COMPARATIVE STUDY ON THE EVOLUTION OF LOANS AND DEPOSITS BETWEEN THE ROMANIAN BANK FOR DEVELOPMENT (BRD) – GROUPE SOCIETE GENERALE AND THE ROMANIAN BANKING SYSTEM

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ABSTRACT: Traditionally, banking consists in attracting deposits or other repayable funds from the population and in granting loans. This paper aims to analyze the attracted deposits and the loans granted by BRD – Groupe Societe Generale in relation to the Romanian banking system, as well as analyze the evolution of deposits and loans in terms of the interest rate for the whole banking system with the help of the Pearson's correlation coefficient for the period 2006-2010.

Key words: banking system; analyze; deposits; loans; correlation coefficient.

Jel codes: G21; E58.

Introduction

At the macroeconomic level, the relative bank performance of commercial and industrial loans is an autonomous source of macroeconomic fluctuations. Klaus Schaeck, Martin Cihak and Simon Wolfe using the Panzar and Rosse H-statistic as a measure of competition in 45 countries, they find that more competitive banking systems are less prone to experience a systemic crisis and exhibit increased time to crisis.

The papers by Merton (1977, 1978), Fries et al. (1997), Bhattacharya et al.(2002), Decampset al.(2004), Lehar (2005), and Dangl and Lehar (2004) are prominent examples for this literature. Theirs papers have in common that banks are subject to regulation, i.e. regulation requires the capital-asset ratio of banks to exceed a given level. However, theirs papers focus on an exogenously given deposit structure of banks rather than on endogenous deposit volumes and adjustments of the deposit volume in the future.

These study has the following purposes:

1) To determine the share held by BRD – Groupe Societe Generale in terms of the volume of attracted deposits and granted loans in the overall Romanian banking system.

2) To analyze the influence of the interest rate over the volume of deposits and loans in **the Romanian banking system**. To establish if the interest rate directly influences the volume of deposits and loans, we turned to statistics, which allowed calculating the correlation coefficient between these two variables: independent variable (the interest rate) and the dependent variable (the volume of deposits or the volume of loans).

It should be mentioned that our research used data from the Monthly bulletins of the National Bank of Romania and from the Annual reports of BRD-GSG.

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1. The analysis of the deposits attracted and the loans granted by the Romanian Bank for Development – Groupe Societe Generale in relation to the Romanian banking system

1.1. The evolution of the deposits attracted and the loans granted by the Romanian Bank for Development – Groupe Societe Generale in relation to the Romanian banking system

To perform the analysis of the evolution of loans and deposits, it's necessary to talk about the volume of deposits and loans granted by BRD – Groupe Societe Generale, as well as by other monetary financial institutions.

Table no. 1

The structure and volume of the attracted deposits within the Romanian banking system (million lei)

Period	Natural persons	Legal persons	TOTAL	Evolution (%)
2006	44124	52182.2	96306.2	28.85
2007	67315.6	54862.3	122177.9	26.86
2008	82888.5	59615.2	142503.7	16.63
2009	97305.1	58059.7	155364.8	9.02
2010	104014.6	62245.5	166260.1	7.01

Source: Monthly bulletin of NBR

Table no. 2

The structure and volume of the granted loans within the Romanian banking system (million lei)

Period	Natural persons	Legal persons	TOTAL	Evolution (%)
2006	39271.1	49831.4	89102.5	58.52
2007	71507.7	72955.4	144463.1	62.13
2008	99210.3	94605.5	193815.8	34.16
2009	100216.2	96189.6	196405.8	1.33
2010	102099.6	104597.6	206697.2	5.23

Source: Monthly bulletin of NBR

Total loans at the end of the year 2006 exceeded 89.1 billion RON. Thus, the total volume of loans granted by credit institutions increased by 52.52% compared to the year 2005. At the end of 2006, deposits exceeded 96.3 billion RON, up by 28.85% compared to December 2005.

Total loans amounted at the end of the year 2007 to approximately 144 billion RON, while the total volume of loans granted by credit institutions was up by 62.13% compared to December 31, 2006. At the end of 2007, deposits exceeded 122 billion RON, marking an increase of 26.86% compared to December 31, 2006.

The total amount of the loans granted by credit institutions was approximately 193 billion RON at the end of 2008. Compared to December 31, 2007, the total volume of loans was up by 34.16%. In terms of deposits, they exceeded 142.5 billion RON at the end of 2008, marking an increase of 16.63% compared to December 31, 2007.

At the end of 2009, loans amounted to a total of over 196.4 billion RON. Therefore, the total volume of loans granted by credit institutions increased by 1.33% compared to December

2008. In terms of deposits, at the end of 2009, they exceeded 155.3 billion RON, recording an increase of 9.02% compared to December 31, 2008.

In 2010, the volume of deposits increased by 7.01% compared to 2009, reaching 166.2 billion RON, and the total volume of loans granted to clients was 206.6 billion RON on December 31, 2010, up by 5.23% compared to the previous year.

Table no. 3

The structure and value of deposits attracted by BRD-GSG (million lei)

Period	Natural persons	Legal persons	TOTAL	Evolution (%)
2006	7217	12591	19808	34.45
2007	12075	15044	27119	36.9
2008	13055	15672	28727	5.92
2009	14606	14919	29525	2.77
2010	14682	15212	29894	1.24

Source: Annual reports of BRD-GSG

Table no. 4

The structure and value of loans granted by BRD-GSG (million lei)

Period	Natural persons	Legal persons	TOTAL	Evolution (%)
2006	8844	9134	17978	81.06
2007	12907	12531	25438	41.49
2008	15783	16482	32265	26.83
2009	16038	17211	33249	3.04
2010	16044	17119	33163	-0.2

Source: Annual reports of BRD-GSG

The value of total loans at the end of 2006 exceeded 17.9 billion RON, the loans granted to natural persons representing 50%. Thus, the total volume of the loans granted by BRD – Groupe Societe Generale was up by 81.06% in nominal terms compared to December 2005. The number of the loans granted to natural persons increased by 116%, while the loans for legal persons increased by 56%. At the end of 2006, deposits exceeded 19.8 billion RON, up by 34.45% compared to December, 2005.

In terms of granted loans, at the end of 2007, their total was approximately 25 billion RON, loans granted to natural persons representing 50%. The total volume of loans granted by BRD – Groupe Societe Generale grew by 41.49% compared to December 31, 2006. The growth of loans given to natural persons was 45%, while the loans granted to legal persons increased by 42%. The share of small and medium sized enterprises within total bank commitments was 39% at the end of the year. Regarding the year 2007, deposits exceeded 27 billion RON, marking an increase of 36.9% compared to December 31. 2006.

32 billion RON was the volume of total loans given by the bank in 2008, loans for natural persons representing 48% of total. Compared to December 31, 2007, the total volume of loans granted by BRD – Groupe Societe Generale was up by 26.83%. In terms of deposits, they exceeded 28.7 billion RON at the end of 2008, marking a growth of 5.92% compared to December 31, 2007.

Total loans at the end of 2009 exceeded 33.2 billion RON. Thus, the total volume of loans

granted by BRD – Groupe Societe Generale was up by 3.04% compared to December 2008. Regarding deposits, they exceeded 29.5 billion RON at the end of 2009, designating an increase of 2.77% compared to December 2008.

In 2010, deposits increased by 1.24% compared to 2009, reaching 29.8 billion RON, and the total volume of loans reached 33.1 billion in December 2010, a drop of 0.2% compared to the previous year.

The structure of loans by categories of clients has remained unchanged compared to 2009, 48% of total loans being granted to natural persons and 52% to legal persons. The evolution of the loans' volume has been influenced by the extremely low demand, particularly on the market of natural persons despite stimulating demand through low interests for consumer loans.

Regarding the evolution of the attracted deposits and the loans granted by BRD – GSG in relation to the Romanian banking system for the period 2006-2010, it is presented in the below charts:
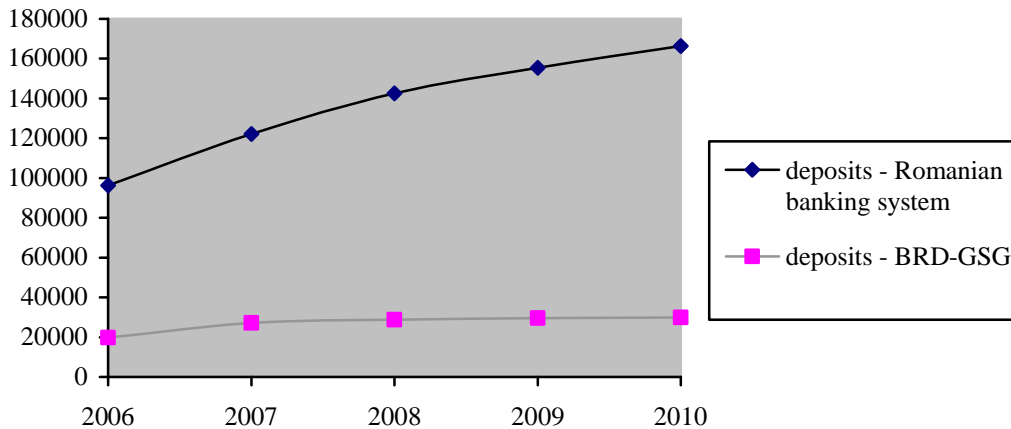
Source: Data processed by the author on the basis of data disclosed in the monthly bulletins of NBR and the annual reports of BRD – GSG

Fig. no. 1. - The evolution of the deposits attracted by BRD – GSG compared to the Romanian banking system in the period 2006-2010

As shown in the chart above, although the volume of the deposits attracted by financial institutions recorded a significant growth during the analyzed period, the volume of deposits attracted by BRD – Groupe Societe Generale increased in 2007 by 37% compared to 2006, while the period 2007-2010 was marked only by a slight increase.
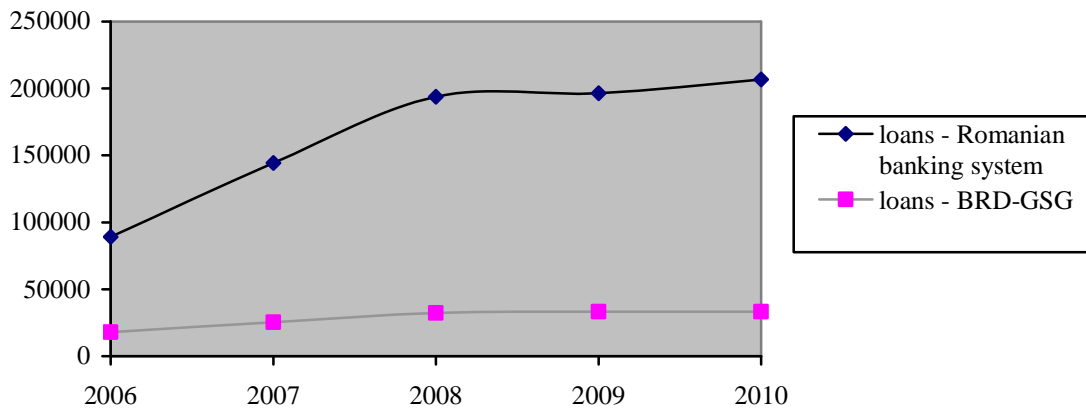
Source: Data processed by the author on the basis of data disclosed in the monthly bulletins of NBR and the annual reports of BRD – GSG

Fig. no. 2. - The evolution of the loans granted by BRD – GSG compared to the Romanian banking system in the period 2006-2010 (million lei)

By analyzing the chart above, it is obvious that in the period 2006-2008, the volume of loans granted by financial institutions recorded a significant growth compared to the volume of loans granted by BRD – Groupe Societe Generale.

Given the start of the financial crisis at global level, which was also felt by our country, starting with 2008, we can talk about a slight increase in the volume of loans granted by financial institutions, instead, in the case of the Romanian Bank for Development Groupe Societe Generale, there was no upward trend for loans, the year 2010 ending with a drop of 0.2% compared with 2009.

1.2. The share of attracted deposits and loans granted by the Romanian Bank for Development - Groupe Societe Generale within the overall banking system

To analyze the share held by BRD – Groupe Societe Generale in the overall banking system in terms of deposits, we have to make the following calculations:

$$p = \frac{\text{Volume of total deposits BRD – GSG}}{\text{Volume of total deposits RBS (Romanian banking system)}} \quad x100 \qquad (1)$$

To analyze the share held by BRD – Groupe Societe Generale in the overall banking system in terms of loans, we have to make the following calculations:

$$p = \frac{\text{Volume of total loans BRD – GSG}}{\text{Volume of total loans RBS (Romanian banking system)}} \quad x100 \qquad (2)$$

Table no.5.

The share held by BRD – Groupe Societe Generale in the overall banking system

	2006	2007	2008	2009	2010
- in terms of deposits	30,56%	22,19%	20,15%	19%	17,98%
- in terms of loans	20,17%	17,60%	*16,64%*	16,92%	*16,04%*

Previous results show that in 2006, BRD-GSG accounted for 20.56% of total deposits attracted by monetary financial institutions, followed by an increase of 1.63% in 2007, which proves that natural persons, as well as legal persons, chose the loans granted by BRD-GSG at the expense of other monetary financial institutions in the Romanian banking system.

Calculations show that in the period 2008-2010, the share held by BRD-GSG has had a sinuous evolution, marking a downward trend, namely 2.4% in 2008 compared to 2007, 1.15% in 2009 compared to 2008 and 1.02% in 2010 compared to 2009.

In 2006, BRD-GSG accounted for 20.17% of total loans granted by monetary financial institutions, followed by a drop of 2.57% in 2007, which shows that BRD-GSG began to lose ground to other monetary institutions.

Although in 2008, the volume of loans granted by the Romanian Bank for Development – Groupe Societe Generale continued to decrease, the bank achieved a very good performance according to Euromoney magazine.

In 2009, there was a slight recovery, BRD-GSG accounting for 16.92% of total volume, which represents an increase of 0.28%, but in 2010, the situation got worse and the volume of loans dropped by approximately 1%.

2. Analysis of deposits and loans in terms of the interest rate applied in the Romanian banking system

Table no. 5 and table no. 6 show the interest rates practiced by credit institutions for deposits and loans, respectively, and these data are necessary for our analysis.

Table no. 6

The average interest rates for deposits applied by credit institutions in the Romanian banking system

Month	Volume of deposits (mil, lei)									
	2006	Rd (%)	2007	Rd (%)	2008	Rd (%)	2009	Rd (%)	2010	Rd (%)
Jan	74545,3	4,35	89048,8	4,47	122674,2	5,18	144694,2	10,53	152270,9	6,11
Feb	74309,0	4,05	90586,5	4,67	124707,5	5,54	144617	10,42	153296,5	5,63
Mar	75839,7	4,63	93050,2	4,69	127476,6	5,74	144628,4	10,52	154812,3	5,15
Apr	75356,8	4,61	93047,6	5,01	131078,2	6,24	144517	10,26	155996,4	4,74
May	78933,8	4,77	92656,1	4,73	130731,3	6,52	145186,3	9,67	157330,7	4,60
Jun	81271,8	4,73	94544	4,72	133873,6	6,86	147030,9	9,03	158829,5	4,45
Jul	81737,5	4,82	97695,5	4,65	133397,8	7,04	147911,8	8,02	156886,7	4,29
Aug	84110,4	4,97	101424,5	4,59	134502,8	7,48	150429,8	7,37	157658,2	4,29
Sept	84686,4	4,88	103344,5	4,73	138255,1	7,79	150279,8	7,1	158384,2	4,17
Oct	86425,4	5,1	106078,8	4,82	133467	8,62	150692	6,71	157812,1	4,06
Nov	87756,6	5,08	112309,8	4,9	134262,8	9,31	151596,2	6,51	160892,5	4,02
Dec	96306,2	5,18	122177,9	4,93	142503,7	9,91	155364,8	6,51	166260,1	3,98

Source: Monthly bulletins of NBR

By analyzing the data for the period 2006-2010, as seen from the table above, we find that in most cases when the interests rate for deposits drops, the volume of deposits increases, so banks have no problems in attracting deposits regardless of their interest rate.

It's worth mentioning that in the months when the interests showed a modest growth, the volume of deposits increases significantly.

Another aspect that emerges from the analysis of deposits during the five years is the fact the interest rate varies from month to month, recording a constant level only in 2009 and 2010, in November-December and July-August, respectively.

Considering the variation of the interest rate, the highest level was recorded in January 2009 with a percentage of 10.53% and a value of 144.694,2 million lei. The lowest level of the interest rate was recorded in December 2010 with a percentage of 3.98%, but, regardless of this rate, the volume of the deposits reached 166.260,1 million lei, which is the highest value in the analyzed period.

Table no. 7

The average interest rates for loans applied by credit institutions in the Romanian banking system

Month	Volume of loans (mil. lei)									
	2006	Rd (%)	2007	Rd (%)	2008	Rd (%)	2009	Rd (%)	2010	Rd (%)
Jan	56804,2	16,56	89052,7	13,66	150544,4	13,16	202136,3	17,86	195711,7	16,31
Feb	57696,1	15,19	91907	13,72	154504,5	13,49	202746,9	18,1	195703,4	15,61
Mar	60779,3	15,95	95934,9	13,69	160734,9	13,76	198474,9	18,14	196097,7	15,01
Apr	63200,9	15,43	99441,9	14,01	164976,2	14,37	196552,6	18,07	197053,2	14,23
May	67278,9	15,3	103537,6	13,69	168024,9	14,41	195338,8	17,73	199950,1	14,25
Jun	71387,6	14,91	106233,9	13,28	173819,1	14,41	194393,2	17,46	207546,3	13,91
Jul	74636,1	14,7	111760,6	13,14	174305,7	14,61	194482,9	17	203684,5	13,9
Aug	77008,3	14,78	119014	12,95	179180,9	14,9	195416	16,67	204926	13,59
Sept	81605,7	14,35	125924,4	12,9	189628,4	15,29	195619,2	16,5	205136	13,41
Oct	85096,1	14,56	129702,7	13	188794,3	16,66	197845	16,59	204297	13,19
Nov	87837,5	14,24	137615	13,02	191014,3	17,43	197609,5	16,57	205454,3	12,96
Dec	89102,5	14,33	144463,1	13,03	193815,8	17,46	196405,8	16,58	206697,2	12,7

Source: Monthly bulletins of NBR

By analyzing the data in table no. 6, we reached the conclusion that the highest level of the interest rate for loans was recorded in March 2009 with a percentage of 18.14% and a volume of 198.479,9 million lei; and the lowest level of the interest rate was recorded in December 2010 with a percentage of 12.7% and the highest volume of loans during the analyzed period, namely 206.697,2 million lei.

It's important to mention that over the analyzed years, the volume of granted loans was on an upward trend regardless of the level of the interest rate.

3. Analysis of the correlation between interest rates and the volume of deposits and loans in the Romanian banking system with the help of the correlation coefficient

The study is based on data from the period January 2006 – December 2010 and we turned to statistics for their interpretation, which allowed calculating the correlation coefficient for the two variables: the independent variable – the interest rate for deposits and loans, respectively; and the dependent variable – the volume of deposits and loans, respectively.

In this respect, to obtain the linear correlation between the two series of data, we used Person's correlation coefficient.

Pearson's correlation coefficient gives indication about the magnitude of a correlation through a value that lies between -1.00 and 1.00. The correlation is made up of pairs of scores (results) for each piece of information in the sample; each piece of information has a pair of scores, one for each of the two variables of the correlation. A correlation of one indicates a perfect correlation, so if we know it has the highest score for one variable, we also know it has the same score for the other variable. A negative correlation would engage each other in an inverse proportion. A correlation of less than one, either positive or negative, shows that each result of a pair of scores attracts the other one in a less than perfect correlation, so the highest score of a variable in a positive correlation could be accompanied by an average score of the other variable.

The fact the relation happens through a correlation doesn't allow us to conclude that the relation is causal. Often, the relation is the result of a third variable or of a combination of variables. Whether the relation is causal or not, a correlation allows this prediction; therefore, such relations are extremely useful (Coman GH., 2007).

In the case of the Romanian banking system, we would obtain the following Person's correlation coefficient between the interest rate and the volume of deposits and loans:

$$r = \frac{\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2}\sqrt{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}}. \qquad (3)$$

a) If the Person's coefficient is negative, then there is an inverse correlation where X increases and Y decreases;
b) If the result is positive, then there is a direct correlation where X increases and Y decreases;
c) If the coefficient is O, then there is no correlation.

In the tables below we calculated Person's correlation coefficient for deposits and loans with the help of the data in table no. 5 and table no. 6.

Table no. 8

Correlations between the interest rate and the volume of deposits in the period 2006-2010

Period	Correlation coefficient for deposits
2006	0,866464769
2007	0,537967685
2008	0,864481316
2009	-0,945635938
2010	-0,806752853

Source: Data processed by the author on the basis of data issued in the monthly bulletins of NBR

We analyzed 60 months from the period 2006-2010, which shows the following:
In the period 2006-2008, Person's correlation coefficient between the interest rate and the value of the deposits is mostly positive. In 2006 and in 2008 the coefficient was very close to 1, which means that there is a direct correlation between the two variables, but in 2007, although the coefficient had a positive value, the correlation is weakened because it tends to move away from 1, which reflects that there are other factors influencing the volume of deposits, not just the interest rate:

➢ increased competition for resources;
➢ galvanized wages;
➢ a slower accumulation of bank debts by certain categories of the population;
➢ propensity towards savings amid accelerating growth of relegation for people who work abroad;
➢ propensity towards savings amid the pessimism generated by the deterioration of people's financial situation;
➢ slight increases in industrial output and in work productivity, but also an increase of the turnover.

The years with negative values are 2009 and 2010, which reflects the existence of an inverse correlation between the interest rate (cause variable) and the value of deposits (effect variable),

meaning the more the average interest rate drops, the more the value of the deposits grows. In this situation, the factors that have influenced the deposits' volume are:
- the economic crisis
- lower standards of living
- rising unemployment

Table no. 9

Correlations between the interest rate and the volume of loans in the period 2006-2010

Period	Correlation coeficient for loans
2006	-0,886241972
2007	-0,829065008
2008	0,919054103
2009	0,463710035
2010	-0,862185475

Source: Data processed by the author on the basis of data issued in the monthly bulletins of NBR

For loans, we took into account the same 60 months from the period 2006-2010, and we discovered the following:

In 2006, 2007 and 2010, Person's correlation coefficient between the interest rate and the value of the loans is negative, which means that there is an inverse correlation between the two variables, so if the interest rate drops, the volume of the loan increases. The factors that contributed to increasing the loans' volume are:
➢ promotional launches by credit institutions;
➢ increased level of accessibility to the resources provided by banks;
➢ extension of the grace periods and extension of lending terms;
➢ lower living standards, which led to more consumer loans;
➢ maintaining the string competition in the banking system;
➢ refinancing possibilities

The years with positive values are 2008 and 2009, which reflects the existence of a direct correlation between the interest rate and the value of the loans, meaning that as the interest rate drops, so does the value of the credits, which shows that there are other factors that influence the volume of loans, not just the interest rate:
o increased prudence of banks, motivated by lower expectations regarding economic and financial developments;
o tightened lending terms and standards;
o the potential reaching of the affordability threshold by the population with low incomes;
o the depreciation of the leu and the increased uncertainty regarding the future trajectory of the exchange rate

4. Conclusions:

The deposits-loans relationship plays an important role in banking, because as the volume of deposits attracted by the bank from the population increases, so does its lending capacity and the incomes that result from interests.

The study aimed to determine the share held by the Romanian Bank for Development – Groupe Societe Generale in terms of the volume of attracted deposits and granted loans in the overall Romanian banking system. Following the analysis, we noticed that BRD-GSG's share for deposits reached its highest rate in 2007, which was 22.19%; and in the period 2008-2010, it had a sinuous evolution marked by a downtrend, reaching 17.98% in 2010. In the case of loans, in 2006

the share was 20.17%, followed by a significant drop in the coming years, reaching 16.04% in 2010, which proves that BRD-GSG started to lose ground to other credit institutions. This was due to more prudence manifested by the bank and to tighter lending terms and standards, as well as to the promotions launched by other credit institutions.

To establish if the interest rate has a direct influence over the volume of deposits and loans in the overall banking system, we turned to statistics, which allowed calculating the correlation coefficient between two variables: the independent variable, represented by the interest rate, and the dependent variable, meaning the volume of deposits or loans. For deposits, in the period 2006-2008, Pearson's coefficient is positive, which means there is a direct correlation between the interest rate and the volume of deposits, meaning the more the interest rate grows (or drops), the more the volume of deposits increases (or decreases). The years 2009 and 2010 recorded negative values, reflecting the existence of an inverse correlation between the interest rate and the value of the deposits, meaning the more the interest rate drops, the more the value of the deposits increases; this is explained by the tendency of the population to save money.

For loans, in 2006, 2007 and 2010, Pearson's correlation coefficient between the interest rate and the value of loans is negative, which means that there is an inverse correlation between the two variables; thus, if the interest rate increases, the loans' volume decreases. The years with positive values were 2008 and 2009, which reflects the existence of a direct correlation between interest rate and loan value, meaning as the interest rate drops, so does the value of the loans, which shows that there are other factors that influence their volume.

The evolution of the interest rates must also be compared with the evolution of inflation, in the case of our country the decrease in interest rates are explained by the decrease in inflation.

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