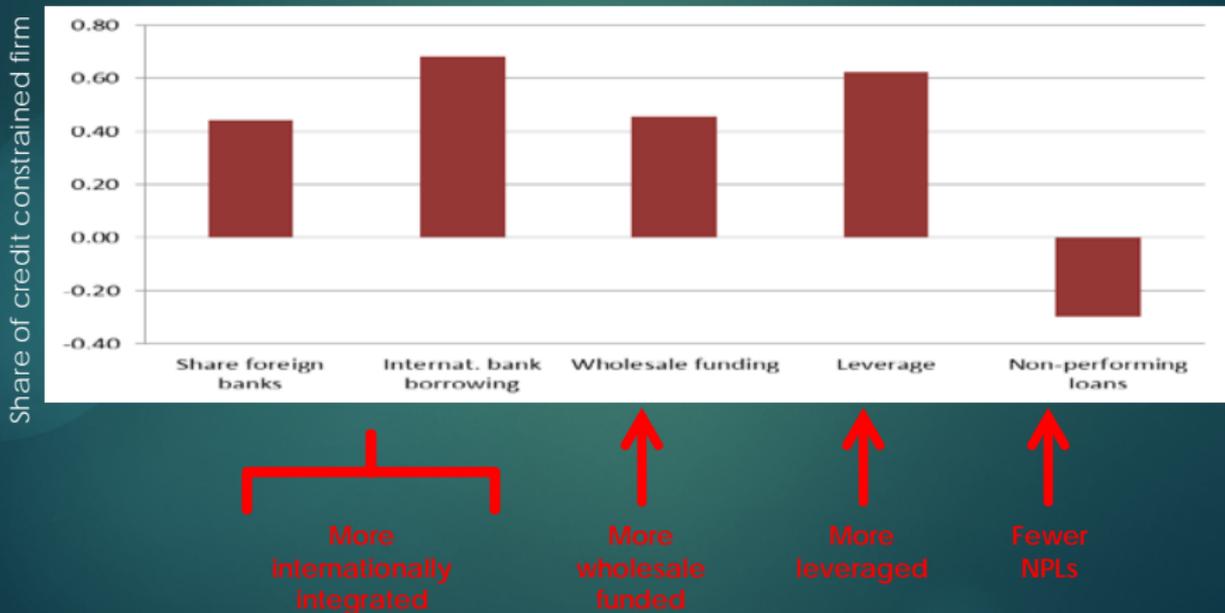
A large share of firms are credit constrained (or discouraged from applying) ... they think the interest rates they will be charged are prohibitively high, application procedures are far too complex or collateral requirements too high.



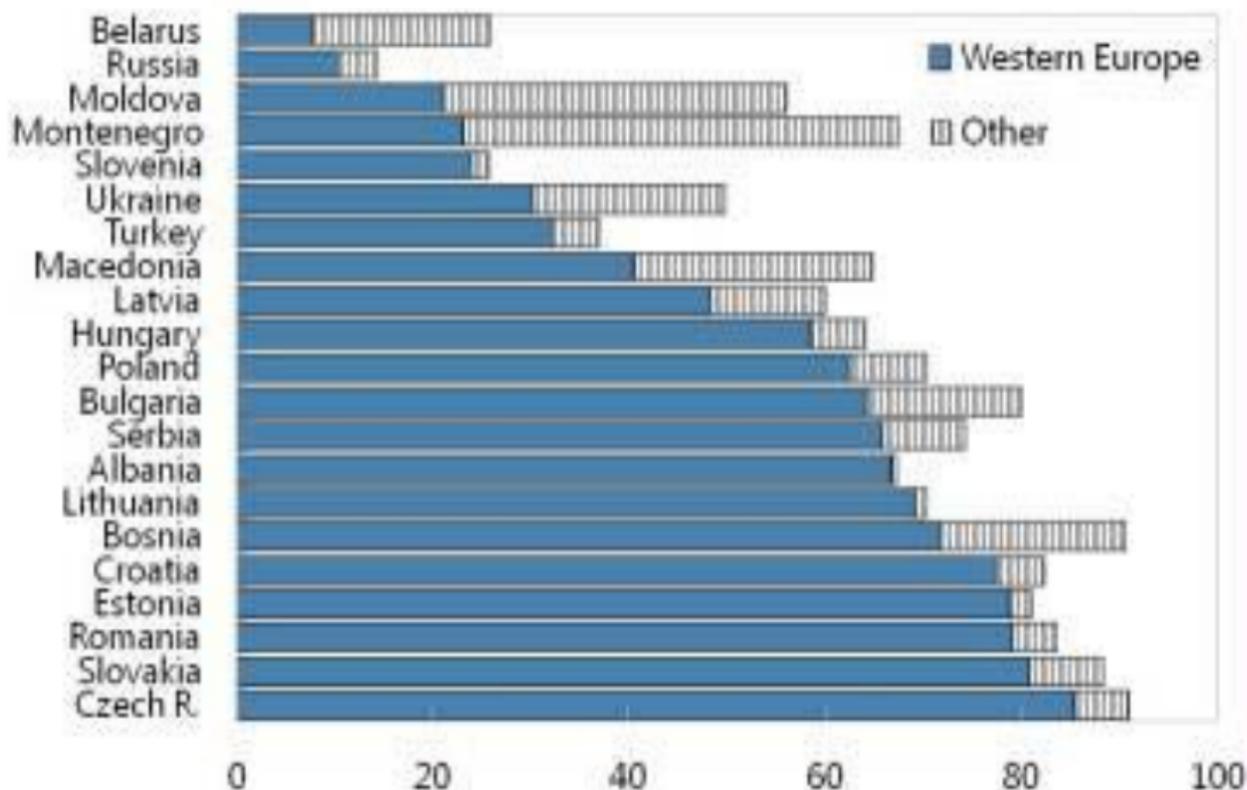
Significant cross-country variation in the tightening of credit constraints: e.g., Croatia (from 14 to 57%), Kazakhstan (from 38 to 76%), and Ukraine (from 37 to 73%).



For all EBRD countries that were part of the 2005 BEEPS survey the correlation between the country's size of the banking system (as a % of GDP) and various characteristics of banking models. Before the crisis, countries with a higher proportion of foreign banks, a higher dependence on cross-border bank funding, more use of wholesale as compared to deposit funding, and fewer NPLs were the countries that managed to create the largest banking sectors.



## Europe's Emerging Economies: Market Share of Foreign Banks



# NPLs

# NPLs



The high NPL countries are mostly characterised by weak credit growth, high leverage and poor overall economic performance, in turn providing low prospects for corporates and households to grow out of debt. The deeply-rooted NPL problem requires further reforms to support accelerated NPL resolution and economic growth.

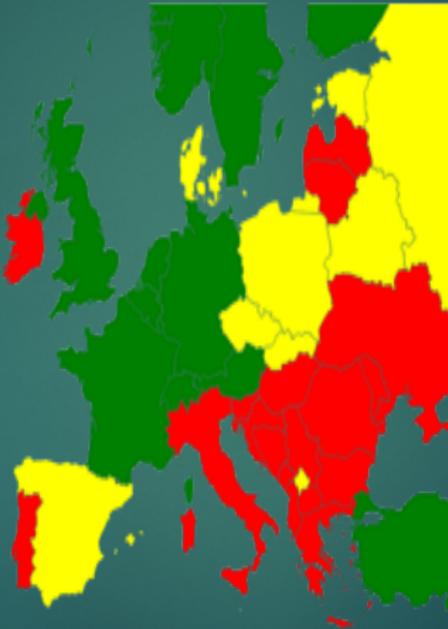
## Non-performing Loan Ratios, 2008–2014

**Green** = less than 5% ; **Yellow** = between 5 and 10% ; **Red** = above 10%

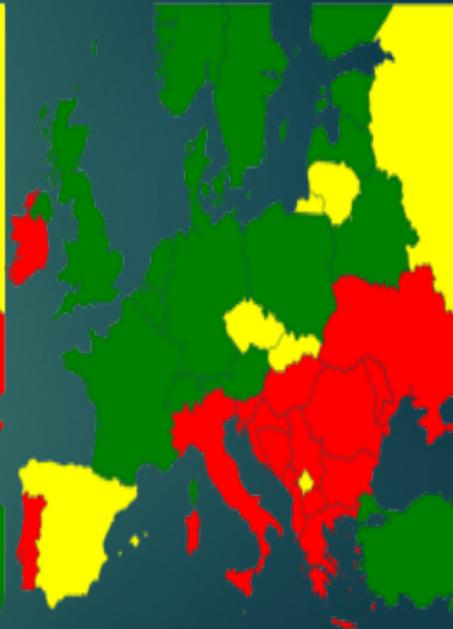
2008



Post-crisis Peak



2014



# NPLs in the region: 2016

- Hungary, Macedonia and Slovenia have managed to reduce their NPL ratio below the 10% threshold since December 2015.
- NPL ratios (as a proportion of NPLs to total gross loans) remain persistently high, exceeding 10% in 7 of the 18 CESEE countries.
- The NPL ratios across the CESEE was 7.1%, a 0.8 percentage-point decrease since June 2015. Of the 18 countries comprising the CESEE, 16 have seen a decrease in their NPL ratio when compared to the same period in 2015.
- Across the CESEE the NPL coverage ratio (measured as the proportion of loan-loss provisions to NPLs) has remained stable at 61.2% in June 2016 (vs 61.1% in June 2015). Kosovo, Latvia, and Macedonia have the highest NPL coverage ratio at 90.5%, 82.6% and 80.4% respectively, with Latvia recording the fourth largest increase (+6.1 percentage point).

## Overview of the NPL profile of the CEE, 30 June 2015 to 30 June 2016

Country	NPL volume (€ bn)		NPL ratio (%)		NPL coverage ratio		Net NPL ratio (%)		Net NPL / Capital (%)		Market Share NPLs (%)		Market Share Loans (%)	
	Jun-16	Variation(%)	Jun-16	Δ(pp)	Jun-16	Δ(pp)	Jun-16	Δ(pp)	Jun-16	Δ(pp)	Jun-16	Δ(pp)	Jun-16	Δ(pp)
Albania (AL)	0.9	▼ (2.4)	20.0	▼ (1.0)	65.9	▼ (2.9)	6.8	▲ 0.3	30.4	▼ (0.4)	1.7	▲ 0.1	0.6	↔ 0.0
Bosnia & Herzegovina (BA)	1.0	▼ (13.0)	12.1	▼ (2.0)	73.2	▲ 3.1	3.2	▼ (1.0)	20.3	▼ (6.3)	1.9	▼ (0.1)	1.1	▼ (0.0)
Bulgaria (BG)	5.7	▲ 19.8	20.6	▲ 3.9	48.8	▼ (0.7)	10.6	▲ 2.1	52.1	▲ 8.6	10.8	▲ 2.5	3.7	▼ (0.2)
Croatia (HR)	5.3	▼ (16.4)	14.8	▼ (2.3)	65.7	▲ 7.9	5.1	▼ (2.1)	25.7	▼ (10.8)	10.0	▼ (1.0)	4.8	▼ (0.3)
Czech Republic (CZ)	6.1	▼ (4.3)	5.0	▼ (0.5)	45.2	▼ (0.9)	2.7	▼ (0.2)	21.2	▼ (2.1)	11.6	▲ 0.5	16.5	▲ 0.4
Estonia (EE)	0.2	▼ (14.8)	1.0	▼ (0.3)	26.9	▼ (0.7)	0.7	▼ (0.2)	5.1	▼ (2.3)	0.3	▼ (0.0)	2.4	▲ 0.2
Georgia (GE)	0.2	▲ 18.0	3.7	▲ 0.3	52.9	▲ 3.5	1.7	▲ 0.0	7.8	▲ 0.7	0.4	▲ 0.1	0.9	▲ 0.0
Hungary (HU)	4.5	▼ (22.4)	10.0	▼ (2.6)	69.6	▲ 1.2	3.0	▼ (0.9)	14.6	▼ (6.2)	8.5	▼ (1.5)	6.1	▼ (0.3)
Kosovo (KV)	0.1	▼ (14.3)	6.2	▼ (1.1)	90.5	▼ (1.8)	0.6	▲ 0.0	3.0	▼ (0.1)	0.2	▼ (0.0)	0.3	↔ 0.0
Latvia (LV)	0.8	▼ (23.1)	3.8	▼ (0.9)	82.6	▲ 6.1	0.7	▼ (0.5)	4.3	▼ (3.4)	1.5	▼ (0.3)	2.7	▼ (0.2)
Lithuania (LT)	0.9	▼ (16.5)	5.5	▼ (1.6)	44.4	▼ (0.7)	3.1	▼ (0.9)	27.0	▲ 0.5	1.7	▼ (0.2)	2.3	▲ 0.1
FYR Macedonia (MK)	0.3	▼ (30.8)	7.2	▼ (3.8)	80.4	▼ (4.0)	1.4	▼ (0.3)	8.3	▼ (1.7)	0.6	▼ (0.2)	0.6	▲ 0.0
Montenegro (ME)	0.3	▼ (24.9)	11.7	▼ (3.9)	51.7	▲ 6.7	5.7	▼ (2.9)	27.5	▼ (17.3)	0.5	▼ (0.1)	0.3	▼ (0.0)
Poland (PL)	11.9	▼ (7.9)	4.3	▼ (0.4)	70.0	▲ 1.7	1.3	▼ (0.2)	9.8	▼ (1.9)	22.7	▲ 0.1	37.3	▼ (1.0)
Romania (RO)	6.6	▲ 9.7	11.3	▼ (1.5)	55.6	▼ (13.4)	5.0	▲ 1.0	35.4	▲ 11.9	12.5	▲ 2.0	7.9	▲ 1.4
Serbia (RS)	3.3	▼ (9.9)	20.2	▼ (2.6)	65.1	▲ 9.0	7.0	▼ (3.0)	22.1	▼ (8.3)	6.2	▼ (0.1)	2.2	▼ (0.0)
Slovakia (SK)	2.3	▼ (4.5)	4.8	▼ (0.6)	55.4	▲ 3.1	2.1	▼ (0.4)	13.9	▼ (1.8)	4.3	▲ 0.2	6.5	▲ 0.3
Slovenia (SI)	2.3	▼ (36.4)	8.0	▼ (3.5)	69.8	▲ 5.9	2.4	▼ (1.7)	17.2	▼ (15.2)	4.4	▼ (1.9)	3.9	▼ (0.4)
CESEE	52.6	▼ (8.2)	7.1	▼ (0.8)	61.2	▲ 0.1	2.8	▼ (0.3)	12.8	▼ (1.6)	100.0	↔ 0.0	100.0	↔ 0.0
Cyprus	26.9	▼ (5.7)	47.0	▲ 2.3	36.5	▲ 3.4	29.8	▼ (0.1)	257.0	▼ (15.1)	-	-	-	-
Greece	86.6	▼ (1.5)	37.0	▲ 3.6	67.8	▲ 2.1	11.9	▲ 0.4	82.3	▼ (54.2)	-	-	-	-
Ukraine	14.1	▲ 0.7	30.4	▲ 6.1	65.8	▼ (5.5)	10.4	▲ 3.4	93.6	▼ (1.4)	-	-	-	-
Grand Total	180.2	▼ (4.1)	16.7	▼ (0.2)	61.0	▲ 1.3	6.5	▼ (0.3)	34.2	▼ (6.0)	-	-	-	-

## Overview of the NPL profile of the CEE, 30 June 2015 to 30 June 2016<sup>9, 10, 11, 12, 13, 14</sup>

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Bulgaria (BG)	5.7	▲ 19.8	20.6	▲ 3.9	48.8	▼ (0.7)	10.6	▲ 2.1	52.1	▲ 8.6	10.8	▲ 2.5	3.7	▼ (0.2)
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Czech Republic (CZ)	6.1	▼ (4.3)	5.0	▼ (0.5)	45.2	▼ (0.9)	2.7	▼ (0.2)	21.2	▼ (2.1)	11.6	▲ 0.5	16.5	▲ 0.4
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Latvia (LV)	0.8	▼ (23.1)	3.8	▼ (0.9)	82.6	▲ 6.1	0.7	▼ (0.5)	4.3	▼ (3.4)	1.5	▼ (0.3)	2.7	▼ (0.2)
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Montenegro (ME)	0.3	▼ (24.9)	11.7	▼ (3.9)	51.7	▲ 6.7	5.7	▼ (2.9)	27.5	▼ (17.3)	0.5	▼ (0.1)	0.3	▼ (0.0)
Poland (PL)	11.9	▼ (7.9)	4.3	▼ (0.4)	70.0	▲ 1.7	1.3	▼ (0.2)	9.8	▼ (1.9)	22.7	▲ 0.1	37.3	▼ (1.0)
Romania (RO)	6.6	▲ 9.7	11.3	▼ (1.5)	55.6	▼ (13.4)	5.0	▲ 1.0	35.4	▲ 11.9	12.5	▲ 2.0	7.9	▲ 1.4
Serbia (RS)	3.3	▼ (9.9)	20.2	▼ (2.6)	65.1	▲ 9.0	7.0	▼ (3.0)	22.1	▼ (8.3)	6.2	▼ (0.1)	2.2	▼ (0.0)
Slovakia(SK)	2.3	▼ (4.5)	4.8	▼ (0.6)	55.4	▲ 3.1	2.1	▼ (0.4)	13.9	▼ (1.8)	4.3	▲ 0.2	6.5	▲ 0.3
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CESEE	52.6	▼ (8.2)	7.1	▼ (0.8)	61.2	▲ 0.1	2.8	▼ (0.3)	12.8	▼ (1.6)	100.0	↔ 0.0	100.0	↔ 0.0
Cyprus	26.9	▼ (5.7)	47.0	▲ 2.3	36.5	▲ 3.4	29.8	▼ (0.1)	257.0	▼ (15.1)	-	-	-	-
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Grand Total	180.2	▼ (4.1)	16.7	▼ (0.2)	61.0	▲ 1.3	6.5	▼ (0.3)	34.2	▼ (6.0)	-	-	-	-

<sup>9</sup> Variation (%) is calculated as ((value period 1/value period 0) -1), with June 2016 as period 1 and June 2015 as period 0.

<sup>10</sup> Δ (pp) is the variation, expressed in percentage points, between 2 periods. It is calculated as (% period 1 - % period 0).

<sup>11</sup> Bulgaria: due to lack of data, it is assumed that June 2016 data are equal to December 2015 values.

<sup>12</sup> Kosovo: due to lack of data, it is assumed that June 2016 data are equal to December 2015 values.

<sup>13</sup> FYR Macedonia: when considering the regulatory changes from December 2015 (i.e. the amendments of the Credit Risk Management Regulation), the banks were required by the end of June 2016 to write off the credit exposures which have been fully provisioned longer than 2 years. Even though these exposures are transferred from on-balance to off-balance sheet, the banks should still take actions for recovery/collection of these claims. As a result, as of June 2016, the NPLs volume decreased by 30.8% yoy and the NPL ratio reduced to 7.2%.

<sup>14</sup> Cyprus: due to lack of data, it is assumed that June 2016 data are equal to March 2016 values.



# **Challenges: financial liberalization and foreign banks**



Debate over costs and benefits caused by financial liberalisation, and especially by substantial increasing of foreign bank participation *vis-a-vis* domestic banks.

Financial liberalization around the world is often viewed as two-edged sword. Foreign banker once had a nasty ring to it, like *carpetbagger* or *loan shark*.

Advocates of financial globalization believe that foreign banks can meet a wide capital demand and introduce advanced technology, new financial products and financial innovations.

# Foreign banks

Foreign banks exerted a positive effects on whole domestic banking sector, efficiency and competition.

A growing body of empirical studies has focused on foreign entry's impact on the profitability and efficiency of domestic banks as well as implications on net interest margin, asset productivity, overheads, non-interest income, loan losses etc.

The literature has document mixed results.

# Foreign banks

Foreign banking tended to be **more prevalent** in countries that were more open to foreign ownership of their banks, more open to banks engaging in a wider range of financial activities and more open to international trade.

By entering a new local market, foreign banks are faced with different environment. Legal, geographical, cultural and institutional differences across countries increase **entry costs and reduce** the participation of banks in foreign countries.

# Literature review

Bertus, Jahera and Yost (2008) suggest that countries with greater market discipline have a lower presence of foreign banks operating in their economy.

Chen and Liao (2011) show that GDP growth rate, country risk, regulatory quality and government effectiveness in host country significantly and negatively affect foreign bank profitability.

# Literature review

- In his cross country study, Zhu (2012) investigates managerial knowledge transfer from foreign to domestic banks in 12 Central Eastern European and 7 Latin American countries over the period from 1995 to 2006 by examining their managerial efficiency scores using both stochastic frontier approach (SFA) and data envelopment analysis (DEA). The main results from this research suggest that domestic banks' managerial performance is positively associated with foreign bank presence.
- Althammer and Haselmann (2011) document that the technological advantage of foreign banks combined with the unstable economic environment are the key factors to explain why most CEE markets are dominated by foreign banks.

# Literature review

According to Claessens, Demirgüç-Kunt and Huizinga (2001), who encompass 7900 bank observations from 80 countries for the 1988- 1995 period, foreign banks have higher profits than domestic banks in developing countries.

Green, Murinde and Nikolov (2004) investigate the efficiency of foreign and domestic banks in CEE. Using a panel regression with 273 foreign and domestic banks, they highlight that foreign banks outperform domestic banks in these economies.

# Literature review

Note that different market structure of banking sector has different influence of bank performance. The degree of contestable entry in the financial sector, together with competition from other forms of financial intermediation, has been an important determinant of the performance and efficiency of financial sectors. (Claessens, & Klingebiel, 2001)

# Current state of the banking sector in South East Europe

- ❖ Italian and Austrian banks have the most dominant presence (18% of the total banking assets, each).
- ❖ Greek (23%) and Slovenian (16%) banks are predominant in Macedonia.
- ❖ Greek banks are systemic in Macedonia (23%), Albania (17%) and Serbia (13%).
- ❖ The importance of French banks is greater in Montenegro (12%) and Serbia (10%); importance of the Slovenian banks is much greater in Kosovo (17%), Macedonia and Montenegro (16%), while the German Procredit Bank is the largest bank in Kosovo (30%).
- ❖ Turkish and Russian banks are the largest non-Eurozone banks (regional market shares of 6% and 2% respectively), with Turkish banks being systemic in Albania and Kosovo, and Russian Sberbank in Bosnia and Herzegovina.

# Banking reforms in Macedonia

Foreign ownership of banking systems ranges from over two-thirds in Macedonia to nearly 90% in Kosovo.

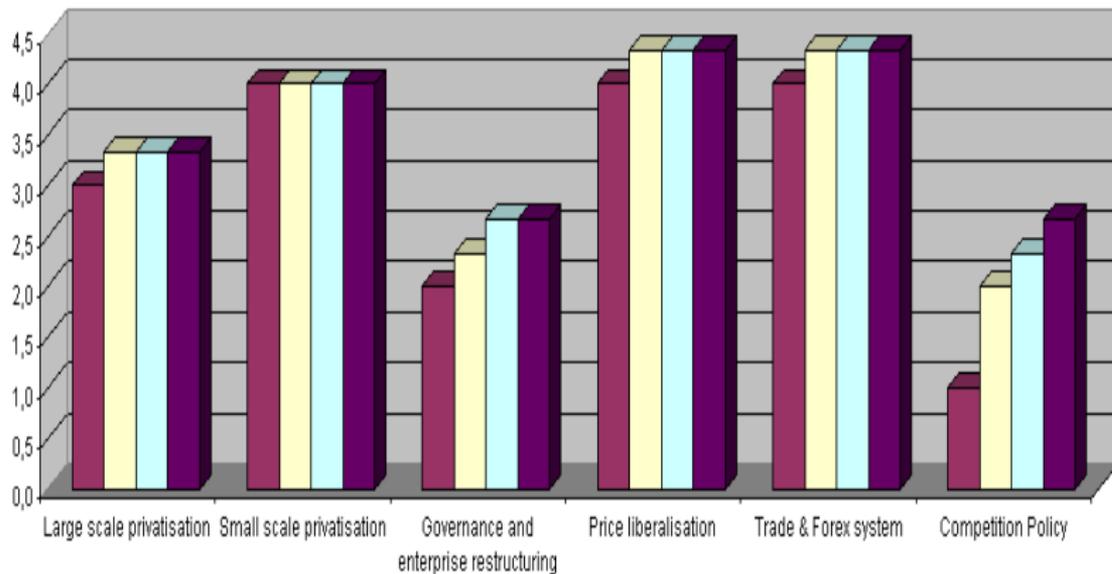
The banking system in Macedonia consists of 14 private banks, three savings houses, and the state-owned Macedonian Bank for Development Promotion.

Komercijalna Banka, Stopanska Banka Skopje, and NLB Tutunska Banka, hold 60% of the total assets in the banking sector. Seven banks have less than 3% each of total banking assets. The savings houses' share in total assets of deposit-taking institutions in 2015 was 0.6%, while their share in total loans was 0.8%.

Credit is still subject to significant collateral in the form of real estate, which often is appraised by the banks at lower than the market value.

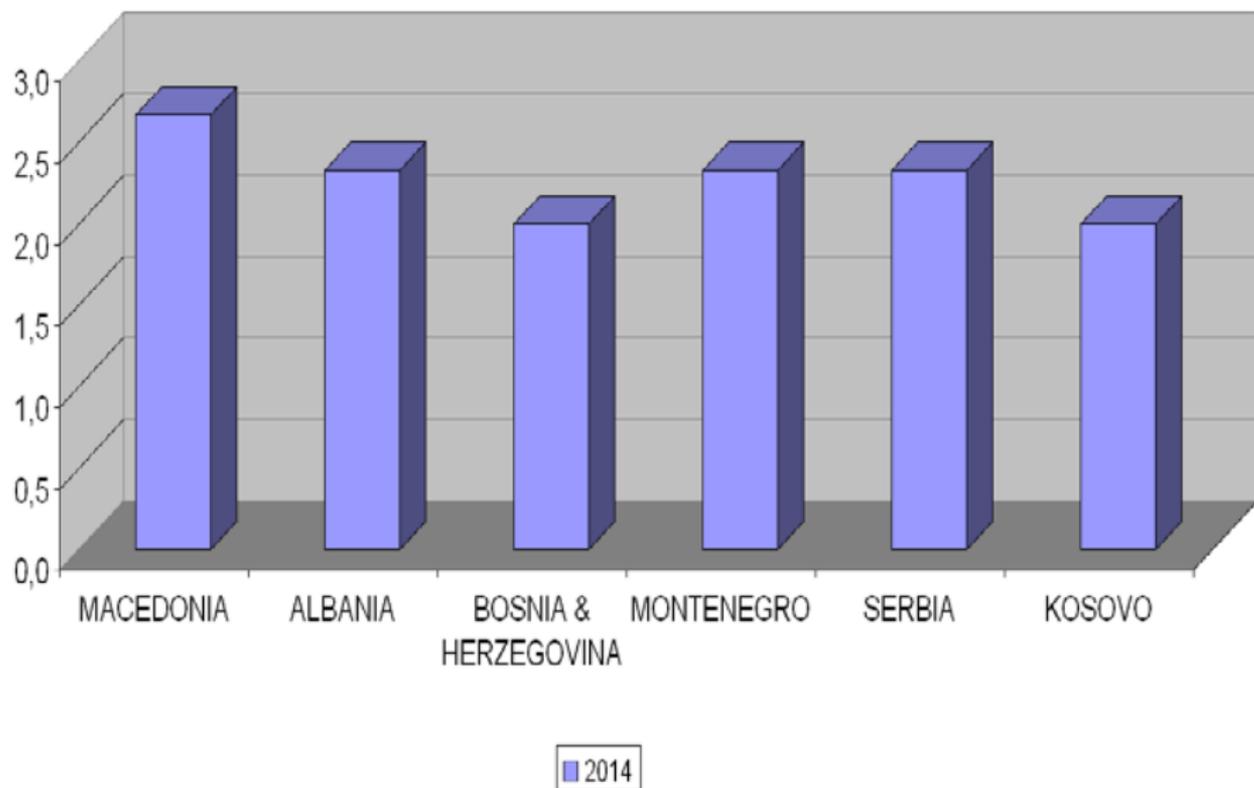
All banks in dominant foreign ownership were profitable, and they accounted for a large share of the total financial result of the banking system.

## MACEDONIA



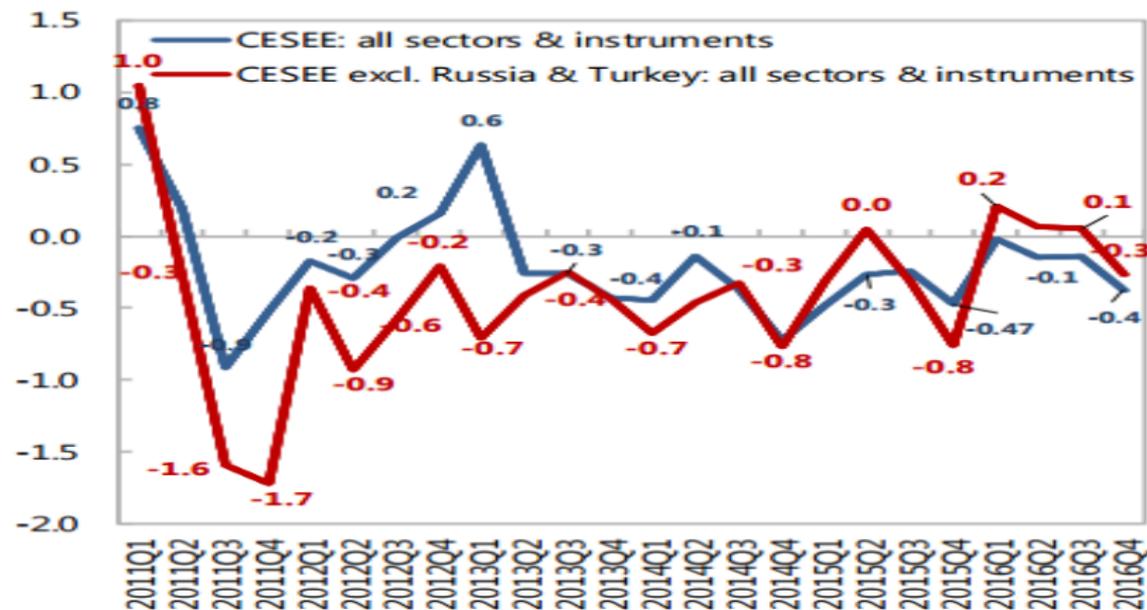
■ 1998   ■ 2005   ■ 2010   ■ 2015

## GOVERNANCE AND ENTERPRISE RESTRUCTURING



## Change in External Positions of BIS-reporting Banks, 2011Q1–2016Q4

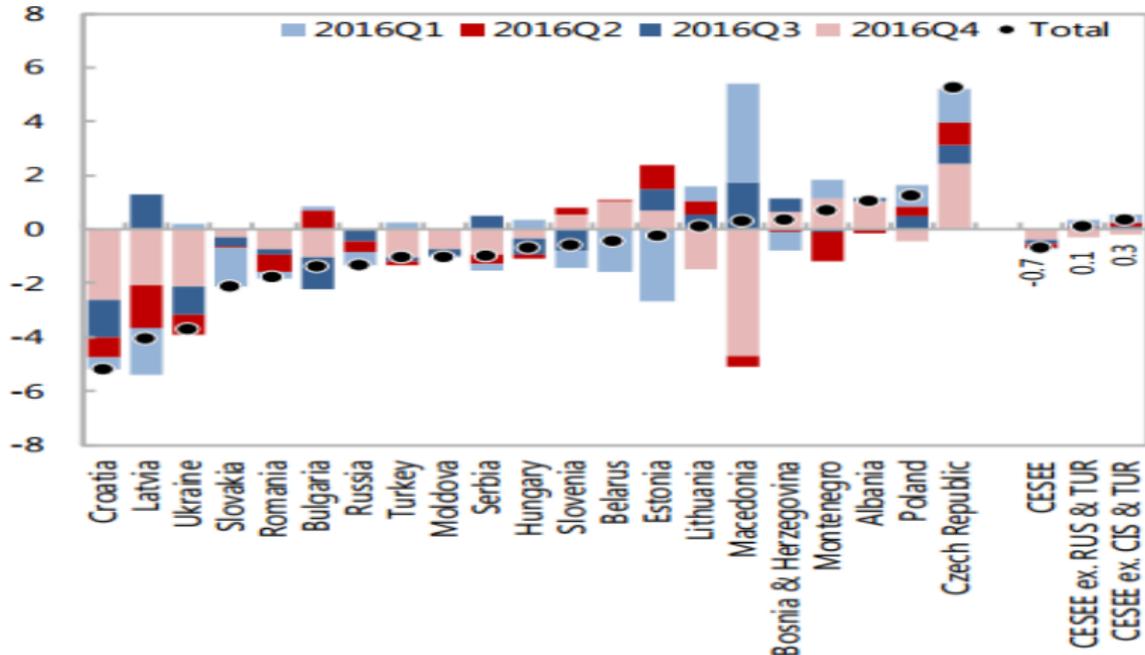
(Percent of 2016 GDP, exchange-rate adjusted)



Sources: BIS, Locational Banking Statistics; IMF, World Economic Outlook database; and IMF staff calculations.

## Change in External Positions of BIS-reporting Banks, 2015Q4–2016Q4

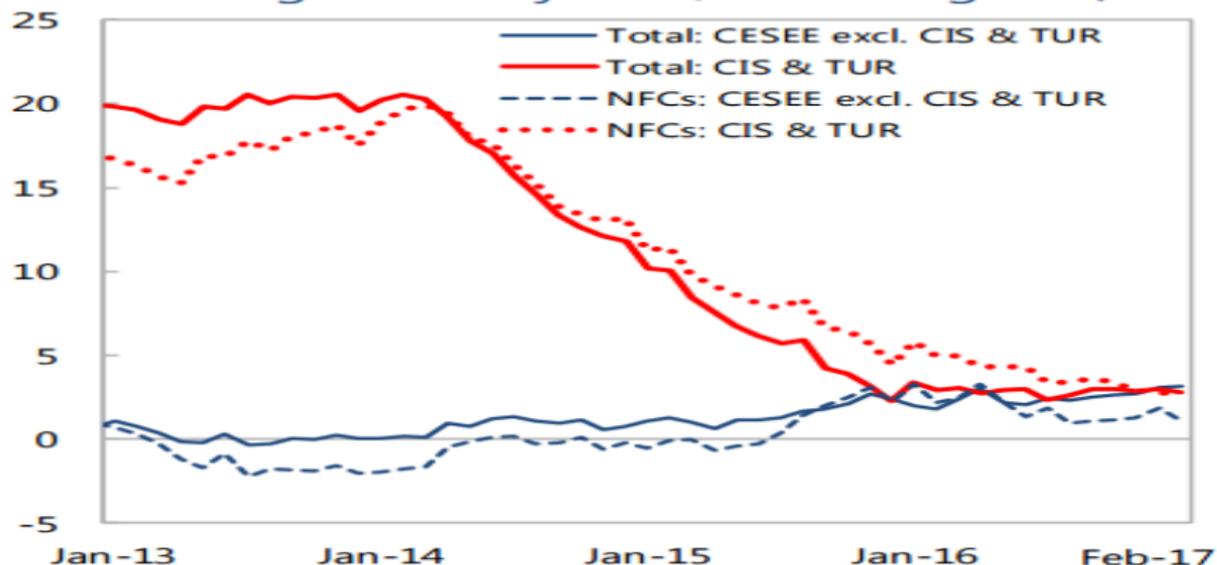
(Percent of 2016GDP, Gross, vis-à-vis all sectors)



Sources: BIS, Locational Banking Statistics; IMF, World Economic Outlook database; and IMF staff calculations.

## Credit to Private Sector, January 2013 – January 2016

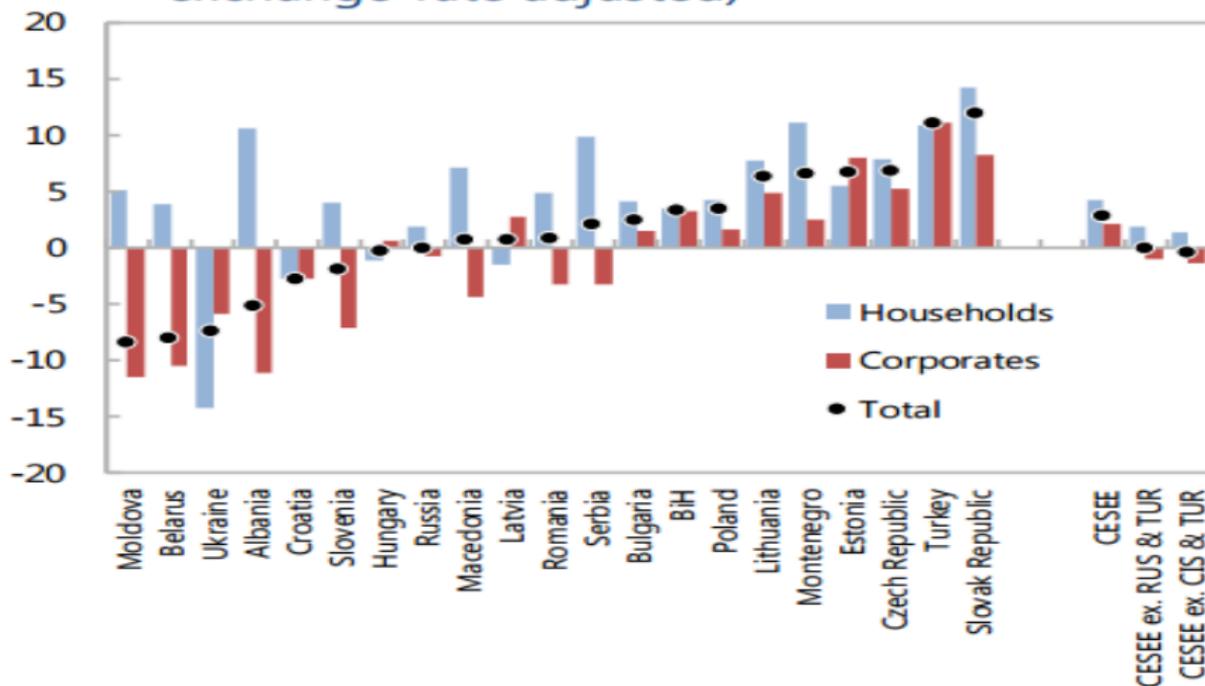
(Percent change, year on year, nominal, exchange-rate adjusted, GDP-weighted)



Sources: National authorities; ECB; BIS; EBRD and IMF staff calculations. Note: Data is not available for Albania for September – December 2016; for Russia, December 2016 data is estimated; for the Czech Republic, credit growth is not FX adjusted.

## Credit Growth to Household and Corporations, January 2017

(Percent change, year on year, nominal, exchange-rate adjusted)



Sources: National authorities; ECB; BIS; EBRD and IMF staff calculations.

# Description of the model

- We develop (Bruno S. Sergi, Filip Fidanovski *et al.*) an empirical model using panel data for different set of variables in order to investigate the relationship between the foreign capital entry and bank performance.
- The independent variables in our study can be divided into several groups including: foreign capital factors, macroeconomic factors, sector-specific factors and bank-specific factors.
- As dependent variables we use measures of bank-specific factors as proxies for bank profitability and bank efficiency.
- The panel data were collected for 10 banks, representing more than one half of the banking sector in Macedonia, for the period 2004-2012 and with total number of 90 observations.

## Description of the model

- First, suppose that the foreign banks share at time  $t_0$  equals to  $FBS_0$ , whereby  $FBS_0$  accounts to less than 1 and thus allows the entry of foreign banks to change that ratio.
- Then, we assume that a foreign bank enters in the banking sector at time  $t_1$  and after this period the share of the foreign banks changes to  $FBS_1$ . The same process may continue over other periods,  $t_1, t_2, \dots, t_m$ , which exerts changes in the presence of the foreign banks to  $FBS_1, FBS_2, \dots, FBS_m$ , respectively, until it hypothetically ends at time  $t_n$  when the foreign banks occupy the whole banking sector and  $FBS_n$  gets value equal to 1.

## Description of the model

- In one such setting, the value of foreign bank entry over one time period can be computed simply as a difference between the foreign banks share at the end and the beginning of that period or mathematically expressed as:

$$\Delta FBS_i = FBS_i - FBS_{i-1}$$

- Further we define the bank's net-income at time  $t_0$  to be  $\pi_0$  and from the bank's income statements we find the following accounting identify:

$$\pi_0 = nii + nni - oc - llp$$

## Description of the model

- If we divide the both sides of the accounting identity by the total assets,  $ta$ , the aforementioned expression will convert into the following one:

$$\frac{\pi_0}{ta} = \frac{nii}{ta} + \frac{nni}{ta} - \frac{oc}{ta} - \frac{llp}{t}$$

- By carefully analysing the transformed identity, one can easily find that the first, second and the fourth term are very close in meaning to the *return on average assets (ROAA)*, the *net-interest margin* and the *overhead ratio*, respectively.
- Hereof, we assume that the banks further their strategy by maximising the *return on average assets (ROAA)* and the *net-interest margin*, while minimising the *overhead ratio*.

## Empirical model

- Since we investigate the relationship of both the foreign bank entry and the change in foreign ownership, we develop two related models to study each of the effects separately. Both models rely on the one used by Claessens, Demirgüç-Kunt and Huizinga (2001). The first one, examining the relationship between the foreign bank entry and the bank performance could be expressed as follows:

$$\Delta BP_{it} = \alpha_0 + \beta \Delta FBS_t + \gamma \Delta FBS_t * PCRED_t + \delta \Delta HHI_t + \theta \Delta LD_{it} + \varepsilon_{it}$$

- Our second empirical model developed to study the relationship between the change in foreign ownership and the bank performance uses the following expression:

$$\Delta BP_{it} = \alpha_0 + \beta \Delta FCS_t + \gamma \Delta FCS_t * PCRED_t + \delta \Delta HHI_t + \theta \Delta LD_{it} + \varepsilon_{it},$$

## Empirical model

- To solve for the coefficients in these models, we employ a cross-sectional panel regression analysis with both the fixed-effects and the random-effects model.
- Then, we test the significance of the estimators from the two models using the Hausman test in order to conclude which of the two corresponds better to the analysed data.
- Hausman test suggest that the null hypothesis fail to be rejected in all regressions, so the coefficients in each of them were estimated using the random-effects model.

# Results (1)

	(1)	(2)	(3)
	<i>ΔReturn on average assets</i>	<i>ΔNet-interest margin</i>	<i>ΔOverhead ratio</i>
<i>ΔForeign bankshare</i>	-0.2229*** (0.0283)	0.2266** (0.0971)	0.1177*** (0.0327)
<i>ΔFinancial development (FIS)</i>	3.5778*** (0.4509)	-	-
		6	1
		-	-
		7	7
		0	0
		2	3
		2	7
		6	*
		*	*
		*	*
		(	(
		0	0
		1	-
		-	5
		5	1
		4	9
		4	8
		7	)
		)	
<i>ΔGDP growth</i>	0.0637*** (0.0100)	-	-
		0	0
		-	-
		5	2
		3	4
		0	0
		6	3
		1	*
		*	*
		*	*
		*	*
		(	(
		0	0
		-	-
		0	0
		3	1
		4	5
		2	)
		)	
<i>ΔInflation rate</i>	-0.0006 (0.0100)	0	0
		-	-
		3	0
		6	4

## Results(2)

	(1)	(2)	(3)		
	$\Delta Ret$	$\Delta Net\text{-}interest\ margin$	$\Delta Overhead\ ratio$		
	$\frac{ann}{ass}$	$on$	$average$		
	$ets$				
$\Delta Foreign\ capital\ share$	- (0.0444)	0.2576*** (0.1926)	0.5717*** (0.1926)	0.0153 (0.0525)	
$\Delta Financial\ development\ (FCS)$	3.9550*** (0.6407)	- (2.7786)	7.8457*** (2.7786)	- (0.7571)	0.1443
$\Delta GDP\ growth$	0.2035*** (0.0316)	- (0.1369)	0.7407*** (0.1369)	- (0.0373)	0.2523***
$\Delta Inflation\ rate$	- (0.0070)	0.0052 (0.0304)	0.1525*** (0.0304)	- (0.0083)	0.0495***
$\Delta Herfindahl\text{-}Hirschman\ index$	- (0.0763)	0.4215*** (0.3310)	0.8249** (0.3310)	- (0.0902)	0.1834**
$\Delta Loan\text{-}to\text{-}deposit\ ratio$	- (0.0053)	0.0442*** (0.0229)	- (0.0229)	0.0626*** (0.0062)	0.0070
Adj. R	0.79	0.77	0.94		
No. of observations	86	86	86		

Signs \*, \*\* and \*\*\* denote statistical significance at 10%, 5% and 1% level, respectively. Robust standard errors are reported in parentheses.

## Key findings

- The increased presence of foreign bank capital has been also found to cause significant effects on bank profitability and efficiency of both the domestic and foreign banks in the mainstream literature.
- The results obtained from the panel regression analysis suggest that the foreign capital presence is followed with reduction in profitability due to the more pronounced competitiveness in the banking sector, but also an increase in the profit generated from the interest-bearing assets.
- Overhead costs are found to increase as result of the new bank entry, which mostly relies on the efforts that the existing banks put in their reactions to the foreign capital penetration.
- Additionally, we find that any increase in financial development will be followed by greater profitability and efficiency, while strong decrease in the revenues coming from the interest-earning assets.

# Macroeconomic stability



- There are many reasons to believe that growth and economic volatility may be linked, either positively or negatively.
- In order to examine the link between volatility and economic growth in Macedonia, we are focused at the level of macroeconomic outcome variables as well as on our original financial stability indicator.

# Literature Review

- Macroeconomic instability refers to phenomena that make the macroeconomic environment less predictable, and it is of concern because unpredictability hampers resource allocation decisions, investment and growth.
- Growing body of research suggests that higher volatility is causally associated with lower growth (Wolf, 2005).
- The negative volatility-growth nexus was notably documented by Ramey and Ramey (1995). They have conducted an empirical analysis that demonstrates a strong negative link between volatility and growth.

# Literature Review

- Kormendi and Meguire (1985) have shown that countries with higher volatility in terms of output growth tend to experience higher mean growth rates.
- Bleaney (1995) has found that macroeconomic instability has an important negative influence on investment and growth in developing countries.
- Kroft and Lloyd-Ellis (2002) have documented a significant negative correlation between growth and medium-term business cycle fluctuations, and a significant positive correlation between growth and short-term, year-to-year fluctuations.

# Literature Review

- By using the original index for measuring of macroeconomic stability, Sirimaneetham and Temple (2009) suggested that growth is found to be positively associated with macroeconomic stability in a sample of 70 developing countries.
- Martínez and Sanchez-Robles (2009) have examined the link between macroeconomic stability and growth. They carried over a panel data analysis of 13 countries over the period 1992-2008 and found that macroeconomic stability, captured by low levels of inflation and public deficits, has been beneficial and plays substantial role for growth.

# Empirical Analysis

- Macroeconomic stability refers to the economy as a whole and thus its measurement requires examination of various constituent sectors of the economy. We break down the concept into three different kinds of stability, namely: 1) financial stability, 2) economic stability and 3) price stability.
- We employ the composite financial stability indicator constructed in Simonovska, et al. (2015): a composite indicator as a weighted sum of adjusted individual indicators classified across three components – financial sector (weight of 75%), monetary sector (weight of 15%) and financial markets (weight of 15%).
- The empirical analysis investigates the relationship of the macroeconomic stability and economic growth for the Macedonian economy in the period from Q1 2006 to Q3 2016.

# Detection of Crises

Indicator	Type of distress	Signal
Annual credit growth	sign	early sign for a banking crisis
Non-performing loans/Total loans	sign	early sign for a banking crisis
Capital adequacy ratio	sign	early sign for a solvency crisis
Liquid assets/Short-term liabilities	sign	early sign for a liquidity crisis
Annual growth of M2	sign	early sign for inflationary pressures
Volatility in the stock index	sign	early sign for a financial crisis
<i>Annual credit growth and</i>		
Non-performing loans/Total loans	warning	warning for a banking crisis
Capital adequacy ratio	warning	warning for a solvency and systemic crisis
Liquid assets/Short-term liabilities	warning	warning for a liquidity and systemic crisis
Annual growth of M2	warning	warning for a banking crisis
Volatility in the stock index	sign	early sign for macroeconomic instability
	warning	warning for a banking and financial crisis
<i>Non-performing loans/Total loans and</i>		
Capital adequacy ratio	warning	warning for a systemic crisis
Liquid assets/Short-term liabilities	warning	warning for a systemic crisis
Annual growth of M2	warning	warning for a banking crisis
Volatility in the stock index	sign	early sign for macroeconomic instability
	warning	warning for a banking and financial crisis
<i>Capital adequacy ratio and</i>		
Liquid assets/Short-term liabilities	warning	warning for a systemic crisis
Annual growth of M2	warning	warning for a solvency crisis
Volatility in the stock index	sign	early sign for macroeconomic instability
	warning	warning for a solvency and financial crisis
<i>Liquid assets/Short-term liabilities and</i>		
Annual growth of M2	warning	warning for a liquidity crisis
Volatility in the stock index	sign	early sign for macroeconomic instability
	warning	warning for a liquidity and financial crisis
<i>Annual growth of M2 and</i>		
Volatility in the stock index	warning	warning for a financial crisis

# Econometric Model

- We develop an econometric model based on the break-down of the concept of macroeconomic stability to financial, economic and price stability. Thus, we consider a linear model of the form:

$$g_t = \alpha + \sum_{i,l=1}^{n=4} \beta_i g(-l)_t + \gamma_i fsi_t + \sum_{i,l=0}^{n=1} \delta_i sdinf(-l)_t + \theta_i sdg_t + \varepsilon_t$$

- In the model,  $t$  stands for time,  $l$  denotes the number of lags,  $g_t$  is the real GDP growth rate,  $fsi$  is the composite financial stability indicator,  $sdinf$  is the standard deviation of the inflation rate as a measure of the price volatility,  $sdg$  is the standard deviation of the real GDP growth rate as a measure of the growth volatility,  $\alpha$  is the constant,  $\beta_i$ ,  $\gamma_i$ ,  $\delta_i$  and  $\theta_i$  are the regression coefficients and  $\varepsilon_t$  is the error term.
- We estimate the regression coefficients using the autoregressive distributed lag (ARDL) approach developed by Pesaran and Shin (1999) and further extended by Pesaran et al. (2001).

# Results

	Real GDP growth rate
Real GDP growth rate (-1)	-0.375*** 0.007
Real GDP growth rate (-2)	-0.531† <0.001
Real GDP growth rate (-3)	-0.295 0.797
Real GDP growth rate (-4)	-0.248** 0.026
Financial stability index	-0.158† <0.001
Price volatility	-0.392** 0.037
Price volatility (-1)	0.647*** 0.002
Growth volatility	-0.970** 0.013
Constant	13.393† <0.001
R-squared	0.756
Adjusted R-squared	0.678
Number of observations	34

Signs \*, \*\*, \*\*\* and † denote significance at the level of 10, 5, 1 and 0.1%, respectively.

# Results

- The concept of macroeconomic stability is complex and refers to the economy as a whole so that it is not possible to identify an individual indicator as a proper measure.
- Distress of the financial system started with excessive credit growth, which affected the banking sector as well as the real and monetary sectors.
- The period of restoring financial stability after 2010/Q2 has been marked by overly conservative behavior by Macedonian banks, lack of investor confidence, and absence of robust growth.



Thank you for your attention

