An Analysis of Emerging Banking Systems in Central and Eastern Europe

Mihai NIȚOI[1],
[1]University of Craiova, Department of Finance

Abstract: *This study intends to provide a descriptive analysis of the efficiency of the credit institutions from Central and Eastern European´s emerging countries during 2004-2013. To this purpose, we have used a series of indicators to quantify efficiency, but at the same time we focused on determining the risk level undertaken by the credit institutions, and on the macroeconomic characteristics of the analysed countries. The results have shown a high level of heterogeneity for the banking systems included in our study. Thus, significant differences were observed between the efficiency of the credit institutions, and also between the levels of risk undertaken by these.*

Keywords: efficiency, risks, emerging banking systems, financial crisis

JEL Classification: G00; G10

Introduction

Within the economic systems, one of significant importance is the financial system. The financial system ensures the allocation of resources to sustainable and profitable economic projects and, in this way it brings its essential contribution to economic growth. At the same time, an allocation of the resources based on unsustainable grounds can cause significant negative consequences for the majority of the population and companies. The financial framework is traditionally measured by the relative size and impact of the various components of the financial market. Generally, the financial systems channel the funds either through capital markets, or through banks. There is still little evidence on which system generates better results, if it is the system based on banks or the one based on the financial market. Thus, Monnet and Quintin (2005) argue that the structures and functions of the financial systems are very different from one country to another, even when applied to similar stages of development. Over the last two decades, the financial systems have been deeply influenced by globalization, through incentives offered to investors to own in their portfolios external assets and through the possibility to vary and propagate internationally the financial risks (Trichet, 2007).

In Central and Eastern Europe, a dominant role within the banking systems is played by the credit institutions. The banking systems, given the significant position they held, play an essential role in economy through the transformation of assets, risk management facilitation, trade financing, and allowing capital accumulation and through stimulating technological innovation. Considering the predominance of the banks in the financial systems of Central and Eastern Europe (CEE), their role becomes even more important.

Broadly, the banks have two important functions contributing to the efficient allocation of the resources: the function of monitoring for investors; the function of consultancy for companies. Blavy (2005) argues, quite plausibly, the fact that the monitoring of the debtors by the banks leads to an increase in the efficiency of the credit market by decreasing the interest rate applied to those who contract loans and/or by the growth of the estimated profit of the banks and by the potential growth of the credit level in economy.

These two important functions suggest the positive correlation between the development of the banking sector and economic evolution. On the other hand, failing to comply with these two functions would generate significant macroeconomic instabilities. Such an example is seen in the connection between the monitoring function and the sovereign debts of the countries from the euro area.

The financial crisis debuting in 2007 has shown the importance of the banking system and its role in providing the necessary credit to economic activities (Gambacort and Marques-Ibanez (2011). The recent credit crisis made us think back to the crucial role played by the banks in crediting the economy, especially in a situation characterized by serious financial difficulties. At the same time, this role seems to differ from the description of the traditional models of the banking credit channel. This has determined changes in the business models of the banks and generated a more intensive use of the financing resources available on the market (for instance, the market of securitized instruments or securitization).

In Central and Eastern Europe, the economic crisis came after a period of economic growth, financed mainly by external credits, generating an economic environment characterized by increasing instability. In this way, the region became vulnerable to the sudden deceleration of the external credit flux taking place in the autumn of 2008. Thus, the aggravation of the crisis forced the western banks to reduce their balances, the result being the drastic decline of the capital transfers towards Eastern Europe and other emerging economies.

A second risk factor that aggravated the effects of the crisis was represented by the high level of loans given in foreign currency. ECB (2014) highlighted that there is a high prevalence of foreign currency loans in Bulgaria, Croatia, Hungary, Poland and Romania, notably affecting households, and, in Croatia and Hungary, also affecting the public sector. The partial euroization increases the level of vulnerability of the financial systems against solvability and liquidity risks. The increasing risks of solvability are generated mostly by currency differences in the case of significant modifications recorded in the rate of exchange.

Klingen (2013) considers that the countries from this region have suffered more than any other region in the world from the effects of the global financial crisis that put an end to some unsustainable booms. His opinion is also shared by Montaro and Rojas-Suarez (2012). They have shown that the real credit growth from the emerging countries in Asia proved to be quite resistant to the financial crisis of 2008, whereas the real credit growth in the countries from Eastern Europe was severely affected, and that the banking systems from Latin America are somewhere in the middle.

For this purpose, drastic measures were applied to stop the crisis and to prevent its propagation towards the rest of Europe. The most affected countries have requested the support of International Monetary Fund (IMF) and European Union (EU). In December 2008, Latvia received emergency funding both from the EU and the IMF. Also, Hungary and Romania too received funding from the EU and IMF in November 2008 and May 2009.

To conclude, in the last two decades the CEE banking systems have passed through significant changes. More exactly, the passing from a socialist and organised economy to a competitive economy involved the reorganization of the financial system, implying a two tier banking system, the reform of the legislative framework and the privatization. At the end of the century the banking crisis affected significantly some of the banking systems in the region (i.e. Romania, Bulgaria). Then after the 2000´s it followed a period in which the banking systems have benefited from a renewed economic growth. Therefore, until 2008, the banks in CEE have extended their credit portfolios in conditions of increased profitability. After 2008, the CEE banking systems have become vulnerable to the sudden slowdown of the external credit flux which

happened in the autumn of 2008 and which was significantly affected by the important growth of bad debt and questionable credits.

Considering the major modifications affecting the banking systems, this study attempts to emphasize on the efficiency and risk indicators characterizing the banking systems from Central and Eastern Europe. Moreover, the study deals with some characteristics specific to the macroeconomic environment. In this way, we can see the evolution differences and we can identify the banking systems with a high level of efficiency. Additionally, given the fact that we will also apply a risk measurement indicator, we shall provide more information regarding the bankruptcy risk undertaken by the banks during 2004-2013. As we see it, taking into consideration that over the last years the fundamentals of banking systems have significantly changed as a consequence of the financial crisis, the study of banks´ performance has become essential in order to understand the level of efficiency and risk.

The study is divided as follows: the next section tackles with issues related to the methodology and the data used; the third section presents the results obtained and the last part highlights the conclusions.

Methodology and data

In order to describe the efficiency and the risks of the banking systems in Central and Eastern Europe we will make use of the descriptive analysis. More precisely, based on some specific indicators, we shall emphasize on the way in which the banks´ efficiency has evolved, the undertaken risks and other characteristics. The analysis will be done for Central and Eastern European countries, members of the European Union, namely: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

The indicators used for describing the banking systems in Central and Eastern Europe are divided in two categories: indicators specific to the macroeconomic and financial environments and indicators specific to the banking system altogether. Within the first category we have included the following indicators: the domestic credit to Gross Domestic Product (GDP) ratio, GDP growth rate, GDP per capita at purchasing power parities, money and quasi money as % of GDP, index of monetary freedom, index of financial freedom, the Herfindahl index for credit institutions and the asset concentration ratio. The second category of indicators contains: the ratio of non-performing loans, the net interest margin, the return on average assets, the return on average equity, the cost to income ratio, the liquidity ratio and the Z score.

GDP growth rate, GDP per capita at PPP, domestic credit to GDP and money and quasi money as % of GDP will indicate the level of macroeconomic and financial development of the countries in Central and Eastern Europe. The monetary freedom index and the financial freedom index represent characteristics of the financial system. The first index is a measure of the prices´ stability and control of the prices. The second one is a measure of the banks´ efficiency and their independence from the control of the public authorities. The last two indices, the Herfindahl index for credit institutions and the asset concentration ratio represent a measure of competition within the banking systems.

The indices included in the second category are used to show the level of efficiency and risk in the banking systems. Thus, amongst the used indices to describe the level of efficiency, we can also find the cost to income ratio, the net interest margin, the return on average assets, the return on average equity and. These indices shall provide a complete image of the way in which the banking systems in Central and Eastern Europe performed. Moreover, we can compare the levels of these indices to identify the countries that had a high level of performance from the ones that has a low performance.

The indices used to measure the risk undertaken by the banking systems in Central and Eastern Europe are the ratio of non-performing loans –a measure of credit risk-, the liquidity ratio and the Z score. The Z score is a measure of the insolvency risk, indicating the probability towards bankruptcy for a bank. According to Lepetit et al. (2008), high values indicate a lower probability for bankruptcy. In our case, this index is calculated for each bank, by using the following formula:

$$Z = \frac{ROA + EQ/TA}{SDROA}$$

The data was extracted from World Bank Data, International Monetary Fund Financial Statistics Database and from the databases of the central banks of the countries included in our study.

Results and discussions

Detailed below is a summary of the indices described previously. We shall start with the indices specific to the macroeconomic environment of the countries in Central and Eastern Europe (table. 1). As we can see, the average values of the indices during 2004-2013 show significant differences for the analysed countries. The results show that the highest credit values given by the credit institutions in GDP are found in Estonia, Slovenia and surprisingly, Croatia. The lowest values are shown by Lithuania and Romania. Moreover, the domestic credit to GDP rata in Romania has a significantly reduced level compared to the other countries. Regarding the GDP growth rate, we can notice that most countries recorded an average GDP growth of over 2%, except for Croatia, Hungary and Slovenia. The development lags between these countries are indicated by the level of GDP per capita at PPP. In this sense, the lowest values, with significant differences compared to the other countries analysed, can be found with Romania and Bulgaria and the highest values with the Czech Republic and Slovenia. Regarding the ratio M2 in GDP, significant differences are noticed between the values of the indices. Given all these results, we can point out a high heterogeneity in the level of macroeconomic and financial development in this region.

Table 1 – Mean values of some macroeconomic indices in CEE

	Domestic credit to GDP	GDP growth rate	GDP per capita at PPP	M2 to GDP ratio
Bulgaria	60.1768	2.5354	13778.68	68.4490
Croatia	80.5053	0.5339	19006.99	66.8963
Czech Republic	57.5614	2.3267	26264.45	65.9100
Estonia	82.6903	3.3300	21167.2	57.0392
Hungary	72.5514	0.8312	20428.15	57.5109
Latvia	77.7125	2.8376	18564.25	42.3231
Lithuania	54.2731	3.4552	19705.6	44.2344
Poland	57.0003	3.9363	19078.74	51.6789
Romania	42.5128	2.9353	14805.93	36.2213
Slovakia	57.7181	3.7050	22596.26	57.1954
Slovenia	81.3694	1.4399	27063.83	63.3331

Source: World Bank Data; IMF Financial Statistics Database; Central banks statistics

Furthermore, we will detail a series of indices specific to the financial system (table 2). For the monetary freedom index we can notice a uniformity in the results for the 11 countries from Central and Eastern Europe. This aspect shows a high level of

performance of the central banks, which managed to maintain price stability during the period included in our study. The financial freedom index, a measure of the efficiency of the banking systems, shows differences between the banking systems analysed. Therefore, Slovenia and Romania present a low efficiency of the credit institutions, while Estonia, the Czech Republic and Lithuania present a high score for this index. Regarding the level of competition and the level of asset concentration, we can see a high level of these indices in Estonia and Lithuania and a lower level in Hungary and Poland.

Table 2 - Mean values of some financial indices in CEE

	Monetary freedom index	Financial freedom index	Herfindahl index	Asset concentration ratio
Bulgaria	76.1598	62.2834	0.0769	53.4342
Croatia	79.5452	62.6	0.1353	75.6387
Czech Republic	82.2905	82.8421	0.1054	63.1652
Estonia	80.2036	84	0.3148	93.8887
Hungary	75.4246	69.1044	0.0836	53.9114
Latvia	76.1886	59.7727	0.1094	65.4830
Lithuania	80.6191	82.7941	0.1787	81.9576
Poland	79.5638	62.6451	0.0594	45.3491
Romania	70.6024	50.9836	0.0951	55.5114
Slovakia	79.2214	76.7142	0.1194	70.1270
Slovenia	79.4279	50	0.1237	60.2103

Source: World Bank Data; IMF Financial Statistics Database; Central banks statistics

Below, we will present the efficiency indices specific to the credit institutions from the analysed region (table 3). Cost to income ratio describes the level of efficiency of the costs. As we can see the most performant credit institutions in correlating the costs with the incomes are the credit institutions from the Czech Republic. A high level of inefficiency in costs administration is shown by the banks from Hungary, Romania and especially, by the banks in Croatia.

Table 3 - Mean values of efficiency indices in banking systems in CEE

	Cost to income ratio	ROA	ROE	Net interest margin
Bulgaria	66.0477	0.9214	7.8376	4.4385
Croatia	86.8275	0.1832	0.4554	4.0419
Czech Republic	50.1651	1.1551	16.1366	2.5893
Estonia	64.4665	1.2238	9.7883	5.2136
Hungary	70.7252	0.6941	4.6197	5.1286
Latvia	62.2117	0.1175	-0.8918	2.8311
Lithuania	65.6696	0.2282	16.3726	2.5202
Poland	66.1351	1.0740	10.2215	3.6929
Romania	71.4409	0.3209	3.5852	5.7777
Slovakia	67.2003	0.4824	4.3658	3.2981
Slovenia	62.7783	-0.2583	-8.5775	2.4502

Source: World Bank Data; IMF Financial Statistics Database; Central banks statistics

Subsequently, we have tackled with indices that reflect the efficiency of asset administration and own capitals. Even in this case, the highest values are shown by

the credit institutions from the Czech Republic. The lowest values are presented by the credit institutions from Slovenia and Latvia. Moreover, for the ROA and ROE, the average values during 2004 – 2013 are negative, which shows losses for the banking system in this country. The result obtained for Slovenia can be justified by the banking system crisis (OECD, 2013), when nonperforming loans peaked at 17.4% in 2013 (IMF, 2014). A second explanation is the significant increase of public debt to GDP from 22% in 2008 to 72% in 2013 (European Commission, 2014). Part of this debt also financed the authorities' interventions in the banking system, through the public banker capitalization.

The following table shows the average values of the risk indices for the analysed period (table 4). We can see high values of the risk of credit, measured through the non-performing loan rate, in Lithuania and Romania, while a lower level of risk for loan is presented by the Czech Republic and Estonia. For the liquidity risk, measured through the liquidity rate value, the level of heterogeneousness is high. Thus, we can notice a lower level of liquidity for the banks in Lithuania and Slovenia. The Z score, which measures the bankruptcy risk, provides us with same interesting aspects. The highest risk of bankruptcy is noticed in the credit institutions from Baltic countries and from Slovenia. On the other hand, the credit institutions from the Czech Republic, Poland and Croatia are amongst the most stable.

Table 4 - Mean values of risk indices in banking systems in CEE

	Non-performing loans ratio	Liquidity ratio	Z score
Bulgaria	8.8168	34.0615	15.3309
Croatia	8.9848	31.1842	23.3065
Czech Republic	4.2529	22.5238	28.4640
Estonia	2.1721	39.3015	9.5192
Hungary	7.9976	25.3286	12.2058
Latvia	7.3968	42.3489	6.7117
Lithuania	10.6060	19.0083	5.2765
Poland	6.1869	19.6574	26.6938
Romania	9.5154	31.7465	9.6478
Slovakia	4.4490	18.7662	21.8938
Slovenia	6.8019	17.0448	7.5874

Source: World Bank Data; IMF Financial Statistics Database; Central banks statistics

As a general conclusion, we can state that the all the banking systems analysed show a high level of heterogeneity. In this sense, even though these countries have shared a common starting point back in the 90´s, the efficiency of the banking systems is significantly different. This aspect is also reflected in the risk undertaken by the credit institutions. Its level is significantly different in the 11 banking systems. Also, despite the fact that the countries included in our study are EU members, the convergence process for the banking systems is far from being complete.

Conclusions

In this study, we highlighted a series of descriptive indicators specific to the credit institutions from the emerging countries from Central and Eastern Europe and which are also members of the European Union. The scope of this study was to provide a bigger picture on the efficiency and on the risk of the credit institutions from this region.

The results have shown significant differences between the analysed indices. Thus, the differences between the analysed countries are significant, not only regarding the macroeconomic characteristics, but also regarding the levels of efficiency and risk. As a general characteristic, we can argue that the credit institutions from the Czech Republic are amongst the most efficient when it comes to costs administration and the level of risk undertaken by these is low in comparison with the other banks from the region. In the future, considering the decision of the Central European Bank to create a banking union, it is necessary that the banking systems from this region improve their heterogeneity and convergence levels.

A future research approach could be the identification of the determinant factors of efficiency and risk. In this sense, we can have a better grasp of the elements influencing the increase and the decrease of these indices.

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