

**DETERMINANTS OF BANK PROFITABILITY IN ROMANIA:  
AN ECONOMETRIC ANALYSIS OF RETURN ON EQUITY (2007–2025)****Mihaela Amalia DEAC***Stefan cel Mare University of Suceava, 720229, Romania*[mihaela.deac@student.usv.ro](mailto:mihaela.deac@student.usv.ro)

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**Abstract**

*The study analyzes return on equity (ROE) in the Romanian banking system, with the main objective of building an econometric model that highlights the impact of banking and macroeconomic factors on profitability. The subject is motivated by the need to understand the mechanisms that influence the performance of credit institutions in a context marked by economic and geopolitical changes. The research is based on a quantitative analysis covering the period 2007–2025, totaling 70 observations. The econometric model includes variables specific to the banking sector, such as: bank size, capital adequacy ratio, debt ratio, return on assets (ROA), return on core assets and loan/deposit ratio, as well as macroeconomic control variables, such as inflation (CPI) and gross domestic product (GDP). The choice of these variables is based on their demonstrated relevance in the specialized literature and on the role they play in determining banking stability and profitability. The results highlight that the profitability of Romanian banks depends mainly on endogenous factors, such as operational efficiency, return on assets and the degree of financial intermediation. In contrast, macroeconomic variables did not demonstrate a significant impact on ROE. The findings provide a useful framework for bank management and policymakers to strengthen stability and improve the performance of the banking sector.*

**Keywords:** *banking profitability; operational efficiency; leverage; ROE; ROA***JEL Classification:** *G21, C33, C10***Received on:** February 2026**Accepted on:** March 2026**Released on:** 08 July 2026**INTRODUCTION**

In recent decades, bank profitability has become a central theme in economic and financial research, being analyzed both from the perspective of banking system stability and the individual performance of institutions. The literature highlights the controversial nature of the determinants of profitability, with empirical results varying depending on the institutional context, market structure, and methodology used (Rumaly, 2023). In Romania, bank profitability has contributed favorably to strengthening the sector's resilience to macroeconomic shocks and geopolitical uncertainties.

The financial and prudential indicators of the Romanian banking sector are at levels comparable to or higher than the European Union average, but profitability remains significantly lower than that recorded in the real economy. Recent developments show a moderate increase in return on assets (ROA), in line with trends in Central and Eastern Europe, but maintaining a high level of return on equity (ROE), supported by the dynamics of net interest income and the persistence of consistent operating results. At the same time, for 2025, there is a high potential for lending to the real sector, which is still underutilized, as reflected in the sub-unit loan-to-deposit ratio (BNR, 2025). This situation indicates additional financial intermediation capacity that can be mobilized to support economic growth.

In this context, econometric analysis of the determinants of return on equity (ROE) becomes essential for understanding the mechanisms that influence banking performance in Romania and for formulating sustainable strategies for the development of the financial sector. This paper aims to investigate the interactions between macroeconomic factors and the specific characteristics of banking institutions regarding return on equity (ROE). The topic "How do we explain bank profitability? An econometric analysis of the determinants of ROE" was chosen because ROE is one of the most relevant indicators of profitability, providing insight into how banks use their equity to generate profit and their ability to manage risk.

The analysis takes into account variables specific to the banking sector: bank size, capital adequacy ratio, leverage ratio, return on assets (ROA), return on core assets, and loan-to-deposit ratio—as well as macroeconomic

control variables such as the consumer price index (CPI) and gross domestic product (GDP). This structure allows us to capture both the internal dimensions of how credit institutions in Romania operate and the external pressures that can influence profitability.

## I. LITERATURE REVIEW

Although the specialized literature delve into analyses of bank profitability in developed economies, there is a significant research gap regarding the dynamics of the Romanian banking sector in the context of the overlap of recent crises (pandemic, inflationary and geopolitical). Previous studies provide contradictory results regarding the role of financial intermediation (LDR). The present study brings added value by using an extended dataset up to Q2 2025, allowing to observe the adaptability of the analyzed model for the Romanian banking system and to validate the economies of scale (LN TAN) in a period of major uncertainty. At the same time, the study aims to answer the following research question: To what extent do internal management decisions (efficiency and capital structure) manage to compensate for macroeconomic pressures and increasingly strict regulations to generate shareholder value?

The analysis of bank profitability, assessed in terms of return on equity (ROE), is an important pillar of banking financial research, being essential for measuring the efficiency with which credit institutions use shareholders' resources to generate income. There are numerous studies in the literature that analyze the determinants of bank profitability. Thus, according to the data in Table 1, we find that this analysis has been approached multidimensionally, with the determinants of performance being return on assets (ROA) to measure operational efficiency, either through ROE as an indicator of investment return, or through the simultaneous use of both indicators. According to the analysis conducted by Bores (2023), which focuses on the dependent variable ROA to assess the efficiency of resource use. A significant proportion of recent research, including studies by Harutyunyan (2024), Rumaly (2023), Riyadi et al. (2025), Gavilanes et al. (2023), Laporšek et al. (2024), Ferrouhi (2018), Qehaja-Keka et al. (2023) and Plješa-Ercegovac et al. (2020) focus on ROE as a benchmark to analyze the credit institution's ability to generate added value for shareholders.

From a strategic perspective, a high ROE not only signals effective internal management, but also gives credit institutions a competitive advantage over their competitors, stimulating investment by offering better returns for investors Kharatyan et al. (2017).

At the same time, there are studies which embrace a two-fold specificity such as those by Bozic & Bozic (2025) and Plješa-Ercegovac et al. (2020), which, in their attempt to give a comprehensive overview of the financial stability of credit institutions, consider both profitability indicators. The investigations from the literature on profitability determinants classify them into two groups: endogenous variables (banking system specific) and exogenous variables (macroeconomic nature). To a positive side, we find there the net interest margin (NIM), the aspect that is defined by Harutyunyan (2024) and Laporšek et al. (2024) to be the most important factor of profit generation; capital adequacy (Rumaly, 2023; Plješa-Ercegovac et al., 2020) acts like a buffer against systemic shocks having a more stable profit. At the macroeconomic level, growth in domestic product (GDP) stimulates credit demand and improves overall performance (Harutyunyan, 2024; Gavilanes et al., 2023; Bozic and Bozic, 2025; Laporšek et al., 2024; and Ferrouhi, 2018), while deposits are confirmed by Rumaly (2023) and Riyadi et al. (2025) as a stable source of funding, positively correlated with net profit.

On the other hand, the literature identifies risk factors with a negative influence, dominated by credit risk and the non-performing loan (NPL) ratio, which force the creation of provisions and a gradual decline in profitability (Harutyunyan, 2024; Riyadi et al., 2025; Laporšek et al., 2024; Qehaja-Keka et al., 2023; and Plješa-Ercegovac et al., 2020). Low operational efficiency, reflected in the cost-to-income ratio, indicates that uncontrolled growth in internal expenses drastically reduces profitability. (Laporšek et al., 2024; Ferrouhi, 2018 and Plješa-Ercegovac et al., 2020). At the same time, some studies confirm that the loan-to-deposit ratio (LDR) has a significant negative influence of -0.69 on ROE, exerting significant pressure on liquidity (Rumaly 2023; Riyadi et al., 2025; Gavilanes et al., 2023 and Qehaja-Keka et al., 2023). Last but not least, variables such as inflation (Harutyunyan, 2024; Gavilanes et al., 2023; Bozic and Bozic, 2025, and Laporšek et al., 2024) and bank size (Harutyunyan, 2024; Laporšek et al., 2024; Ferrouhi, 2018, and Plješa-Ercegovac et al., 2020) are associated with negative effects, either through increased real costs or through their excessive administrative complexity.

The ROE indicator is considered one of the important signs of managerial effectiveness and shows the ability of a credit institution to minimize the investments of shareholders in obtaining net profit. Although a range of 15% - 20% is accepted as a good result, the significance of the indicator does not lie in its absolute value, but in dynamics and a positive trend demonstrating additional gain without significant involvement of external capital. However, the literature alerts that a high value of the ROE indicator is not always indicative of an active productivity, but could be influenced by using financial mechanisms (share buybacks or a decrease in the equity base). This is supported by the fact that the structure of financing plays a significant role in the banking sector. In case of a high debt-to-equity ratio, profitability boosts mathematically, but requires much higher risk. In this respect, Al-Shammari and Salimi (1998) argue in their research that although the ROE is considered a desirable

quantity as a sign of efficiency, it should be studied together with its earning capacity stability. What is more, the results of the research provided by Altunbas et al. (2011) show that even traditional financial institutions suffered from significant losses against the background of aggressive credit expansion.

There was a clear correlation between the expansion of an aggressive loan portfolio and the exposure to instability; therefore, banks that underlined rapid credit growth, performed the most significantly worse than others in the period of a crisis. Research on the need for a thorough and multidimensional study of financial performance within the Romanian banking system and the possibility of the proposed model in better understanding and management of resources and risks, sustainable growth of return on equity was conducted.

**Table 1.** A synthesis of the most relevant works in the field of banking profitability

| Item | Author(s), Year            | Data Set, Period                           | Independent Variables (Internal/External)                                                                                                                         | Results: positive impact (+) / negative impact (-)                                                                         |
|------|----------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 1    | Harutyunyan (2024)         | Ameriabank (Armenia), 2014-2023            | Equity, Loans, Deposits, Credit risk, NIM, GDP, Inflation                                                                                                         | Positive: NIM, ROA, GDP.<br>Negative: Rapid capital growth (decreases ROE), Personnel expenses, Inflation.                 |
| 2    | Bores (2023)               | Raiffeisen Bank Romania, 2007-2022         | No. of employees, Own funds rate, ROBOR, Monetary policy interest rate, Digitalization                                                                            | Positive: Own funds.<br>Negative: Digitalization (short term), ROBOR, Monetary policy interest rate.                       |
| 3    | Rumaly (2023)              | Banking sector in Bangladesh, 2011-2020    | CAR – Capital Adequacy Ratio, DPK – Third Party Funds, NPL (Non-Performing Loans), Leverage effect, LDR – Loan to Deposit Ratio,                                  | Positive: CAR (+0.45), DPK (+0.007).<br>Negative: NPL (-0.69), LDR (-0.01), leverage                                       |
| 4    | Riyadi et al., (2025)      | Banks Rural Credit Indonesia               | NPL (Non-Performing Loans), CAR (Capital Adequacy Ratio), LDR (Loan to Deposit Ratio), DPK (Third Party Funds)                                                    | Positive: RCA(profitability), DPK, CAR.<br>Negative: NPL, LDR.                                                             |
| 5    | Gavilanes et al., (2023)   | Ecuador Segment, 2014-2020                 | Liquidity, Indebtedness, Financial intermediation, Real GDP, Inflation                                                                                            | Positive: GDP Real, Indebtedness.<br>Negative: inflation (negative profit adjustment)                                      |
| 6    | Bozic & Bozic (2025)       | 134 developing countries, 2011-2021        | Mobile banking (customers/volume), Asset size, Liquidity, HHI (market concentration)                                                                              | Positive: Digital banking (stability), Capitalization (BCCI). Negative: Market concentration (HHI), Poor CAMELS score.     |
| 7    | Laporšek et al., (2024)    | 34 European countries, 2013-2018           | Bank size, Capitalization, Credit risk, Managerial efficiency, GDP, Inflation                                                                                     | Positive: Capitalization, GDP, Interest rate.<br>Negative: Credit risk, Bank size (complexity), Inflation, Cost-to-income. |
| 8    | Ferrouhi (2018)            | International Synthesis/ Morocco           | CAMELS Indicators, Size, GDP, Inflation                                                                                                                           | Positive: Net interest margin (NIM) correlated with ROAA/ROEA.<br>Negative: Liquidity risk.                                |
| 9    | Qehaja-Keka et al., (2023) | Kosovo and Albania, 2010-2020              | No. of employees, NPL, Interest rate, No. of loans,                                                                                                               | Positive: No. of loans (both countries).<br>Negative: NPL (both), Interest rate (Albania only).                            |
| 10   | Ercegovac et al., (2020)   | UE systemically important banks, 2007-2019 | NPA_Ratio: Non-performing assets ratio, Ln_Assets (bank size), TCaP Ratio: Total regulatory capital to risk-weighted assets ratio<br>Eff_Ratio: Cost/income ratio | Negative: NPA_Ratio (strong impact on ROA/ROE), Eff_Ratio (Low efficiency).<br>Insignificant: Asset size.                  |

Source: own research

The theoretical underpinning of the model is based on the Equity Structure Theory. Although financial leverage is normally used to multiply the return on equity, the expected results for the Romanian banking sector

may deviate from the theoretical norm. In the context of the prudential regulations from 2007-2025, excessive indebtedness may generate financing and compliance costs that exceed the marginal return on bank investments. Thus, a local market-specific hypothesis is outlined: increasing debt (EL) acts as a factor of ROE erosion, suggesting that strong capitalization is preferable to debt-based expansion for long-term stability.

## II. RESEARCH METHODOLOGY

The methodology of the research on ROE modeling of the financial performance within the Romanian banking system was organized on the basis of a wide and quantitative analysis. The analysis is carried out with the help of a quarterly database from the fourth quarter of 2007 to the second quarter of 2025. This period of observation is particularly relevant, and particularly relevant when considering the kind of economic cycles included: from the 2008 financial crisis, the post-crisis recovery period, the pandemic context and the current inflationary crisis, all these economic phenomena constitute key moments in the study of the performance of the Romanian banking system from the profitability perspective. The data used in the study will be mainly the official statistics series made available to the National Bank of Romania (NBR), which can be accessed at [www.bnr.ro](http://www.bnr.ro), supplemented with macroeconomic indicators aggregated by the National Institute of Statistics (INSSE).

The research hypotheses, as well as the operational definition of the included variables in the econometric model, are presented in Table 2, which constitutes the reference structure for assessing the determinants of ROE.

**Table 2.** Model variables

| Variable                         | Notation | Tip          | Measure                                                   |
|----------------------------------|----------|--------------|-----------------------------------------------------------|
| Return on equity                 | ROE      | Dependence   | $(Net\ profit)/Equity$                                    |
| Total net assets                 | TAN      | Independence | -                                                         |
| Return on assets                 | ROA (+)  | Independence | $(Net\ profit)/(Total\ assets)$                           |
| Solvency indicator               | CAR      | Independence | $(Total\ own\ funds)/(High\ risk\ weighted\ assets)$      |
| Leverage effect                  | EL (-)   | Independence | $(Total\ assets)/equity$                                  |
| Core activity rate of return     | RRAB (+) | Independence | $(Operating\ income)/(Operational\ expenses)$             |
| Loans granted/deposits attracted | LDR (+)  | Independence | $(Loans\ granted)/(Deposits\ attracted\ from\ customers)$ |
| Inflation                        | CPI      | Independence | Data taken from INSSE                                     |
| Gross domestic product           | GDP      | Independence | Official data from the National Bank of Romania           |

Source: National Bank of Romania & National Institute of Statistics

An important methodological note refers to the level of aggregation of the data which have been used in this study. The analysis is based on the aggregated time series at the level of the whole Romanian banking system, which is reflecting the average cumulative performance of this sector. Even though this approach provides a general overview regarding the resilience of the financial system at this level, it implies the limitation of not being able to control the individual fixed effects of credit institutions or any performance differences between the banks of various sizes. At the same time, the lack of a panel data structure means that the results describe the macro-prudential evolutions of the system and not the strategic behavior of certain banking entities. Table 2 presents the research framework, created on variables meant to capture both the internal characteristics of the banking system and the influences of the macroeconomic environment. In order to assess the financial performance of the Romanian banking sector, the study employs return on equity (ROE) as a dependent variable, which is the standard indicator for assessing the remuneration for investors.

To explain its fluctuations, the econometric model has selected independent variables regarding its institutional size (TAN), operational efficiency (ROA, RRAB, LDR), indicators for prudence and structure (CAR and EL). The economic context is ensured with the variables measuring gross domestic product (GDP) and consumer price index (CPI), assuring therefore a comprehensive view about the profitability determinants. The used econometric approach to assess the financial performance of the Romanian banking system relies on the multiple linear regression model expressed in equation (1).

$$ROE = \beta_1 + \beta_2 TAN + \beta_3 CAR + \beta_4 EL + \beta_5 ROA + \beta_6 RRAB + \beta_7 LDR + \beta_8 CPI + \beta_9 GDP + \varepsilon_t \quad (1)$$

Where:

ROE = return on equity, (Y), and TAN (total net assets); CAR (solvency ratio); EL (leverage); ROA (return on assets); RRAB (return on core activity); LDR (loans granted/deposits attracted from customers); CPI (consumer price index); GDP (gross domestic product), represent the independent variables for the analyzed model.

In this model, ROE denotes the dependent variable, measuring how efficient the shareholders' resources turn into net profit, encompassing both the operational efficiency and the impact of operational leverage. The operational and intermediation efficiency is measured by return on assets (ROA), return on core activity (RRAB), and loan-to-deposit ratio (LDR). The structure and prudence indicators are indicated by capital adequacy ratio (CAR) measuring the stability and capacity of the credit institutions in the Romanian banking system to fulfill their obligations, and leverage (EL) indicating the level of indebtedness, which can amplify the financial results. The size of the banking system represented by TAN was logarithmized ( $\ln(TAN)$ ) to facilitate the normalization of the distribution of financial data and enable to interpret coefficients in terms of elasticity.

Conducting our research in line with the work carried out by Harutyunyan (2024), data processing was conducted through the SPSS 27 statistical program, with carrying out the key steps as follows: first, the sample size contained 70 quarterly observations for the timeframe Q4 2007-Q2 2025, while of some dependent variables were treated as internal and external factors. Secondly, correlation analysis was employed to determine associations of ROE and dependent variables at  $\pm 70\%$  threshold of significance, which enabled to confirm statistically strong dependencies.

Finally, multiple regression modeling was conducted using the least squares method to measure the predictors impact on profitability was implemented, with accomplishing the procedure through statistical validation of econometric model, observing the coefficient of determination ( $R^2$ ), ANOVA overall significance tests and t-tests assessing the statistical significance of each regression coefficient. In order to validate the proposed econometric model, the research hypotheses (H1-H6), theoretically justified in the previous chapter, were tested. In essence, the hypotheses aim to determine the extent of impact of internal (efficiency, size, prudence) and external (GDP, inflation) factors on dependent variable ROE. The expected signs of coefficients are organized in Table 2 including the definition of each variable, while the rationale of the signs follows from the financial theory and literature overview.

### III. RESULTS

The results obtained in the analysis of financial performance modeling (ROE) for the Romanian banking system highlight a number of essential connections between the indicators used and the ability of banking institutions to generate sustainable profitability.

The quality of the econometric model constructed is confirmed by the data in Table 3, entitled Model Summary.

**Tabel 3.** Performance indicators of the regression model for ROE

| Model Summary <sup>b</sup> |                    |          |                   |                            |               |
|----------------------------|--------------------|----------|-------------------|----------------------------|---------------|
| Model                      | R                  | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1                          | 0.998 <sup>a</sup> | 0.997    | 0.996             | 0.475264008772641          | 1.473         |

a. Predictors: (Constant), GDP, LN (TAN), EL, CPI, ROA, RRAB, LDR, CAR (>8%)

b. Dependent Variable: ROE

Source: SPSS: VS 27

The statistical findings of the model are presented in Table 3, while demonstrating the astonishing predictive capacities of the selected predictors. The multiple correlation coefficient ( $R = 0.998$ ) indicates extremely strong link between predictors and dependent variable ROE, while the coefficient of determination ( $R^2$ ) shows that the eight dependent variables account for 99.7% of ROE variance. The Durbin-Watson test value of 1.473 indicates the absence of considerable autocorrelation of residuals, confirming the reliability of econometrical model.

The overall validity of the regression dependency is assessed by the variance analysis presented in Table 4 (ANOVA), which defines whether the selected independent variables could statistically predict the dependent variable ROE.

**Tabel 4.** Analysis of Variance (ANOVA) of the Regression Model

| ANOVA <sup>a</sup> |            |                |    |             |          |                    |
|--------------------|------------|----------------|----|-------------|----------|--------------------|
| Model              |            | Sum of Squares | df | Mean Square | F        | Sig.               |
| 1                  | Regression | 4362.082       | 8  | 545.260     | 2413.982 | 0.000 <sup>b</sup> |

|  |          |          |    |       |  |  |
|--|----------|----------|----|-------|--|--|
|  | Residual | 13.778   | 61 | 0.226 |  |  |
|  | Total    | 4375.861 | 69 |       |  |  |

a. Dependent Variable: ROE

b. Predictors: (Constant), GDP, LN (TAN), EL, CPI, ROA, RRAB, LDR, CAR (&gt;8%)

Source: SPSS: VS 27

The results obtained in the ANOVA table provide a very rigorous perspective on the predicting capacity of the regression equation developed during the methodological section. In the summary of squares breakdown, the following figures demonstrate the success of linear model at establishing the ROE dynamics: the regression explained variation of 4,362.082 and unrealized variance of only 13.778. The pointed distinction provides evidence for the fact that the portion of error, explained by factors excluded from the model, is minimal. Consequently, the total variance of 4.375.861 constitutes a reliable point of reference for justifying the entire analysis.

For the sample examined in this study (N = 70), the degrees of freedom (df) were divided between the eight explanatory variables as well as the volume of observations, hence the validity of testing some statistical hypotheses. The calculated value  $F = 2,413.982$  is significantly higher than the critical value of approximately 2.10 (corresponding to the Fisher distribution for  $df_1 = 8$ ,  $df_2 = 61$  at a confidence level of 95%). Such a statistical performance, corroborated by the significance level lower than the threshold value of 0.001, provides grounds for the rejection of the null hypothesis and confirmation of the alternative hypothesis or even hypotheses for the variables under study – ROE is determined in a direct and significant manner by the analyzed mix of internal and macroeconomic factors. Accordingly, the regression model possesses statistical validity and demonstrates the presence of a statistically significant multiple linear relationship, confirmed with a 95% probability. The individual contribution of each of the predictors to ROE is summarized in Table 5, thus allowing to quantify the impact of internal and macroeconomic factors on ROE.

**Table 5.** Regression Model Coefficients and Statistical Significance of Variables

| Coefficients <sup>a</sup> |            |                             |            |                           |        |       |                                 |             |
|---------------------------|------------|-----------------------------|------------|---------------------------|--------|-------|---------------------------------|-------------|
| Model                     |            | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig.  | 95,0% Confidence Interval for B |             |
|                           |            | B                           | Std. Error | Beta                      |        |       | Lower Bound                     | Upper Bound |
| 1                         | (Constant) | -35.156                     | 7.838      |                           | -4.485 | 0.000 | -50.829                         | -19.483     |
|                           | LN (TAN)   | 1.363                       | 0.557      | 0.057                     | 2.445  | 0.017 | 0.248                           | 2.477       |
|                           | CAR        | 0.157                       | 0.087      | 0.076                     | 1.789  | 0.079 | -0.018                          | 0.331       |
|                           | EL         | -0.968                      | 0.122      | -0.096                    | -7.964 | 0.000 | -1.211                          | -0.725      |
|                           | ROA        | 10.285                      | 0.117      | 0.994                     | 87.542 | 0.000 | 10.050                          | 10.520      |
|                           | RRAB       | 0.019                       | 0.006      | 0.034                     | 3.016  | 0.004 | 0.006                           | 0.031       |
|                           | LDR        | 0.039                       | 0.012      | 0.104                     | 3.305  | 0.002 | 0.015                           | 0.063       |
|                           | CPI        | 0.103                       | 0.055      | 0.016                     | 1.864  | 0.067 | -0.008                          | 0.214       |
|                           | GDP        | 0.051                       | 0.021      | 0.018                     | 2.421  | 0.018 | 0.009                           | 0.093       |

a. Dependent Variable: ROE

Source: SPSS: VS 27

The interpretation of the coefficients gives a strong influence of ROA with respect to ROE. The value of the unbiased coefficient for ROA ( $B=10.285$ ), indicates that the one percentage point increase in ROA determines an average increase of approximately 10.28 percentage points in ROE. This value is financially justified by the mechanism of the return on capital due to the bank leverage effect, since ROE is connected with ROA through the share of borrowed capital in the financing of bank resources. In terms of CAR ( $p=0.079$ ) and CPI ( $p=0.067$ ) variables, we can emphasize a lack of 5% significance for the two metrics, but they were retained in the final model due to their theoretical significance in specialized literature. In other words, practically they indicate a tendency of significance at a 90% confidence level and point out that during the examined interval prudential stability and inflationary circumstances put pressure on ROE uncertainty and, therefore, they did not play a decisive role compared to internal factors of efficiency.

The estimated regression equation, based on unstandardized coefficients (B), is as follows:

$$ROE = -35.156 + 1.363 LN(TAN) + 0.157 (CAR) - 0.968 (EL) + 10.285 (ROA) + 0.019 (RRAB) + 0.039 (LDR) + 0.103 (CPI) + 0.051 (GDP) \quad (2)$$

Some of the strongest predictors of the model are ROA and Debt Ratio (EL), both of which have a significance threshold of  $p<0.001$ . The direction of influence of ROA is the greatest positive one, which is confirmed by the unstandardized coefficient  $B=10.285$  and standardized coefficient  $Beta=0.994$ . This indicates that if we increase the value of ROA by one percentage point, an average increase of 10.285 units of ROE will

take place, which proves that return on assets is the main variable which is responsible for the impact on return on equity. The size of the organization, which is also indicates by LN(TAN), has a positive significance ( $B=1.363$ ,  $p=0.0175$ ), which indicates that credit institutions in Romania have the benefit and advantages of the economies of scale and the expansion of net assets has a positive effect on banks' financial performance. At the same time, the Leverage Effect (EL) has a significant negative coefficient ( $B=-0.968$ ,  $p<0.001$ ). In this case, a negative correlation indicates the fact that too high level of indebtedness tends to erode the bank's profitability and return on equity in particular. On the other hand, the Debt ratio (EL) has a negative influence on profitability ( $B=-0.968$ ), which means that during the period under review the growth of the share of debts in the structure of the banks' funding tends to decrease return on equity. This relation may indicate the cost of the loans that is higher than the marginal profitability of the bank's investments. Among the indicators of intermediation and servicing, RRAB ( $p=0.004$ ) and LDR indicators ( $p=0.0025$ ) are positive significant predictors.

Higher values of LDR indicator, other things being equal, are an indication of the higher value of utilization of attracted resources, which increases ROE. The indicator of GDP confirms the procyclical nature of banks' profitability with respect to GDP growth ( $B=0.051$ ;  $p=0.0185$ ). With respect to CAR and CPI indicators, we can see their values of t-tests below the critical threshold (0.079 and 0.067 respectively). While their coefficients are positive, they are above the conventional significance threshold of 0.05. Their coefficients indicate the presence of a relationship, but it is not strong enough in this model to be deemed absolutely predictable. The residuals' diagnostic review, presented in Table 6, represents the final step of any econometric model diagnostic, assuring that the predictions derived did not suffer distortion created by extreme observations or systematic errors. The conducted diagnostic analysis of the residuals, presented in Table 6, allows confirming the thoroughness and stability of the econometric model. A 0 mean of the residuals and their placement within the steady-state controlled limits (between -1.17 and 0.95) support the validity of the hypothesis of no systematic prediction errors.

**Tabel 6.** Descriptive Statistics of Residuals and Estimated Values

| Residuals Statistics <sup>a</sup> |                     |                    |                    |                   |    |
|-----------------------------------|---------------------|--------------------|--------------------|-------------------|----|
|                                   | Minimum             | Maximum            | Mean               | Std. Deviation    | N  |
| Predicted Value                   | -13.225177764892578 | 21.104455947875977 | 9.585142857142863  | 7.951011347585871 | 70 |
| Std. Predicted Value              | -2.869              | 1.449              | 0.000              | 1.000             | 70 |
| Standard Error of Predicted Value | 0.105               | 0.307              | 0.165              | 0.041             | 70 |
| Adjusted Predicted Value          | -13.778368949       | 21.082550048       | 9.572570265360927  | 7.959608124683538 | 70 |
| Residual                          | -1.17778897         | 0.9597418308       | -0.000000000000001 | 0.446863928323097 | 70 |
| Std. Residual                     | -2.478              | 2.019              | 0.000              | 0.940             | 70 |
| Stud. Residual                    | -3.021              | 2.138              | 0.012              | 1.032             | 70 |
| Deleted Residual                  | -1.74990940093      | 1.328369379043579  | 0.0125725917       | 0.542865281808334 | 70 |
| Stud. Deleted Residual            | -3.249              | 2.205              | 0.010              | 1.054             | 70 |
| Mahal. Distance                   | 2.361               | 27.749             | 7.886              | 4.801             | 70 |
| Cook's Distance                   | 0.000               | 0.492              | 0.026              | 0.074             | 70 |
| Centered Leverage Value           | 0.034               | 0.402              | 0.114              | 0.070             | 70 |

a. Dependent Variable: ROE

Source: SPSS:VS 27

The size of the standardized residuals ( $\pm 2.47$  variance limit) is also below the critical level of  $\pm 3$ , thus demonstrating that the model is free of distortions by extreme observations or point shocks of the series. The Cook distance indicators (maximum 0.492) and Mahalanobis distance (27.749) guarantee that every individual quarterly observation does not disproportionately affect the estimations of the coefficients, thus validating the accuracy of the results.

#### IV. DISCUSSION AND CONCLUSIONS

The econometric model analysis largely confirms the hypotheses formulated and highlights the main determinants of bank profitability in Romania. Hypothesis H1 is confirmed: ROA is the strongest positive predictor of ROE, which supports the literature emphasizing the role of asset efficiency in financial performance (Qehaja Keka et al., 2023; Ferrouhi, 2018). Hypothesis H4 is also confirmed, but with a negative effect, indicating that a high level of indebtedness reduces profitability, in line with the results reported by Rumaly (2023) on the vulnerabilities associated with financial leverage. H2 is refuted by the empirical data, the positive coefficient of LN(TAN) indicating the presence of economies of scale to the detriment of anticipated diseconomies, while H5 and H6 are partially validated by the positive and significant influences of the indicators of intermediation (LDR), operational efficiency (RRAB), and macroeconomic dynamics (GDP). At the same time, the statistical non-confirmation of the hypotheses regarding solvency (CAR) and inflation (CPI), whose p-values exceed the 0.05

threshold, emphasizes that, although these factors may influence the stability of the system, they are not immediate and predictable determinants of ROE volatility in the sample and interval analyzed.

The research results highlight that the profitability of the Romanian banking sector is predominantly governed by endogenous factors, emphasizing the central role of internal management in optimizing returns. Operational efficiency (RRAB) has a positive and significant influence on ROE, nuancing the literature: contrary to the conclusions of Plješa Ercegovic et al. (2020), the current model shows that effective cost control contributes to increased shareholder value. The robust relationship between ROA and ROE is fully consistent with existing studies, confirming the link between efficient asset utilization and return on equity.

An important contribution of the study is the analysis of the degree of financial intermediation (LDR). In the Romanian case, the LDR has a positive impact on performance, unlike the outcome of some international studies (Rumaly, 2023; Riyadi et al., 2025), which forewarned about the risks of excessive lending. At the same time, the negative effect of financial leverage, substantiating the literature that pointed at high costs of excessive loan liabilities, suggests that much capitalization can lead to the profits' decline, even though it serves for organizational stability in a strictly regulated environment. Although the institution size (LN(TAN)) provides competitive advantages through the economies of scale, research has shown that asset growth and ROE have a bound inverse relationship.

The need for additional capital to satisfy the prudential requirements leads to capital dilution, caused by the balance sheet growth. Thus, the need to balance generating assets' growth with the optimal level of capitalization resulted in the observation. Finally, the validity of these observations is backed by reliable statistical parameters; the 99.7% coefficient of determination and the Fisher test confirm that the determined mix of independent variables explains nearly all variations in financial performance during the studied period. In conclusion, the research verified that ROE in Romanian banks is the consequence of a fragile equilibrium between the efficiency of operations and prudential discipline. The established econometric model confirmed that ROA and leverage are the determinants of performance.

The significant explanation of the econometric model confirms that, while generally macroeconomic situation and asset size have an influence on the background, the financial performance most depends on the quality of internal management and capital structure optimization. The study reveals that balance sheet extension does not warranted profitability automatically; and the prevalent ideas on the need to concentrate on the efficiency of assets' use and cautious management of credit risk should guide further plans. H2 is disproved through empirical data, and the positive coefficient of LN(TAN) signifies the existence of economies of scale at the expense of expected diseconomies, while H5 and H6 receive partial support through the positive and significant intermediation effect (LDR), efficiency effect (RRAB), and macroeconomic effect (GDP). In contrast to the mentioned facts, the statistical non-confirmation of H3 and H4 relating to solvency (CAR) and inflation (CPI), with their respective p-values higher than the threshold of 0.05, underscores that, although mentioned factors can influence the system stability, they do not formulate immediate and unequivocal determinants of the phenomenon of ROE volatility in a studied sample and time interval.

Research findings emphasize that the banking sector profitability in Romania is dominated to a significant extent by endogenous factors, stressing the key functionality of internal management in maximizing returns. Efficiency (RRAB) positively and significantly influences ROE, which differs from the current literature; indeed, while Plješa-Ercegovic et al. (2020) revealed the opposite role of cost inefficiency, the current model does confirm that strict control of core activity is a vector of increasing shareholder value. Correspondingly, the positive and robust correlation between ROA and ROE is fully compliant with Qehaja-Keka et al. (2023) and Ferrouhi (2018), reconfirming the inner connection between the efficiency of assets and return on equity. Presumably, an original contribution of the study consists in the analysis of the ratio of the degree of financial intermediation (LDR), which positively affects returns within the Romanian area of activity, disputing the conclusions of a number of authors, e.g. Rumaly (2023) or Riyadi et al. (2025), who signified the negative influence of the similar kind of lending impacting through possible risks. Simultaneously, the model indicates the considerable negative influence of the leverage functioning (EL), proving the analyses of Rumaly (2023) on exploitation of excessive borrowing.

This outcome, which seems to contradict classical financial theory, indicates that sufficient capital security can negatively affect the financial results in the short-run, while at the same time it ensures stability in a complicated regulatory environment. Although a bank's size has competitive advantages through the economies of scale, studies indicate a weak inverse relationship between asset growth and return on equity (ROE). The increase in assets makes the need for additional capitalization necessary in order to meet the prudential regulations, which sometimes leads to a dilution of profitability, since capital grows too high incomparably with the profits. Therefore, the high excess capitalization can lead to lower returns, showing that the sustainable ROE increase is possible only when the bank achieves a balance between asset growth and capitalization efficiency. The validity of this assumption is also supported by all the important statistical parameters: the determination coefficient of 99.7%; and Fisher test proving that our models explain almost all variance of the significant explanatory variables throughout the observation period.

To summarize, this study indicates that the actual ROE of the banking system in Romania emerged as a result of the unstable balance between operational efficiency and prudential rigors. The econometric model provides plausible evidence that ROA and leverage are defined as the important pillars determining performance. Although the macroeconomic factors and bank assets do help define the overall trend of development, financial success relies on the quality of internal management and the banks' ability to utilize their capital structure properly in the face of increasingly stringent regulatory requirements. In other words, there exists a very specific economic environment in the country: growth of the balance sheet does not guarantee higher return, since its additional capitalization may weaken leverages, thus requiring the transition from extensive growth model to the one aimed at improving efficiency.

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