

Romanian banking activity spatial distribution between 2009 and 2012

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Abstract. *The financial crisis has influenced significantly the Romanian banking system activity causing different changes of Banks strategies between 2009 and 2012 (in 2013 changes are still registered). Within a poor credit market, the Banks market share registered important fluctuations, some of them being forced to close the activity.*

This paperwork aims to identify the concentration level of Romanian banking market and to analyze the changes registered within crisis period. Furthermore, there are presented the market areas for the main banks within the Romanian banking system and the territorial location of their units.

Keywords: spatial distribution, banking system, nearest neighbor statistics.

JEL Classification: E5, R1, R3.

REL Classification: 10B, 11C, 16J.

Introduction

Bank's units spatial distribution within geographical territory shows the accessibility level of banking services to their public. The banks are the main institutions of the financial system of any economy. Even so, there is an incapacity to reach the entire population, therefore this reduces services accessibility.

The main reasons of choosing a certain location for bank branches are known basically only by the top management. Fujita and Krugman (2004) and also O' Sullivan (2007), consider the assumption that the spatial behavior is not random, but a result of many advantages that firms enjoy when they choose a certain location.

This paperwork analysis the main reasons for banks of choosing a certain location within Giurgiu country and the results obtained after applying the Nearest Neighbor Statistics which were interpreted using Kings Scale.

1. Romanian banking market context

The spatial distribution of banks in any geographic entity determines the level of accessibility to its services by the public. The analysis purpose was to determine the number of available commercial banks and the respective distances between each other (in this particular case for Giurgiu County).

Banks are the most dominant institution in the financial system of any economy. However, there is a certain inability of banks to reach the entire population, thing that reduced the accessibility of its services.

As for Fujita and Krugman observations, it is reasonable to suppose that the spatial behavior is not coincidental, but rather is due to a number of advantages that firms enjoy when they choose a certain location (usually named economies of agglomeration).

Discussing the location of strategy of banks, Birkin observed that in general, bank location strategy follow the same localization logic as other private services firms. There were find there factors that banks consider in location strategy:

- Access to potential customers;
- Sales banking services;
- Overall bank earnings.

On the Romanian banking market, many changes were registered due to the global crises therefore some of the banks announced their merges or their retreat from the market or the closing of some branches.

In 2009 the economic environment was declining and this affected the banking system as well. Factors that determined this situation were the ones specific to the crisis and affected directly the banks were such as: the growth of unemployment rate and the incertitude on the labor market, the reduction of the population revenues, the diminishing of the investments, etc.

Therefore, the number of foreign banks branches in Romania remained as in 2008 but the number of the local ones was reduced with 1.

Even if the first 5 banks from Romania (considering the assets) were having above the half of the entire banking system assets, they registered a reduction of the share in the total banking system (from 54.3%, in decembre 2008 to 52.4%, in decembre 2009).

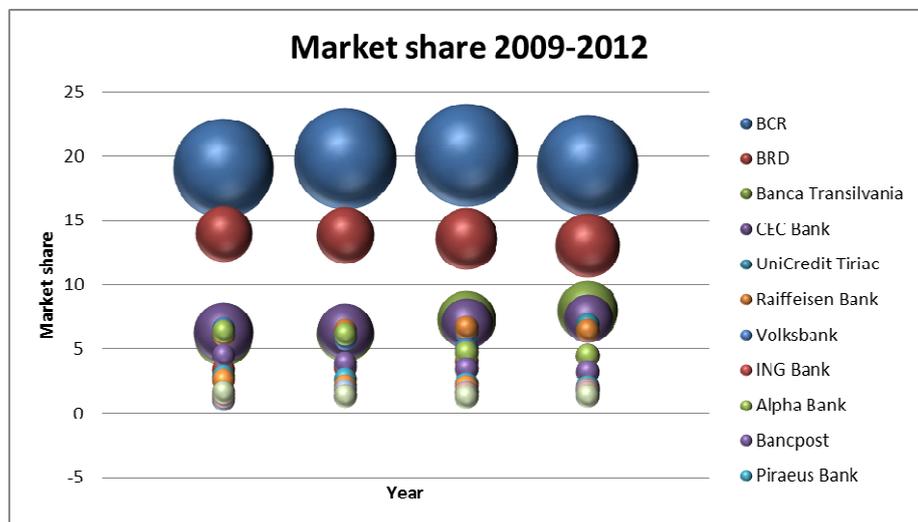
In 2010, the crises changes the main objectives of the banks, and they decided, instead of quantitative targets (market share, loans marketing campaigns, maximization of the profits) to be more careful to the risk of credit.

2011 was an interesting year for the structure of the banking system. BCR overtook the activity of Anglo-Romanian Bank, a new shareholder of Volksbank Romania and Marfin Bank, and also a small reduction of the total number of banks acting on the Romanian banking. The changes continued in 2012 with new mergers (especially in cases of Greek banks) and changes of shareholders. Overall, the market share evolution looked like in the next table.

Table 1. Romanian banking market share during 2009-2012

Bank	Market share 2009	Market share 2010	Market share 2011	Market share 2012
BCR	19.1	19.8	20.1	19.3
BRD	14	13.9	13.6	13.1
Banca Transilvania	5.9	6.2	7.3	8
CEC Bank	6.3	6.4	7	7.4
UniCredit Tiriac	6.1	6	6.4	6.9
Raiffeisen Bank	6.1	6.5	6.7	6.5
Volksbank	6.6	5.8	5	4.5
ING Bank	3.4	3.6	4.1	4.5
Alpha Bank	6.4	6.2	4.7	4.5
Bancpost	4.5	3.9	3.5	3.3
Piraeus Bank	2.9	2.7	2.3	2.1
Banca Romaneasca	2.6	2.2	2.1	1.9
Garanti Bank	1.1	1.8	1.7	1.8
citi Bank	1.4	1.4	1.6	1.7
Credit Europe	1.7	1.4	1.3	1.4

Source: www.BNR.ro

Figure 1. Banks market share evolution during 2009-2012

The situation on the top banks with regards to assets is similar to the market share. During the analyzed period (2009-2012) there is registered a slightly increased of the total assets in case of important banks, with high market share. Even so, no significant change is registered between the most important players on Romanian banking market.

Table 2. Top 15 Banks in Romania in terms of assets

Bank	Assets 2009	Assets 2010	Assets 2011	Assets 2012
BCR	67.3	67.6	71	70.6
BRD	46.5	47.4	48	47.9
Banca Transilvania	19.4	21.5	25.7	29.3
CEC Bank	20.8	21.6	24.8	26.7
UniCredit Tiriatic	20.2	20.4	22.3	24.9
Raiffeisen Bank	20	21.7	23.6	23.4
Volksbank	21.7	19.7	17.7	16.5
ING Bank	10.9	12	14.5	16.5
Alpha Bank	21.1	21.3	16.5	16.5
Bancpost	14.5	13.4	12.2	12.1
Piraeus Bank	9.5	9.3	8.1	7.7
Banca Romaneasca	8.5	7.6	7.4	7
Garanti Bank	3.5	6	6.1	6.6
citi Bank	4.5	4.8	5.7	6.2
Credit Europe	5.6	4.8	4.7	5.1
Total assets for banking system	330.2	342	343.9	365.9

Considering the above date, it was considered relevant the Herfindahl-Hirschman Index (HHI) that is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them. Named after economists Orris C. Herfindahl and Albert O. Hirschman, it is an economic concept widely applied in competition law, antitrust and also technology management. It is defined as the sum of the squares of the market shares of the 50 largest firms (or summed over all the firms if there are fewer than 50) within the industry, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1.0, moving from a huge number of very small firms to a single monopolistic producer. Increases in the Herfindahl index generally indicate a decrease in competition and an increase of market power, whereas decreases indicate the opposite. The major benefit of the Herfindahl index in relationship to such measures as the concentration ratio is that it gives more weight to larger firms.

Table 3. *IHH for Romanian banking system (2009-2012)*

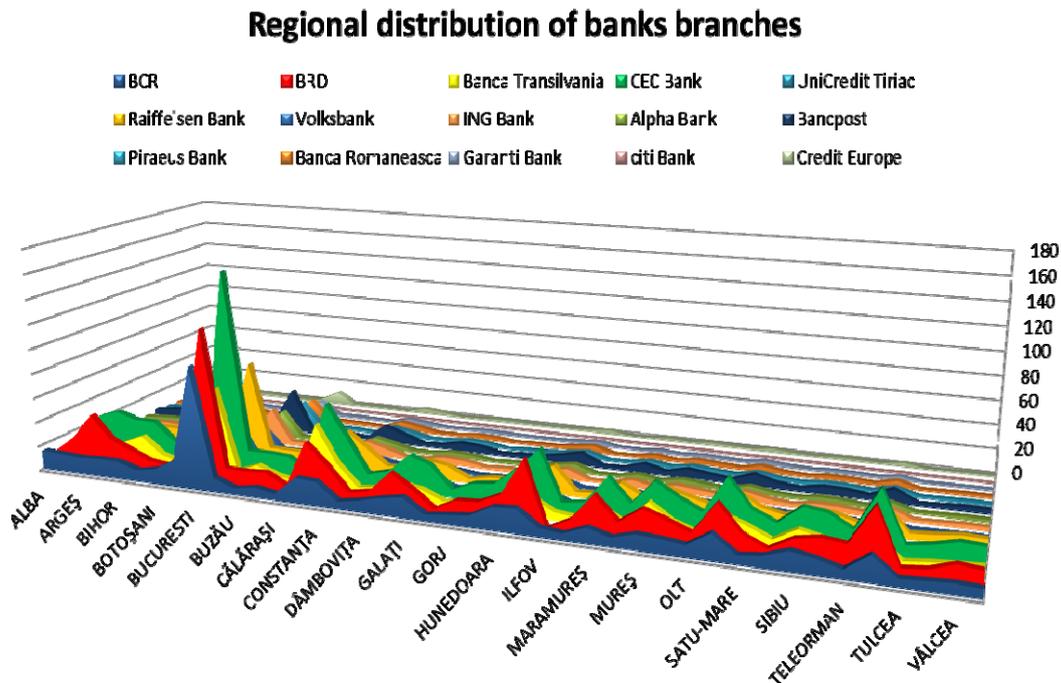
IHH 2009	0.0847
IHH 2010	0.0862
IHH 2011	0.0870
IHH 2012	0.0840

With regards to the concentration level, the banking market in Romania is atomized, with highly competitiveness, as for the results obtained after calculating the IHH in case of Top 15 Banks in Romania.

Considering this result and the market share mentioned above, it was analyzed the regional distribution of banks units within the 41 Romanian countries. The results show that there is not a perfect correlation between the market share or assets and the number of banks units. Therefore, CEC Bank – that is on 4th place in terms of assets, is the leader on regional distribution of branches, having the most important spread within the territory (over 1000 units). The second place is occupied by BRD- Group Societe Generale, followed by BCR and Raiffeisen Bank.

Other important aspect showed by this analysis is the most important cities in which the banking activity is concentrated: Bucharest (registering the highest number of units/squared meter – being the exception on the general overview of the banking market).

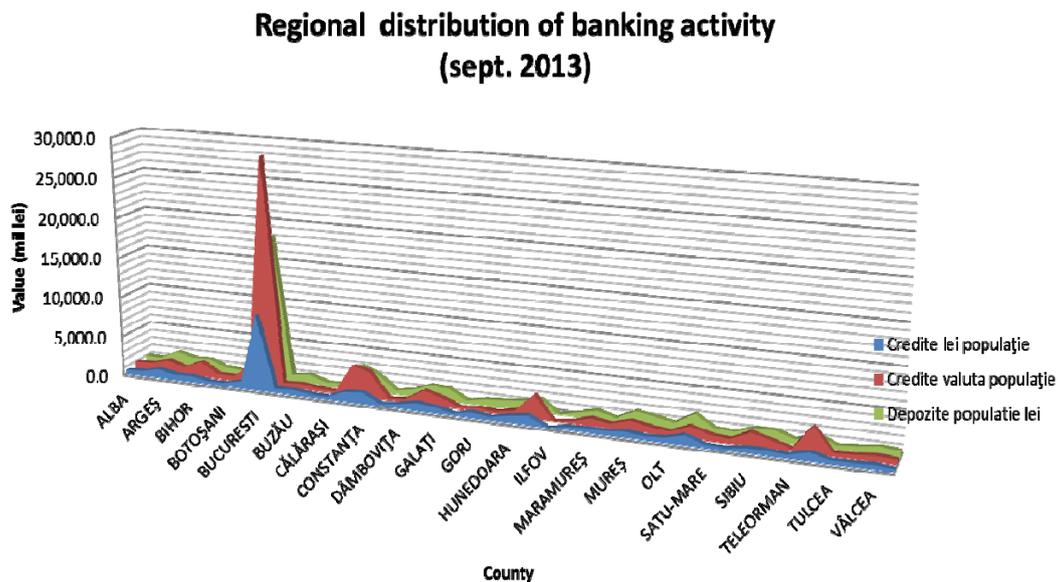
Figure 2. Regional distribution of banks (Sept. 2013)



Source: banks websites.

Other countries in which the banking activity has important values are: Constanta, Dambovitza, Hunedoara, Olt, Maramures and Teleorman.

Similarities are registered in terms of banking activity considering the population lons (in RON and foreign currency) and the population economies (in RON). The most dynamic countries are: Bucharest (with the highest results on balance), Constanta, Hunedoara and Teleorman. Therefore, the regional distribution is most influenced by the population demand for banking products and services even in our days, when online or phone banking services are increasing.

Figure 3. Regional distribution of banking activity (Sept 2013)

Source: The National Bank of Romania.

2. Analyzing the banking spatial distribution within Giurgiu County

For a better understanding of the importance of the banks localization, it will be used as example, the Giurgiu County, applying the Nearest Neighbor Statistics. Decay statistical tool was used to establish existence of physical relationship as it affects socio-economic relationship within an entity.

The Nearest Neighbor (RN) is calculated: $2d\sqrt{\frac{n}{A}}$

where,

A – the size of the unit area concerned;

d – the mean distance between location of banks;

n – the number of points (banks in unit area);

$$d = \frac{dobs}{n}$$

dobs – summation of the nearest neighbor distances.

In order to better exemplify the spatial distribution of bank's units, it was chosen the Giurgiu County for applying the Nearest Neighbor Statistic. The first step was to identify the total number of banks units existing in the County, not only in the main city. The research gave the following situation:

Table 4. Number of banks units within Giurgiu County

BCR	5	Raiffeisen Bank	3
Bolintin Vale	1	Bolintin Vale	1
Sos.Bucuresti	1	Sos.Bucuresti	1
Str.Tineretului	1	Str.Portului	1
Str. Vlad Tepes	1	Volksbank	1
Mihaiilesti	1	Sos.Bucuresti	1
BRD	3	ING Bank	1
Bolintin Vale	1	Str. Piata Unirii	1
Sos.Bucuresti	1	Alpha Bank	1
Str. Vasile Alecsandri	1	Sos.Bucuresti	1
Banca Transilvania	3	Bancpost	2
Sos.Bucuresti	1	Str. Vasile Alecsandri	1
Str. Garii	1	Sos. Giurgiului	1
Zona Libera Giurgiu	1	Piraeus Bank	0
CEC Bank	6	Banca Romaneasca	1
Str. Garii	1	Sos.Bucuresti	1
Sos.Bucuresti	1	Garanti Bank	1
Mihaiilesti	1	Str. Piata Unirii	1
Bolintin Vale	1	citi Bank	0
Clejani	1	Credit Europe	1
Colibasi	1	Str. Piata Unirii	1
UniCredit Tiriac	1		
Sos.Bucuresti	1		

Considering the main neighbors, it can be summarized as:

Table 5. Number of banks units within Giurgiu County

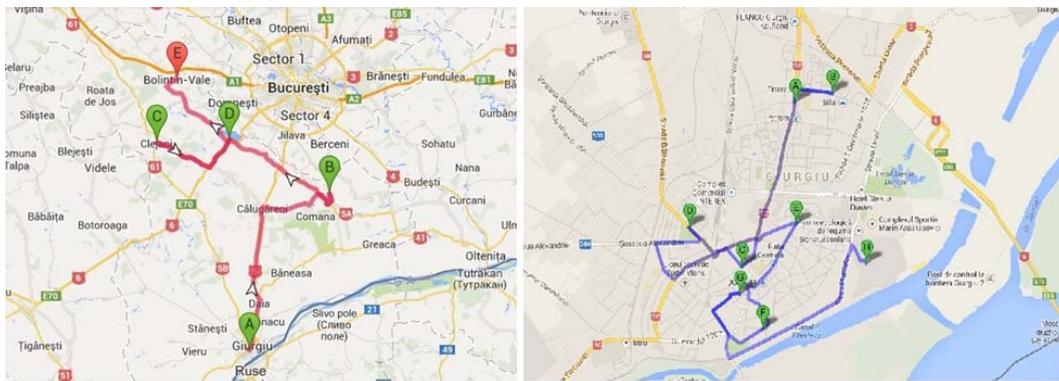
Bolintin Vale	4
Mihaiilesti	2
Clejani	1
Colibasi	1
Sos.Bucuresti	9
Str. Tineretului	1
Str. Vlad Tepes	1
Str. Vasile Alecsandri	2
Str. Garii	2
Str.Portului	1
Str. Piata Unirii	3
Zona Libera Giurgiu	1

After applying the Nearest Neighbor Statistics it was obtained a coefficient of 1.69 which was interpreted using Kings Scale, showing that the banks are located random in the territory, not showing any clustered sign.

Table 6. *Statistics results*

A (square m)	Dobs(m)	d (m)	n	Rn
3526000000	266500	9517	28	1.69

In order to better visualize the spatial distribution within the territory, please see the below maps showing the routes of the distances for both County (map A) and Giurgiu city (map B).



A

B

Map 1: *the territory distribution of banks units within Giurgiu County (A), respective in Giurgiu City (B).*

The explanation for the obtained results is given by the territory location of the chosen County near the Capital, which might explain the unusual dispersion of the units. Also, another explanation can be the general situation of the people living in this area. Giurgiu is one of the last countries from Romania that is characterized by poorness, low level of wages, high number of social cases, low level of demand for banking products and services.

Conclusions

The statistical tests applied within this paperwork showed that the banks within Giurgiu are located random in the territory, not showing any clustered sign.

It must be mentioned that this country has large inequalities within the economic activities and the trade, constructions and food industry are the ones that dominate the region. The microeconomic development is reduce at global level and the number of banks unit is very small compared with the country situation. Almost

72% of banks units are concentrated within the country residence that shows important regional disparities.

Giurgiu is located near the Capital, which might explain the unusual dispersion of the units. Also, another explanation can be the general situation of the people living in this area. Giurgiu is one of the last countries from Romania that is characterized by poorness, low level of wages, high number of social cases, low level of demand for banking products and services.

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