COMPETITION AND STABILITY IN BANKING SECTOR

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Abstract. *Similar to other economic sectors, competition in the banking sector is often seen as a prerequisite for an effective banking system. However theoretical and empirical studies have not reached conclusive results on the positive relationship between competition among banks and financial stability. There are analyzes that suggest that excessive competition can lead to fragility and that regulations on competition are necessary in order to ensure and maintain financial stability. This paper examines competition and financial stability in the banking sector using existing data on some banking institutions in Romania.*

Keywords: *financial stability, competition, Z-score.*

JEL Classification: G21, D40.

1. Introduction

The concerns about banking sector stability and competition have been accentuated by the emergence of the economic crisis. Between 1980s until the mid-2000s the banking sector went through a process of deregulation which allowed the beginning of an intense process of innovation in this field. This process supported by a prolonged period of relative economic stability, known in economics as the "Great Moderation", has diversified banking activities creating new and highly complex products and allowing banks to take excessive risks in order to increase their profits. "The irrational exuberance"[1] which was generated by the unprecedented stability caused excessive accumulation of debt which could

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[1] Groundless investor enthusiasm that determine an unsustainable growth in asset prices. Allan Greenspan first used this term in 1996 in his speech "The Challenge of Central Banking in a Democratic Society".

no longer be paid. The mix innovation – deregulation proved to be ineffective as the banking sector was strongly affected by the economic crisis starting with 2008.

The solutions adopted to overcome the crisis, which included among others offering a form of financial support to the banks, saving the banks through mergers or takeovers and also the nationalization of some of them, will require increased attention from the competition authorities in the near future. Moreover, the crisis has reiterated some of the previous beliefs regarding the effects of competition in banking sector. Thus, the opponents of bank competition presented arguments showing that competition was partially to blame for the crisis. The first argument in this respect shows that competition can lead to risky lending practices as financial institutions seek to gain higher profit margins (the increase in subprime lending is seen as an example of such behavior). The second argument used shows that increasing competition may erode banks' profit margins leaving them with insufficient capital cushions (the insufficient capital cushions have also played an important role in the recent crisis) (Peira and Love, 2012). All these overlapped the deregulation process.

In the a paper called *Booms and Lending Standards work Credit: Evidence from the Subprime Mortgage Market*, Dell'Ariccia, Gypsies, and Laeven (2008) show that credit expansion, in the United States, prior to the crisis, was due to a relaxation in the lending standards. This relaxation is associated with a change in the market structure; as more companies entered the market the rates of refusal of the existing creditors were starting to follow a downward trend. Thus, the increasing competition favored the access to lending to a special category of borrowers called by Minsky, speculative and Ponzi borrowers. In an analysis of the Spanish banking sector, Jiménez Lopez and Saurina (2007) show that between the market power, measured by the Lerner index, and the financial risks there is a negative relationship; as market power increases the non-performing loan ratio decreases.

On the other hand, advocates of competition in the banking sector show that the access to finance can be improved through competition, particularly for small and medium size enterprises. At the same time, they claim that any negative effects of competition on stability are best addressed through appropriate regulation and supervision of the financial institutions. In a research called *How Bank Competition Affects Firms' Access to Finance* conducted by Peria and Love (2012), on a total of 53 countries, including Romania, it was analyzed the relationship between competition and firms access to finance. The research results show that overall low competition is associated with a reduced access to finance. The research also took into account the characteristics of the environment in which the banks were operating and its implications for competition and access to finance. Thus it is found that countries with higher levels of financial development and better information availability experience a less pronounced decline in terms of access to finance as a result of low levels of competition. In addition, significant government ownership of banks exacerbates the damaging impact of low bank competition. On the other hand the results show that low competition is more detrimental for firms operating in countries with low levels financial development or lacking credit information.

The literature presents a variety of such studies that analyze the relationship between competition and stability, but the results are inconsistent. Some of these indicate a positive impact of competition on stability while others indicate a negative impact. Beck, De Jonghe and Schepens (2011) analyzes the causes that lead to different results regarding the relationship between competition and stability from one country to another. The research starts with the assumption that the relationship competition – stability is influenced by a number of country specific factors. Therefore, they took into account three key factors, namely, market structure, regulatory framework and institutional framework. The research results showed that an increase in competition is more harmful for stability in countries with stricter regulations on banking activity, with a more homogeneous market structure, with more effective systems of credit information sharing, with a more generous deposit insurance systems etc. The research also included an analysis of the changes that occurred in the banking sector after some crisis episodes, when most countries either extended their systems of deposit insurance (this is the case of the 2008 crisis), or imposed tighter restrictions on banking activities (the case of the 1930 economic crisis), and it was revealed the in this periods competition had a very negative impact on stability. Also, in terms of capital buffers the results show that imposing stricter capital regulation can have an exacerbating influence on the relationship between competition and stability. Regarding the institutional framework, the research took into account the arrangements made to reduce moral hazard and asymmetric information, such as for example the credit bureaus in Romania. The checks carried out by these institutions lead to a decrease in credit risk and indicate a positive relationship between market power and stability.

2. Measuring financial stability and competition

To test the relationship between competition and stability in the banking sector, it is necessary to establish an appropriate way of measuring both. Financial stability is most often analyzed in terms of individual or systemic imbalances that affect banks. Systemic banking difficulties are defined broadly as the period during which the banking system cannot effectively exercise its role (Beck, 2008, p. 4).

To distinguish between fragility in general and crisis in particular and between local and systemic crises, Demirguc-Kunt and Detragiache (2005) consider that an episode of imbalances can be classified as a crisis if it meets one of the following conditions (i) non-performing assets represents at least 10% of total assets at the peak of the crisis, (ii) tax costs on aid to banks is at least 2% of GDP, (iii) emergency measures, such as freezing, or guaranteeing the consumer deposits or other similar measures were taken to support the banking system, or (iv) banking problems have led to a widespread nationalization of banks. Laeven and Valencia (2012) define a crisis as systemic if two conditions are met (i) there are clear signs of financial difficulties in the banking system (e.g. massive withdrawals), (ii) there were adopted significant intervention measures as a response to substantial losses recorded in the banking system. Intervention measures are considered by the two authors as significant if at least three of the following six measures were used: 1) extended liquidity support – 5 percent of deposits and liabilities to non-residents; 2) gross cost of bank restructuring is at least 3 percent of GDP; 3) significant nationalization of banks; 4) the adoption of significant guarantees; 5) acquisition of assets – at least 5 percent of GDP; 6) freezing deposits and / or prolonged bank holidays[2].

Financial stability is best illustrated in its absence during periods of financial instability. However, the definition of stability must be extended, highlighting the positive aspects arising from ensuring a stable financial system. Thus, according to the World Bank a stable financial system means a system capable to (i) efficiently allocate resources, (ii) evaluate and manage financial risks, (iii) maintain employment rates in the economy close to the natural rate of employment, (iv) eliminate the relative price movements of financial or real assets etc.

[2] Normally bank holidays coincide with national holidays and refer to situations during which banks are closed for business to the public. In situations of financial imbalances, bank holidays can also refer to situations where is an emergency bank closure averting a bank run. This type of bank holidays occurred during the Great Depression in the United States due to the Emergency Banking Act of 1933.

A measure used for assessing stability of individual institutions is the Z score. It measures a bank's solvency risk by comparing buffer with risks. The widespread use of this indicator stems from its ability to highlight the probability of default of a financial institution, i.e., the probability that the value of its assets becoming less than the value of its debt. As the value obtained for the Z score is higher, the probability of insolvency of a bank is lower. World Bank (2013) highlights the limitations of this indicator most of them arising from the information needed to calculate it. The data used to calculate the Z score are data from the accounting registrations of the banks, therefore the validity of the results will depend on the accuracy of the accounting information. At the same time, the Z score analyzes each institution separately without considering potential losses suffered by other institutions in case of risks manifested to a particular bank.

Another approach for measuring banks stability is Merton model. The model was developed in the 1970s and it determines the ability of an institution to meet its financial obligations and measures the overall probability of default. The model defines the overall probability of default as the situation where the value of a bank liabilities exceeding its assets (World Bank, 2013).

Unlike financial stability, competition it is even more difficult to measure. There are currently several methods used to measure the level of competition in the banking sector. According to Bikker and Spierdijk (2009) competition in the financial markets should be strong enough to support the welfare and economic development, but at the same time it should not be too high so as to threaten financial stability, innovation and the access to finance. To achieve this goal an optimum level of competition in the banking sector should be estimated. In order to do that some key elements should be taken into consideration, including market structure, regulatory framework and the financial level of development of the countries. Competition in the banking sector was generally analyzed in terms of market power or in terms of efficiency. Market power reflects the ability of some banks to control the market while efficiency refers to the ability of some banks to obtain products at minimum cost. The competition measurement methods were also classified based on other factors, such as market structure, competitive behavior of banks and indicator of regulatory framework.

A first measure of competition is Herfindahl-Hirschman index (HHI) which measures the degree of market concentration. This indicator is often used in the context of the paradigm "Structure-Behavior-Performance"

(SCP) which assumes that market structure affects the behavior of banks on the market and therefore their performance. A banking sector in which several banks have a significant market share can lead to a form of behavior that is likely to distort competition (e.g.: agreements between banks), which will ultimately affect banks' performance (excessive profits gains). This could lead to higher prices than in normal competition situations, generating a negative effect on consumers. Another competition measurement method developed by Panzar and Rose is H-Statistics. This indicator measures the competitive behavior of banks. Similar to this indicator, the Lerner index is often used to determine the level of competition in the market. It measures market power using the marginal cost and the price. The value obtained for the Lerner index will be between 0 and 1. A value close to 0 indicates a competitive market, while a value close to 1 indicates a monopoly.

An alternative and relatively new method for measuring competition, different from other measures, which analyses the competition in terms of efficiency, is the "Boone" indicator. This indicator measures the effect of efficiency on the performance of the bank in terms of profit and market share. The Boone indicator is based on the assumption that competition enhances the performance of the more efficient banks (those recording a lower marginal cost) and impairs the performance of inefficient banks, which is further reflected in lower profits or smaller market shares (Leuvensteijn et. al. 2007, p. 5).

The regulatory framework may also offer some indications of the competition in this sector. The conditions for authorization of banks which refer to ownership structure, capital level, business plans, qualifications and professional experience of bank managers and other elements required by law, constitutes a legal but necessary barrier to entry for new institutions. The presence of other forms of restrictions such as the existence of formal and informal barriers to entry the market, restrictions on banking activities or others as such, could prevent new banks from entering the market therefore restricting competition.

3. Competition and stability in Romania

The Romanian banking system counts 40 credit institutions, of which 31 are Romanian legal entities and 9 foreign bank branches. In terms of market shares the banks with majority foreign capital dominate the Romanian banking sector, with approximately 80% market share. The 9 foreign bank branches, although they hold a relatively small market share, about 10%, they helped to increase competition in the domestic banking sector.

Because of the difficulty in obtaining the necessary data, the analysis will focus on the top five credit institutions, based on their market share, operating in the Romanian banking sector respectively, Romanian Commercial Bank, BRD - Groupe Société Générale, Transilvania Bank, UniCredit Tiriac Bank and Raiffeisen Bank. These institutions held in 2014, 54.2% of the total market share (Figure 1).

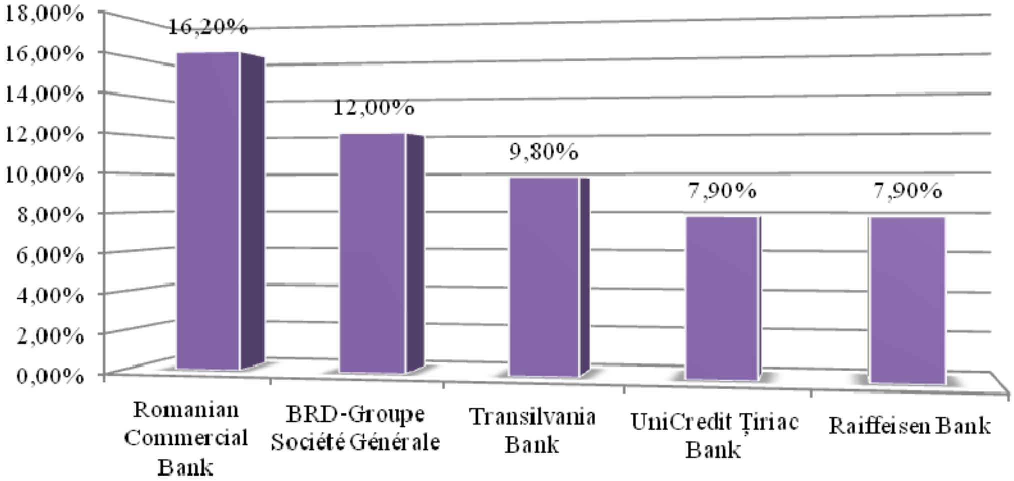

Figure 1. Market share distribution for top 5 banks in 2014.

Source: National Bank of Romania.

The data used in the analysis were obtained from the existing financial reports published on the banks websites. The data include annual information included in the banks' balance sheets and covers the period 2009-2014.

To measure financial stability it was used the Z-score. When computing the Z-score a rolling average of two years of the data was used. The Z-score was estimated as follows:

$$Z_{it} = \frac{ROA_{it} + EQTA_{it}}{\sigma_{it}^{ROA}}$$

where:

ROA_{it} – represents the two year average return on assets for bank i at time t;

$EQTA_{it}$ – represents the two year average of capital over assets for bank i at time t;

σ_{it}^{ROA} – represents the standard deviation for return on assets for a period of two years for bank i at time t.

The *Z*-score increases when the level of return on assets and capitalization increases and decreases when there is volatility in the level of returns. Therefore, a higher value of the Z-score indicates a more stable bank.

Table 1

Descriptive statistics for Z-score.

	Z-score		ROA		EQTA	
	Mean	Median	Mean	Median	Mean	Median
Romania Commercial Bank	6,450	6,282	– 0,006	– 0,00	0,096	0,096
BRD – Groupe Societe Generale	8,805	8,687	0,007	0,001	0,114	0,116
Transilvania Bank	55,831	54,104	0,009	0,010	0,095	0,095
UniCredit Țiriac Bank	24,379	24,621	0,007	0,007	0,107	0,109
Raiffeisen Bank	132,773	134,926	0,017	0,017	0,113	0,114

Source: own calculation.

The values obtained for the Z-score vary significantly from one bank to another. Comparing the results it appears that Raiffeisen Bank recorded the highest average value for this indicator 132.7, while the Romanian Commercial Bank has obtained the lowest average value (Table 1). Overall the data indicate on the one hand that Raiffeisen Bank and Transilvania Bank are the most stable banks in the sample, and on the other hand that the Romanian Commercial Bank and BRD – Groupe Société Générale are relatively more risky. These differences arise mainly from changes observed in the level of the return on assets and less due to changes in the level of equity to total assets. An analysis of the causes that led to a low level of return on assets is needed in order to improve the results for the stability indicator of the banking institutions.

In terms of determining the level of competition in the Romanian banking sector it was used as a measure of competition the Herfindahl-Hirschman Index (HHI). HHI index was estimated as follows:

$$HHI = \sum_{i=1}^{n} s_i^2$$

where:

s – represents the market share for bank i;

n – represents the number of banks operating on the market.

In order to compute the HHI index we used information available in the National Bank of Romania annual report for 2014. The value obtained for *HHI* is 868.56 points which indicates a competitive to moderate banking sector.

Regarding the market shares it can be notice a concentration of the market power to the first five banks in the banking system. The first two banks maintained their positions in the last 5 years, i.e. from 2009 to 2014, although there is a slight decrease in market share, from 19.1% in 2009 to 16.2% in 2014 for the Romanian Commercial Bank respectively, from 14% in 2009 to 12.4% in 2014 for the BRD – Groupe Société Générale. On the other hand, the banks from 3rd to 5th position registered increases in the market share, the most significant growth being recorded by Transilvania Bank, 0.9 percentage points in 2014 compared to 2013.

Comparing the data on stability and the data on competition it can be notice that banks with greater market power recorded lower values for the Z-score. However, there are other factors that need to be taken into consideration when assessing stability. For example, a large number of loans granted by the bank proved to be non-performing. The Romanian Commercial Bank recorded the 3rd highest non-performing loan ratio at the end of 2014. Therefore, an improvement in the return on assets, for example, or imposing more stringent credit standards could improve the results on stability.

4. Conclusions

The literature presents an increasing number of studies that analyze the relationship between competition and stability due to the effects that the economic crisis has had on the banking system. Economic imbalances caused changes in the structure of the financial markets leading toward a more concentrated financial sector. The implications that these changes have on the banking activities and on the consumer must be identified on time in order to manage any risks arising therefrom.

Regarding the Romanian banking sector, the economic crisis has not led to significant changes in its structure. The banking sector remains a competitive one, recording even a slight decrease in the market share for the top banks.

Also, the Romanian banking system has proved to be quite stable during the crisis. However the presence of foreign banking institutions in the market and the dominance of the banks with majority foreign capital require a high caution in this area.

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