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MICROECONOMIC FACTORS AFFECTING BANKS' FINANCIAL PERFORMANCE: THE CASE OF ROMANIA

Empirical
study

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JEL Classification

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Abstract

Banks are important cells in the economy as they have a significant role by maintaining and encouraging the development of economic sectors. They refocus the resources from those who have surplus to those which have a deficit. Therefore, as any other enterprises, performance is highly desirable for banks and, then, it is crucial to discover what the main factors that influence this objective are. So, this paper analyzes the microeconomic factors affecting bank's financial performance focusing on 11 entities for the period between 2003 and 2013. The performance is measured by return on assets. The independent variables used are bank's size, financial leverage, loans to assets ratio, deposits to assets ratio, number of employees, liquidity, net result and monetary policy rate. The results show that bank's size, loans to assets ratio and liquidity have not a significant impact on performance. Financial leverage has a negative impact, meanwhile the number of employees, deposits to assets ratio and net result have a positive effect.

1. Introduction

Banks are important entities in the economy as they facilitate the process of forwarding the resources from those who have a surplus to those who have a deficit. Through the work they undertake, banks determine a speed-up in the development process of an economy. Therefore, for this process to be facilitated, banks need to thrive, too. Prosperity will motivate them not to leave the market. So, it becomes important to know what the factors that influence the banks' well-being are. First, bank's financial performance is determined by specific factors. Secondly, it is determined by external factors. Both categories are important as they both have a contribution in increasing or decreasing the performance. This work is considering especially the microeconomic factors regarding the Romanian banking system.

2. Literature review

Along the time, the relationship between bank performance and factors that influence it has been studied in the literature a lot. Approaches are numerous and very different. Most of them are considering both internal and external factors. Gul, S., Irshad, F. and Zaman, K. (2011) examine the effect of microeconomic and macroeconomic factors on banking profitability in the case of the banking system of Pakistan. They consider as dependent variables the return on assets, return on equity, return on capital employed and net interested margin, as microeconomic independent variables the size, the capital, loans, deposits and as macroeconomic independent variables the GDP, inflation and stock market capitalization. Their conclusion is that both type of factors have an important impact on profitability. Nahang, F. and Araghi, M. K. (2013) are also studying the issue of factors influencing bank profitability using as dependent variable the return on assets and as independent variables deposits, credits, credits risk management, cost management and liquidity and are discovering that the amount of deposits are influencing negatively the performance, credits risk management and cost management are influencing positively the performance and liquidity has a negative impact. Acaravci, S. K. and Çalim, A. E. (2013) consider the Turkish banking system and examine internal factors such as total wage, assets, the ratio between equity and assets, credits in assets, deposits in assets, liquidity and commissions on some dependent variables: return on equity, return on assets and net interest margin. As they are also considering some macroeconomic factors, they find out that the first category of variables (internal) have a more significant effect than the external variables. Wasiuzzaman, S. and Tarmizi, H.-A. Bt A. (2013) analyze asset quality, capitalization and liquidity on Malaysian banks. They discover that the first two variables have a

negative impact on bank performance and liquidity a positive one. Almazari, A. A. (2014) is studying this issue on banks from Saudi Arabia and Jordan. He is considering some independent variables such as: bank size, liquidity risk, cost income ratio, net credit facilities to total assets, net credit facilities to total deposits, total investment to total assets, and equity to assets. Further, he is studying the effect of these factors on return on assets and is finding out that they have different effects on Saudi Arabia comparative with Jordan. So, he is concluding that Saudi banks are positively influenced by investment, liquidity risk and equity and negatively influenced by size, net credit facilities, cost to income ratio, meanwhile the performance of Jordanian banks is positively determined by net credit facilities, equity and liquidity risk and negatively determined by investment, bank size and cost income ratio. Sulub, S. A. (2014) investigates the effect of size, age and leverage on bank's financial performance in Sudan. He finds out that size has a positive impact on dependent variable; meanwhile age and leverage have a negative one.

3. Data and methodology

As said before, this paper objective is to determine which are the most important internal factors that influence banks' performance. In order to achieve this, an econometric model has been developed. The data collected consists of 11 Romanian banks (out of 40 available) analyzed between 2003 and 2013 (11 years). The information sources used are the financial reports, balance sheets and the profit-and-loss statements.

The dependent variable is the performance of the bank measured by return on assets (ROA) here. According to other studies in this area, independent variables that have been chosen are: the size of the bank expressed by natural logarithm from total assets (SZE), financial leverage (LEV), loans to assets ratio (LNS), deposits to assets ratio (DEP), liquidity (LIQ), net result (NR), number of employees (EMP) and monetary policy rate (MPR). This last variable has been introduced in order to capture a small part of external influences and so to make a more complete model. Table no. 1 shows how these variables have been calculated.

Thus, the model's equation has the following form:

$$ROA = \alpha_0 + \alpha_1 * SZE + \alpha_2 * LEV + \alpha_3 * LNS + \alpha_4 * DEP + \alpha_5 * LIQ + \alpha_6 * NR + \alpha_7 * EMP + \alpha_8 * MPR$$

Considering the independent variables, the research hypotheses regarding the relationships between the dependent variable and the independent variables are formulated as follows:

H1: There is no relationship between bank's performance and the size of the bank.

H2: There is no relationship between bank's performance and the financial leverage of the bank.

H3: There is no relationship between bank's performance and the loans to assets ratio of the bank.

H4: There is no relationship between bank's performance and the deposits to assets ratio of the bank.

H5: There is no relationship between bank's performance and the number of employees of the bank.

H6: There is no relationship between bank's performance and the liquidity of the bank.

H7: There is no relationship between bank's performance and the net result of the bank.

H8: There is no relationship between bank's performance and the monetary policy rate of the bank.

The estimation's results are shown in table no. 2.

As can be seen in table above, the intercept has a probability greater than 0.05 which means that this parameter has economic significance. Further, the estimation results show that the size of the bank has a negative impact of 0.028% on performance, but its probability is greater than 0.05 which means the impact is not significant. Thus, there is no any important impact and H1 hypothesis which stated that there is no relationship between bank's performance and the size of the bank is accepted. Further, the monetary policy rate has a positive impact of 0.081% on return on assets. Here, the significance threshold of 0.05 is met, which means the impact is significant. When the monetary policy rate is increasing with 1%, the performance of the bank grows with 0.08%. So, the H8 hypothesis stating that there is no relationship between bank's performance and the monetary policy rate of the bank is rejected. This result is comparable with Khan, W. A. (2014) who says that when the interest rate goes up due to the increasing in monetary policy rate, the bank's interest spread is also increasing, which determines the profitability to increase. Further, financial leverage has a negative impact. Its probability is less than 0.05 which means a significant effect, but the value of the coefficient is very low, only 0.004%. However, H2 hypothesis which stated that there is no relationship between bank's performance and the financial leverage of the bank is rejected. Loans to assets ratio has a positive impact on performance, but its coefficient is very low and, moreover, the probability is greater than 0.05, respectively 0.97, which means the effect is not significant. Thus, the H3 hypothesis stating that there is no relationship between bank's performance and the loans to assets ratio of the bank is accepted. Acaravci, S. K. and Çalim, A. E. (2013) are saying that there is a positive effect of loans, but just in case of foreign banks. The number of employees is affecting positively the performance as the coefficient is 0.242% and its

probability is 0.029, less than the critical threshold of 0.05%. Hence, when the number of employees is increasing with 1%, then ROA is increasing with 0.242% and the H5 hypothesis stating that there is no relationship between bank's performance and the number of employees of the bank is rejected. Further, deposits to assets ratio has a positive impact on return on assets meaning that when this ratio grows with 1%, the performance goes up with 0.006%. The impact of deposits to assets ratio is significant because of the probability less than 0.05 and so, the H4 hypothesis saying that there is no relationship between bank's performance and the deposits to assets ratio of the bank is rejected. Acaravci, S. K. and Çalim, A. E. (2013) are also saying that deposits have a positive impact on performance, but in their case it was insignificant. The results show that liquidity has a negative impact on performance, but its coefficient is too low to be considered an important factor in determining the dependent variable and, moreover, its probability is less than 0.05 showing that this impact is not significant. Consequently, the H6 hypothesis which stated that there is no relationship between bank's performance and the liquidity of the bank is accepted. This result is contrary to the one obtained by Wasiuzzaman, S. and Tarmizi, H.-A. Bt A. (2013) who concluded that there is a positive relationship between liquidity and performance. Finally, the net result has a positive impact on return on assets and the effect is a significant one since the probability is less than 0.05. When the net result is increasing with 1%, the return on assets goes up with 0.055%. Thus, H7 hypothesis considering there is no relationship between bank's performance and the net result of the bank is rejected.

To synthesize, table no. 3 shows the hypothesis which were accepted and the hypothesis which were rejected.

In conclusion, the variables taken into account have various effects on performance (see table no. 4).

Further, the validity of the model is needed to be tested. The obtained indicators can be seen in table no. 5.

As the probability of F-statistic is less than 0.05, the model fits in the limits of confidence level. Hence, the model is valid with a 95% probability. Further, the ratio of determination R-squared shows that 47.06% of the variance of the banks' performance (return on assets) is explained by the considered factors: size, financial leverage, loans to assets ratio, deposits to assets ratio, number of employees, net result, liquidity and monetary policy rate. Adjusted R-squared also shows that 43.25% of the return on assets' variance is explained by the earlier mentioned factors. Since the difference between the two ratios of determination is low and the value of Durbin-

Watson is 1.8843, the model is valid and the errors are not correlated.

Then, eliminating the variables that have no significant impact, the final form of the model's equation is as follows:

$$ROA = -0.768 - 0.004 * LEV + 0.006 * DEP + 0.055 * NR + 0.242 * EMP + 0.081 * MPR$$

The correlation matrix (see table no. 6) shows that performance is positively correlated with bank size, monetary policy rate, loans to assets ratio, number of employees, deposits to assets ratio, liquidity and net result and negatively correlated with financial leverage. Size is positively correlated with financial leverage, number of employees, liquidity and net result and negatively correlated with monetary policy rate, loans to assets ratio and deposits to assets ratio. Monetary policy rate is positively correlated with financial leverage, loans to assets ratio, deposits to assets ratio and net result and negatively correlated with number of employees and liquidity. Financial leverage is positively correlated with liquidity and net result and negatively correlated with loans to assets ratio, deposits to assets ratio and number of employees. Loans to assets ratio is positively correlated with number of employees, deposits to assets ratio and net result and negatively correlated with liquidity. Deposits to assets ratio is negatively correlated with liquidity and positively with net result. Finally, liquidity is positively correlated with net result.

As can be seen in the correlation matrix drawn in table no. 6, there is no value greater than 0.8. This fact means there is no a multicollinearity issue between independent variables and, therefore, the considered explanatory variables can all be used together in one econometric model.

4. Conclusions, limitations and further research

This paper's objective was to find out how certain microeconomic factors are influencing the performance of a bank. The study was conducted on 11 Romanian banks on the period between 2003 and 2013. The financial performance, which is the dependent variable, is measured by return on assets. The explanatory variables which were used here are: the bank's size expressed by natural logarithm from total assets, financial leverage, loans to assets ratio, deposits to assets ratio, number of employees, liquidity, net result and monetary policy rate. Estimation results show that bank's size, loans to assets ratio and liquidity have not a significant impact on performance. Financial leverage has a negative impact, meanwhile the number of employees, deposits to assets ratio and net result have a positive effect. All these factors

influence the dependent variable in proportion of 47%, meaning that the rest is under the influence of other factors that have not been considered.

This study has also some limitations. First of all, the sample is small. If a larger one is used, the results may change. Secondly, the econometric model includes mostly microeconomic factors and in case of using a mix of factors it is possible again that results to be different. Then, for further research a larger sample is needed. The model could be extended with some other microeconomic factors and also macroeconomic factors.

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Variable	Calculation
ROA	Net result/Assets
Size	Natural logarithm of Assets
Leverage	Debts/Equity
Loans to assets ratio	Loans/Assets
Deposits to assets ratio	Deposits/Assets
Number of employees	-
Monetary policy rate	-
Net result	-
Liquidity	Loans/Deposits

Table no. 1: Variables' calculation.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SZE	-0.028750	0.078880	-0.364479	0.7162
MPR	0.081346	0.020211	4.024806	0.0001
LEV	-0.004448	0.001114	-3.947496	0.0001
LNS	0.000173	0.005025	0.034350	0.9727
EMP	0.242726	0.110221	2.202178	0.0297
DEP	0.006469	0.003976	1.626997	0.0466
LIQ	-0.000001	-0.000001	-0.819199	0.4144
NR	0.055922	0.010019	5.581457	0.0000
C	-0.768528	1.386453	-0.554312	0.5805

Table no. 2: Estimation's results.

Hypothesis	Description	Result
H1	There is no relationship between bank's performance and the size of the bank.	Accepted
H2	There is no relationship between bank's performance and the financial leverage of the bank.	Rejected
H3	There is no relationship between bank's performance and the loans to assets ratio of the bank.	Accepted
H4	There is no relationship between bank's performance and the deposits to assets ratio of the bank.	Rejected
H5	There is no relationship between bank's performance and the number of employees of the bank.	Rejected
H6	There is no relationship between bank's performance and the liquidity of the bank.	Accepted
H7	There is no relationship between bank's performance and the net result of the bank.	Rejected
H8	There is no relationship between bank's performance and the monetary policy rate of the bank.	Rejected

Table no. 3: Hypothesis' synthesis.

Independent variable	Impact
Size	Not significant
Financial leverage	Negative
Loans to assets ratio	Not significant
Deposits to assets ratio	Positive
Number of employees	Positive
Monetary policy rate	Positive
Net result	Positive
Liquidity	Not significant

Table no. 4: Variables' impact.

Variable	Value
R-squared	0.470657
Adjusted R-squared	0.432507
F-statistic	12.33676
Prob(F-statistic)	0.000000
Durbin-Watson stat	1.884356

Table no. 5: Validity test.

	ROA	SZE	MPR	LEV	LNS	EMP	DEP	LIQ	NR
ROA	1.000	0.209	0.273	-0.196	0.071	0.310	0.015	0.008	0.562
SZE		1.000	-0.307	0.101	-0.103	0.799	-0.100	0.059	0.330
MPR			1.000	0.186	0.074	-0.272	0.084	-0.013	0.181
LEV				1.000	-0.057	-0.019	-0.095	0.023	0.062
LNS					1.000	0.046	0.506	-0.034	0.183
EMP						1.000	0.124	0.029	0.377
DEP							1.000	-0.326	0.104
LIQ								1.000	0.061
NR									1.000

Table no. 6: Correlation matrix.