The Use of ROA and ROE in Study of a Bank's Profitability

Irena Munteanu
Constantina Alina Ilie
"Ovidius" University of Constanta, faculty of Economic Sciences, Romania
irena.munteanu@yahoo.com
ilieconstantinaalina@gmail.com

Abstract

Bank profitability has been and will continue to be a topic of interest for all the actors in corporate banking governance. During this period, the banking sector is facing the double challenge of sustaining credit flow in the new macroeconomic conditions characterized by a high degree of uncertainty and managing rising financial risks. Shareholders are preoccupied with the return on investment, the management with result commitments, the monetary authority with ensuring stability in the banking sector.

This paper presents an analysis of bank profitability applied to a commercial bank in Romania. We will carry out the calculation and interpretation of the indicators and the positioning of the bank in relation to the system. The analyzed bank is situated above the sector's average. According to the obtained results, the Romanian banking sector has been standing at the highest level in terms of profitability according to the EBA (European Banking Authority) classification, in terms of ROE.

Being a classic model of analysis, the study can be developed, applied to and adapted for other banking institutions. We believe that this paper is useful for young researchers and analysts.

Key words: ROA, ROE, bank profitability
J.E.L. classification: G01, G20, G21, G24, G30, E50

1. Introduction

Commercial banks are a key component, they support the development of the business environment through the services and products they offer, being the main creditor of the modern economy. The main purpose of a commercial bank is profitability or profit maximization so as to minimize risk exposure. According to Bătrâncea I. (2010), profitability conveys the position of the banks within the banking system, highlighting the quality of bank management. The financial performance of the banks is disclosed through the profit and loss account. In order to carry out a practical analysis of the banking activity, the specialized literature refers to a series of statistical indicators, generically encountered under the name of banking performance indicators, which make up a reflection of the extent to which, starting from the activity carried out by taking risks, the banking company has performed its activity successfully.

Given that the banking sector represents over 70 percent of Romania's financial system – in terms of the share of banking assets in total assets, the interest in the profitability and efficiency of the banking system is considerable.

Bank profitability is an objective of the banking activity, which is why we will continue by focusing on specific indicators.

2. Theoretical background

In order to assess the economic and financial state of the banks, the specialized literature recommends the use of the following system of banking performance indicators, on whose calculation, analysis and interpretation we have focused: economic profitability - Return on Assets (ROA); financial profitability - Return on Equity (ROE); Equity Multiplier (EM).

In general, in order to perform the analysis of banking units' profitability, the "*DuPon*t" system is used as an analysis model based on the comparison between the profit of the banking company and the risk. The system quantifies both the bank's performance and its exposure using a set of specific indicators: Return on Assets, Return on Equity and Equity Multiplier.

According to Borlea S. (2006), bankers pay special attention to the message sent to the stakeholders via an indicator-based analysis. In general, banks manage profitability by trying to exceed the market average and making sustained efforts to maintain a stable and predictable profit, a decision that has an impact on attracting new investors in the banking field. Thus, the profitability indicators prove to be an extremely useful tool kit. However, the analysis of the information provided by them will be carried out only in close correlation with the other indicators assessing balance, management and risk, given that profitability indicators alone do not create a complete picture of the banking activity. That being said, there is a need to base the analysis of the banking performance "on a correlated system of indicators", of which Popa A. (2009) lists: net margin of bank's assets, net margin of interest-earning assets, Return on Assets, Return on Equity, overall profitability rate. A universally accepted model in bank profitability management and risk management is Asset and Debt Management, having as fundamental objective the "sustained increase in profitability" in order to maximize the capital reserves of the banking institution. Thus, for any bank its strength lies in the interest margin, which highlights, with the help of the results of the banking activity, the efficiency in obtaining them and implicitly the efficiency of its intermediation. In the category of banking performance indicators, we also include the profitability rate, which is the expression of the profit obtained by the bank in its activity, and here we are talking about financial profitability (Return on Equity) or economic profitability (Return on Assets). According to Anghelache C. et al. (2018), economic profitability is a reflection of the effect of managerial capacity in terms of the use of the financial resources in order to obtain profit by the bank, under the conditions of the evolution plan and program of measures. Another important indicator in the assessment of the banking performance is the Equity Multiplier, whose action takes place in the context in which the use of new resources brings superior advantages or at least equal to the Return on Assets.

There are also stochastic analyses based on ROA and ROE. Peterson and Schoemann (2008) created a model of bank profitability via Return on Assets (ROA) and Return on Equity (ROE) in a stochastic setting.

3. Research methodology

Bank profitability analysis: the ROE model

The Return on Equity (ROE) model is a well-known approach used in analyzing a bank's results using financial statements. This model uses elements both from the balance sheet and from the profit and loss account (Geruning., Brajovic, 2004). The comparison is made for the same banking institution at different time frames or is used to compare the bank to its rivals or to the average of the banking system. Thus, the banks from the same banking system / geographical area are compared with each other, being contenders. The system's average is a useful benchmark for the comparisons, and also for risk assessment.

Obviously, the reference periods are identical for the balance sheet data and for those extracted from the profit and loss account. For an accurate image, it is preferable to use average balance data so as to eliminate distortions that may occur at the beginning or end of a period.

Profitability rates accepted in the bank profitability analysis

The banks' managers and system analysts generally evaluate bank profitability in terms of return on equity (ROE) and return on assets (ROA). If a bank constantly presents over a longer period of time indicators above the banking system's average, it can be considered a high-performance institution. In order to obtain higher yields, a bank must assume an above average risk and have a competitive advantage in terms of the products and services it offers.

The formula used is:

$$ROE = \frac{Net\ income}{Shareholder\ Equity} x100 \quad (1)$$

ROE measures the return (per percentage) of shareholders' investment. The higher the return, the higher the dividends the management can pay. In addition, a rising return on equity provides the support for future return increases.

The rate of Return on Assets is calculated according to the formula:

$$ROA = \frac{Net\ income}{Total\ assets} x100 \ (2)$$

The Return on Assets is obtained by dividing net income by total assets (usually at average value). The indicator measures the percentage of return on a monetary unit of asset. As an analysis model, the following aspect can be mentioned: the higher the ROA, the better the bank's profitability. The ROA indicator's values vary among banks, largely due to differences in the level of the commissions.

ROE is linked to ROA through a bank's Equity Multiplier (EM), which is equal to the total assets divided by shareholders' equity. EM measures the bank's financial leverage ratio or the amount of its debt compared to equity. The higher the aggregate liabilities, the greater the financial leverage ratio and EM.

EM = Total Assets / Shareholder's Equity (3)

The profitability indicators are correlated, the relationship being as follows:

$$ROE \ = \ ROA\ x\ EM \qquad (4)$$

4. Results. Profitability analysis within T Bank

The theoretical model presented will be used in the analysis of a top credit institution in Romania. The analysis conducted will demonstrate the usefulness of the presented indicators. The data used is extracted from the financial statements of the bank, which will hereinafter be referred to as T Bank.

This analysis is part of a larger study carried out by the authors. It started with the study of the income structure, the income classes analyzed being: interest income, income from commissions based on transactions, income obtained from securities trading and other income. The analysis of the structure of the income aims to highlight the manner in which, within the total income, the shares have varied. The classes of expenses affecting the actual result of the bank have also been analyzed.

The analysis of the data shows that T Bank has been profitable during the period, and the income before tax has experienced an upward trend, due to the increase in the value of operating income at a higher rate than the growth rate of related expenses in the year 2019. In the year 2020 there was a decrease in operating income which, coupled with a slower decline in expenses related to the operating activity led to a decrease in income before tax. The Net income followed the same trend as the one before tax, but its value was influenced by the value of the income tax (Fig No.1).

Figure no. 1 The calculation of income before tax and net income for the 2018-2020 period

Indicators – Thousand RON	2018	2019	2020
Total operating income (a)	3,593,980	4,031,270	3,937'204
Total operating expenses (b)	2,023,364	2,144,124	1,782,284
Income before tax = a-b	1,642,446	1,887,146	1,371,036
Taxes	423,055	266,634	173,731
Net income	1,219,391	1,620,512	1,197,305

Source: Authors' own calculations based on the data from the 2019 and the 2020 Annual Report.

ROA, a ratio calculated by dividing net income by total assets, is an expression of the bank's management's ability to use resources in order to make a profit.

The values obtained show that the Return on Assets at the level of T Bank decreased in the 2018-2020 period, both as a result of the fluctuation in the net income value, affected by the income tax in the years 2019 and 2020, and as a result of the increase in total banking assets / average value of assets at net value, in the 2018 – 2020 period.

The Return on Assets values obtained show that for every 1 leu invested, in the year 2018, the bank obtained a profit of 1,92 lei, and in the year 2020 it obtained only 1,26 lei. It follows therefore that the bank is facing a downward trend in the ROA indicator, which can be interpreted in terms of the bank encountering difficulties in terms of income generation, especially as a result of taking low risks in terms of the lending activity.

Figure no. 2 The calculation of the Return on Assets (ROA) for the 2018-2020 period

Indicator – thousand RON		2018	2019	2020
P_n (Net income)		1,219,391	1,620,512	1,197,305
TA (Total assets)		74,118,914	87,438,075	103,354,985
ROA calculated $P_{n/}$ TA		1.65%	1.85%	1.16%
ROA from the Bank's statements = net income/ average total assets at net value		1.92%	2.03%	1.26%

Source: Authors' own calculations based on data from the Board of Directors' Reports in 2019 and 2020

ROE is an important indicator for the bank's shareholders, in terms of reflecting the management's ability to get involved in the banking institution's activity, the fundamental objective of the managerial staff being to maximize the value of the investment made by the shareholders through high-performance investments, efficiently using the bank's resources. Applying the calculation formula described in the theoretical model, the results from Table no. 2 were obtained.

ROE is an indicator mainly used by listed companies, such as T Bank, having a consistent influence on the bank's shares stock exchange rate, in terms of influencing the supply and demand of the issued shares.

Figure no. 3 The calculation of the value of Return on Equity (ROE) for the 2018-2020 period

Indicator - thousand RON	2018	2019	2020
P_n (Net income)	1,219,391	1,620,512	1,197,305
Shareholders' equity	7,411,216	8,496,443	9,522,869
Calculated ROE	16.45%	19.07%	12.57%
ROE calculated by the bank Net income / average total equity at net value	17.17%	20.26%	13.67%

Source: Authors' own calculations based on data from the Board of Directors' Reports in 2019 and 2020

Considering the values obtained, we find that after a tendency of increase in the ROE value in the year 2019, in 2020 the indicator had a downward trend. This situation was favored by the fact that net income experienced a fluctuating evolution with increases in 2019 and decreases in value in the year 2020. However, in this situation the main influencing factor was the value of shareholder's equity, with an upward trend, in 2018 as a result of the decrease in the carried forward result, and in 2020, as a result of the increase in the bank's share capital.

Figure no. 4 The calculation of the Equity Multiplier at T- Bank in the years 2018-2020

Indicators -RON	2018	2019	2020
Total assets	74,118,914	87,438,075	103,354,985
Shareholders' equity	7,411,216	8,496,443	9,522,869
Equity Multiplier (leverage ratio)	**10**	**10.29**	**10.85**

Source: Authors' own calculations based on data from the Board of Directors' Reports in 2019 and 2020

The Equity Multiplier (EM), calculated as the ratio between total assets and shareholder's equity, shows the number of times the shareholder's equity multiplied as a result of the active operations performed by the bank.

The indicator is a reflection of the degree in which the bank's business has developed having a certain volume of shareholder's equity as a starting point, its value varying in a contrary manner to the share of shareholder's equity in the bank's overall equity and debt, as follows: the higher the share, the lower the Equity Multiplier, and vice versa.

The profitability indicators in Table 8 are correlated, the established relationships being included in:

$$ROE = ROA \; x \; Equity \; Multiplier \qquad (1)$$

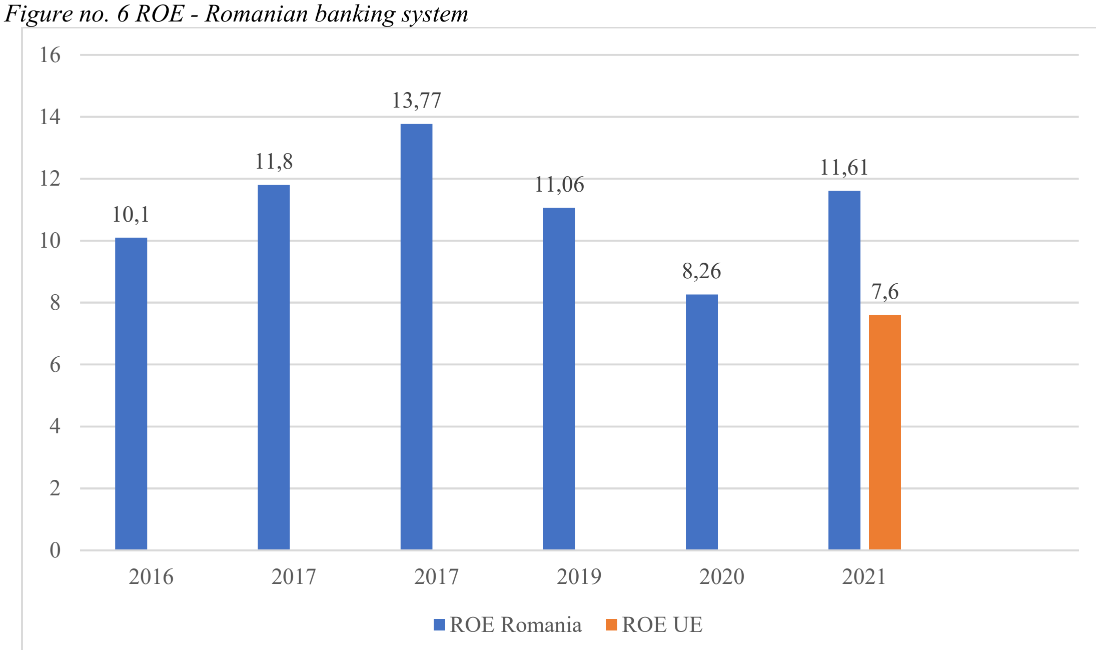
Figure no. 5 ROE at T Bank compared to the banking system's average

Indicators – Thousand RON	2018	2019	2020
ROE T Bank	16.45%	19.07%	12.57%
ROE Romanian banking system	13.77%	11.06%	8.26%
Deviation	**2.68 pp**	**8.01 pp**	**4.31pp**

Source: Authors' own calculations based on data from the Board of Directors' Reports in 2019 and 2020.

Fig No. 5 shows that T Bank has a high degree of performance. The ROE indicator is above the average of the banking system for the entire analyzed period. While at the beginning of the period, the deviation compared to the average was 2.68 percentage points, in the year 2019 it increased to 8.01 percentage points, which shows a substantial increase. The values of the deviation can also be correlated with the increase in the investors' appetite for the shares of the respective bank. The year 2020, in the context of the pandemic, brought a deterioration in the results obtained by most banks. For the first time in the last 7 years, ROE calculated as an average for the entire banking system is under 10%, which shows, according to the European Banking Authority, an average result - atypical for Romanian banking.

Figure no. 6 ROE - Romanian banking system



Source: BNR/National Bank of Romania - Financial Stability Report, 2021

Profitability indicators and especially ROE are also important for the systemic risk assessment. That is why the European Banking Authority has set intervals to characterize banking systems. Thus, if ROE is below 6%, the system is considered *worst* from the perspective of profitability; if ROE is in the 6% -10% range, the level of profitability is *intermediate*, and if the level is over 10% the system is rated in the *best* class.

It is noteworthy that in the 2016-March 2021 period the banking system in Romania entered the "best" class, with the exception of the year 2020. The first quarter of 2021 brings optimistic results: the Romanian banking system has a ROE of 11.61% compared to the average EU ROE of just 7.6%.

5. Conclusions and future directions

As in any economic entity, obtaining and maximizing profit is a fundamental objective of financial management and, implicitly, of banks' management. Profit is the basis for calculating banking performance indicators. Through the analyses performed in the study, the classic indicators - ROE and ROA, as well as EM - were brought to the fore.

The calculation of the indicators at the level of the prestigious financial institution of the Romanian banking system has shown that the bank has the ROE indicator in the 16.45% -19.06% range, showing a solid position throughout the analyzed period, and also a potential for attracting investors.

Although the pandemic affected the domestic banking system, T Bank was not significantly affected. If we compare the year 2020 with 2019, there is a deterioration in the indicators. However, T Bank is situated above the banking sector average by more than 4 pp if we refer to the ROE indicator.

2020 was a year of resistance and solidarity for T Bank. The Bank's results exceeded the conservative forecasts in the initial budget. The Bank's customer support strategy was reflected in expanding the volume of operations and the business, constituting an accelerated learning lesson.

If we follow the evolution of ROE, the Romanian banking sector obtained weaker results in 2021 compared to 2019 and 2018, but if we compare it with the EU average, we find that the first quarter of 2021 was a very good one.

Discussions based on ROA and ROE indicators will continue, given that asset management decisions cannot be separated from shareholders’ return on investment.

In the future, we intend to also take into account other indicators, such as AU (asset utilization), NIM (net interest margin) and to tackle the issue of bank's solvency.

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