Implications on the Profitability of Banking Activity in the Context of the Current Global Financial Crisis

Bogdan Florin FILIP[1]

Abstract:

In this paper, the author outlines synthetically, first, landmarks of the manifestation of the global financial crisis effects with implications on the profitability of commercial banks, highlighting causal linkages which determine the return on assets (ROA) of the commercial banks. In this context it is deepened the research also in terms of the dynamics expressed by the evolution of banks' ROA and of the correlations of the respective rate with some macro indicators (the changes in EUR/RON exchange rate, the unemployment rate, GDP variation etc.), by adapting and using an econometric model in which the changes in ROA is the dependent variable while the other indicators are determinant variables. The results obtained by processing the data corresponding to the variables included in this econometric model, including the change in non-performing loans volume, within the analysis aiming the situation in Romania in the period 2008-2013, basically highlight negative implications of the mutations occurring on the background of the current financial crisis manifestation, reflected in reducing the profitability of the banking activity.

Keywords: ROA; GDP; exchange rate; inflation rate; NPLs

JEL Classification: G21, C20, M21

1 Introduction

The banking activity conducted by the commercial banks interacts organically with other areas of the financial activity, having close relationships of determination with the functioning of the real economy, it reflecting also the impact of other phenomena, including those of the economic and financial crisis, which is confirmed both at the level of each country, and globally. In this regard, we note that many authors (Demirgüç-Kunt & Huizinga, 1999; Alper & Anbar, 2011; Georgantopoulos & Tsamis, 2013) highlight the essential role played by banks in the sustainable development of the society.

Simultaneously, it has to be admitted also the existence of some inverse relationships of determination, capable of generating either an increase in performance, and thus in the commercial banks' profitability, or its decrease, depending on the changes taking place, both at the global financial level, and in the real economy.

On the other hand, considered distinctively, the weaknesses in banks' activity can lead to banking crises that transmit malfunctions in other areas of the overall financial and economic activity, contributing to the onset of global crisis (Kaminsky & Reinhart, 1999, p. 476). In turn, the latter imply negative effects that amplify the disturbances, including crises in the banking system, shaping thus a vicious and dangerous spiral, respectively the twin crises phenomenon (Kaminsky & Reinhart, 1999, p. 474).

[1] Senior Lecturer, „Alexandru Ioan Cuza" University of Iaşi, Faculty of Economics and Business Administration, 11 Carol Blvd, 700506, Iaşi, Romania, telephone no +40-232-201448, fax no +40-232-201448, Corresponding author: bogdan.filip@feaa.uaic.ro.

2. Theoretical Approaches

The objective existence of the invoked interdependencies between the profitability of banking activity, conceived through covering the specific costs by the revenues, respectively by the obtainable financial results, and the economic and financial environment of this activity, including with the phenomenon of transmission of shocks generated by the financial crisis, justifies intensive concerns for investigating the involved factors of influence.

Thus, some papers have analysed the influences of this kind of factors in a single country, such as Turkey (Alper & Anbar, 2011), Switzerland (Dietrich & Wanzenried, 2011), Spain (Trujillo-Ponce, 2013), Tunisia (Rachdi, 2013), Greece (Georgantopoulos & Tsamis, 2013) and so on, while others aimed groups of countries (Mendes & Abreu, 2003; Goddard et al., 2004; Athanasoglou et al., 2006). We note, also, the growing interest for investigating of the effects transmitted on the profitability of banking activity within the context of the current global financial crisis, reflected in some papers (Dietrich & Wanzenried, 2011; Georgantopoulos & Tsamis, 2013; Rachdi, 2013).

Likewise, we notice that, both in the scientific literature and in banking practice, the profitability of banking activity is measured typically by the indicators ROA (Athanasoglou et al., 2006; Babihuga, 2007; Dietrich & Wanzenried , 2011; Georgantopoulos & Tsamis, 2013), ROE (Athanasoglou et al., 2006; Alper & Anbar, 2011; Trujillo-Ponce, 2013) and, sometimes, the net interest margin (Demirgüç-Kunt & Huizinga, 1999; Mendes & Abreu, 2003).

A comparative approach of the conceptual meanings and of the ways of expressing the profitability of banking activity and of its determinants, stresses that banks' indicator "the return on average bank assets" (ROA) is the most conclusive indicator for assessing the level of the profitability of each bank or banking system and for identifying its most important determining factors, including on the background of the global financial crisis.

Consequently, in the analyses undertaken by us, we propose to report ourselves to ROA, which is considered to be the most relevant synthesizing expression of the profitability of banking activity, based on its way of determination by dividing the net profit of a commercial bank to its average total assets. A similar interpretation is present also at other authors, who consider that ROA would be the most natural measure for evaluating the profitability of banking activity (Dietrich & Wanzenried, 2011, p. 311).

Also, we emphasize that it is noteworthy that, in the context of the global financial crisis manifestation, there take place multiple changes in economic and financial plan, for the affected states, which are reflected in macroeconomic indicators, out of which the most representative there appear to us: GDP inflation rate, unemployment rate, exchange rate and interest rate. They, in turn, are considered, however, also as (external) determinants of the profitability of the banking activity, influencing the level of ROA, among domestic factors, out of which we note, particularly in the context of the financial crisis, the structure and the quality of banks' assets, which are affected by the increased proportions of non-performing loans (NPLs). It is strongly recommended that the paper should have an even number of pages, but no longer than 4 to 14 pages. In some cases papers with more than 14 pages will be accepted by the editorial board if they contain the report of a wider research activity which can not appear separated in two papers.

3. Data and Methodology

In line with the above considerations, we propose ourselves the development of research by analysing the implications of certain factors of influence, transmitted on banking profitability on the basis of the corresponding causality linkages, using econometric modelling and processing the data available for the financial crisis period, in the case of Romania. In this respect, the proposed regression model includes the changes in ROA (ΔROA) as the dependent variable in relation to the relative variation of NPLs (ΔNPL), the changes in exchange rate (ΔEXR), the inflation rate variation (ΔINFLR), the unemployment rate (UNEM), the relative variation of GDP (ΔGDP) and the average interest rate on bank loans (LIR), designed as a determinant variables. Therefore the econometric analysis model will have the following form:

$$\Delta ROA = \beta_0 + \beta_1 \Delta NPL + \beta_2 \Delta GDP + \beta_3 \Delta INFLR + \beta_4 UNEM + \beta_5 \Delta EXR + \beta_6 LIR + \varepsilon$$

In the assessment of the causality linkages between the considered variables, for our analysis, we applied, as method of data processing, OLS regression and Pearson correlation between these variables.

The data used in the analysis are quarterly values of the respective variables, in Romania's case, for 2008-2013 period, which is specific for the manifestation of the global financial crisis, obtained from Reports of the National Bank of Romania, the National Institute of Statistics of Romania and the IMF (FSI).

4. Results

In a first stage of the analysis, statistical data were processed in terms of correlations between the considered variables and the results are shown by their correlation matrix, shown in Table 1:

Table 1 The correlation matrix of the variables

	ΔROA	ΔEXR	ΔNPL	UNEM	ΔINFLR	ΔGDP	LIR
ΔROA	1.000000						
ΔEXR	-0.646997***	1.000000					
ΔNPL	-0.483223**	0.207237	1.000000				
UNEM	0.122393	-0.211467	-0.211254	1.000000			
ΔINFLR	0.058857	0.189025	-0.014693	0.029102	1.000000		
ΔGDP	-0.070790	-0.016017	-0.070694	-0.011433	-0.361807*	1.000000	
LIR	-0.243242	0.258482	0.680116***	-0.359921*	0.273163	-0.359330*	1.000000

The data in Table 1 indicate the existence of some significant negative correlations between changes in ROA and the exchange rate variation, respectively the NPLs' relative variation, which expresses the fact that during the financial crisis, the profitability of the banking activity has evolved in the opposite direction with the both variables, while the other variables appear to be poorly correlated with changes in ROA, in the particular considered conditions.

Testing the model for determining the impact of the determining variables of the changes in ROA, led to the results presented in Table 2:

Table 2 Results for the proposed regression model

Dependent Variable: ΔROA				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔEXR	-2.664325	0.714039	-3.731346	0.0018
ΔNPL	-0.019268	0.008712	-2.211537	0.0419
UNEM	-0.334462	0.145288	-0.237195	0.8155
ΔINFLR	0.057949	0.093984	0.616588	0.5462
ΔGDP	6.39E-05	0.004130	0.015470	0.9878
LIR	0.052274	0.062673	0.834066	0.4165
β_0	-0.213192	1.717559	-0.124125	0.9028
R-squared	0.600780	Mean dependent var		-0.020000
Adjusted R-squared	0.451073	S.D. dependent var		0.567593
Log likelihood	-8.538523	Hannan-Quinn criter.		1.438090
F-statistic	4.013032	Durbin-Watson stat		2.442306
Prob(F-statistic)	0.012130			

According to Table 2 it results, first, a good degree of viability of the proposed equation, the change in ROA being determined in a high proportion (R-squared of 0.6008, Adjusted R-squared of 0.4511) by the determinant variables, which confirms also the relevance of the applied model.

At the same time, the results highlight the change in ROA reverse dependence on the relative variation of NPLs, at a significance level below 5% and on the changes in the exchange rate at a significance level below the 1 %. This expresses that in Romania, during the financial crisis, the values recorded by some factors considered as determinant variables have negative influences on banking profitability, reflected by the change in ROA. We emphasize that the negative effect of NPLs on ROA is consistent with other findings or assessments of some previous studies (Filip, 2013), which is more pronounced in the context of the financial crisis (Babihuga, 2007; Trujillo-Ponce, 2013). On the other hand, it is confirmed that the sharp decline (in the context of the financial crisis) of the exchange rate has the effect of worsening the profitability of banks, especially if local banks are using funds raised abroad to grant loans in foreign currency (Mendes & Abreu, 2003, p.16) such as in Romania. It also can be anticipated that this effect of banking profitability deterioration, when the exchange rate increases, felt by diminishing the ability of banks to recover loans from the debtors, to be accentuated, if the share of loans in foreign currency is high (Davydenko, 2010, p.14), which corresponds to Romania’s case.

The other variables appear to have a less relevant impact on the change in ROA, but some have positive influence (the variation of inflation, the interest rate on loans, GDP variation), and others negative ones (unemployment rate).

The implications of positive nature on banking profitability are highlighted also in studies in which there are considered as determining variables either the interest rate on bank loans (Athanasoglou et al., 2006; Alper & Anbar, 2011) or inflation (Molyneux & Thornton, 1992; Athanasoglou et al., 2006).

In this case, GDP variation appears to have little but positive influence on the change in ROA, which is in line with many previous studies (Bikker & Hu, 2002; Athanasoglou et al., 2006; Dietrich & Wanzenried, 2011), as a growth in GDP creates favorable conditions for rising the banking activity, including lending growth, and boosts banks’ revenue. But, especially during crisis, the activities which create GDP are reducing themselves, in conjunction with the limitation of lending, on one hand, and are growing, especially, the costs of managing the higher NPLs, which implies, in principle, a reduction of ROA.

At the same time, it results that unemployment rate has a negative impact (although less significant) on banking performance, but its growth as a phenomenon typical for the financial crisis, determines ROA’s reduction, both by restricting the access of unemployed people to bank loans and by reducing the capacity of those become unemployed to repay their active loans.

5. Conclusions

Our research highlights the necessity for approaching the profitability of banking activity in terms of its objective causal linkages with the economic and financial environment, especially, in the current global financial crisis. These connections are marking the conduct and the results obtainable within banking activities, out of which lending / financing the economy has a central role.

An analysis of the factors involved in determining bank profitability, acting from inside or outside can be made appealing to the most relevant form of expression of its size, which we consider to be ROA. Developing research through an econometric analysis of the relationships between change in ROA as determined variable and certain macroeconomic indicators considered as determinant variables led us to shape a regression model validated by processing of data, on Romania’s case, during the current crisis, respectively to the assessment of the direction and intensity of the causal linkages between them, including to noting some implications arising from the global financial crisis manifestation.

In this framework, it resulted that the global financial crisis had significant implications on the profitability of the banking activity in Romania. Thus, change in ROA was negatively and significantly influenced by the exchange rate variation and by the sharp increase in the volume of NPLs, but to a lesser extent also by rising unemployment. In contrast, the interest rate on bank loans, GDP variation and inflation rate variation had positive, but insignificant, influences on change in ROA.

However, a much consistent involvement of banks in fighting the effects of the crisis and increasing profitability on medium and long term may be focused on reducing their exposures to excessive foreign exchange risks and on reducing of NPLs, especially those in foreign currencies, but particularly on improving credit conditions.

6. References

Alper, D., & Anbar, A. (2011). Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey. *Business and Economic Research Journal*, Vol. No. 2(2), pp. 139-152.

Athanasoglou, P. & Delis, M., &bStaikouras, C. (2006). Determinants of Bank Profitability in the Southern Eastern European Region. *Bank of Greece Working Paper, No. 47*.

Babihuga, R. (2007). Macroeconomic and Financial Soundness Indicators: An Empirical Investigation. *IMF Working Paper 07/115*, pp. 1-30

Bikker, J., & Hu, H. (2002). Cyclical patterns in profits, provisioning and lending of banks and procyclicality of the new Basel capital requirements. *BNL Quarterly Review*, No. 221, pp.143-175.

Davydenko, A. (2010). Determinants of Bank Profitability in Ukraine. *Undergraduate Economic Review*, Vol. No. 7 (1), pp. 1-31.

Demirguc-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: Some international evidence. *World Bank Economic Review*, Vol. No. 13 (2), pp. 379-408.

Dietrich, A., & Wanzenried, G. (2011). Determinants of bank profitability before and during the crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money*, Vol. No. 21 (3), pp.307-327.

Filip, B.F. (2013). Creditele bancare neperformante şi feedback-ul acestora / Non Performing Loans and Their Feedback. *Proceedings of the EFM 2013 International Conference*, Financial and Monetary Research Centre - Victor Slăvescu, Bucharest, august 2013, pp. 124-137.

Georgantopoulos, G., & Tsamis, A. (2013). Assesing the efficiency of commercial banks in Greece during the financial crisis: A linear approach in conjunction with financial analysis. *Journal of Money, Investment and Banking*, Vol. No.28, pp.31-46.

Goddard, J. & Molyneux, P., & Wilson, J. (2004). The profitability of European banks: A cross-sectional and dynamic panel analysis. *The Manchester School*, Vol. No. 72(3), pp. 363-381.

Kaminsky, G.L., & Reinhart, C.M. (1999). The Twin Crises: The Causes of Banking and Balance of Payments Problems. *American Economic Review*, Vol. No. 89(3), pp. 473–500.

Mendes, V. & Abreu M. (2003). Do macro-financial variables matter for European bank interest margins and profitability?. *2nd CIEF Workshop European Integration and Banking Efficiency, Lisbon, 30-31 October 2003*, retrieved from http://www.repository.utl.pt/bitstream/10400.5/1365/1/MA-EcoMod2003.pdf at 15th of March 2014

Molyneux, P., & Thornton, J. (1992). Determinants of European bank profitability: A note. *Journal of Banking and Finance*, Vol. No. 16 (6), pp.1173-1178.

Rachdi, H. (2013). What determines the profitability of banks during and before the international financial crisis? Evidence from Tunisia. *International Journal of Economics, Finance and Management*, Vol.No. 2(4), pp. 330-337.

Trujillo-Ponce, A. (2013). What determines the profitability of banks? Evidence from Spain. *Accounting and Finance*, Vol. No. 53(2), pp. 561–586.