# THEORETICAL AND APPLICATIVE APPROACHES TO BUSINESS COMBINATIONS: A CASE STUDY FROM THE REPUBLIC OF MOLDOVA

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**Abstract**

The emerging economy of the Republic of Moldova constitutes a favorable environment for mergers and acquisitions (M&A), governed by specific regional factors, local economic opportunities, and the population's aspirations toward European integration, as well as recent global disruptions (including the pandemic crisis, regional instability, and the armed conflict in the neighboring country). Motivated by the international research in this field, we aimed to conduct an exhaustive empirical study on the financial performance of M&A transactions for a sample of 375 enterprises from the Republic of Moldova, specifically during the period from 2019 to 2024, a time interval marked by economic volatility and strategic significance.

The research objective is to establish and conditionally validate the variation in return on assets and capital indicators in Moldovan mergers, as well as to investigate how capital structure and the size of the acquirers and acquirees influence the performance of these transactions.

Research methodology: The quantitative research includes systematization and grouping of data from financial statements provided by the National Bureau of Statistics for entities participating in M&A, as well as multiple linear regression analysis to assess the dependence of return on assets (ROA) and return on equity (ROE) as a result of changes in independent variables. Additionally, R Studio, JASP, and Excel applications were used as statistical data processing tools, while the Bibliometrix tool and Web of Science database were applied for bibliometric analysis.

The research results support the purpose and hypotheses of the paper through three multiple linear regression models, which established the significant dependence of ROA and ROE, determined by gross commercial margin, asset size, and debt ratio.

**Keywords:** mergers and acquisitions (M&A); business combinations; financial performance.

## 1. INTRODUCTION

Mergers and acquisitions (M&A) at the global level represent a complex and profound domain, utilized and applied with progressive intensity in recent times.

Recent studies in the field provide a clear picture of the interest from both the academic community and the business environment regarding the quantification of efficiency and quality of these processes, as well as the definitive impact on decision-makers and synergies of the parties involved.

A significant contribution to the research of M&A globally is made by the team of researchers led by Bauer F. and others (Bauer et al., 2025), having the most publications in Web of Science over the last 5 years, focusing on the correlation between managerial factors and post-merger performance or corporate synergies (Bauer & Friesl, 2024). They are followed by Hussain T. and Kumar N. (Hussain & Kumar, 2025), who have specialized in ecological mergers and innovations in hostile takeovers (Hussain et al., 2024). A research alliance including Tarba S.Y. has also outlined the correlations of the human factor in global mergers and acquisitions (Tarba et al., 2020) and human resource management versus cross-border performance (Tian et al., 2021).

Romanian studies in the field are becoming more competitive and attractive to the international community through the achievements of authors Aevoae M.G., Robu I.B., and others (Robu et al., 2025) through a series of publications in the field of Romanian energy mergers, as well as circular analyses of corporate performance and accounting quality in mergers (Herghiligiu et al., 2024) and research equally significant for merger performance in small Romanian entities (Maha et al., 2023).

In the Republic of Moldova, although this field has an economic context, qualitative and quantitative empirical research has not been conducted previously. However, this subject has been tangentially reflected in articles by authors Hromei and Cuza (Hromei & Cuza, n.d.), Grigoroi L., and Lazari L., outlining the accounting treatment of business combinations according to national and international regulations (Lazari & Grigoroi, 2016).

In this paper, we propose to analyze the quality and performance of business combination processes based on financial data of companies participating in absorption mergers and a case of consolidation merger from the Republic of Moldova during 2019-2024, a period characterized by multiple crises and economic instabilities.

The purpose of this research is to conduct a descriptive and in-depth analysis of financial indicators before and after the merger process and to assess their quality for entities in the Republic of Moldova.

The scientific approach was made possible through the following research objectives:

- Identification of the sample of entities participating in mergers in the Republic of Moldova for the period between 2019 and 2024 and collection of statistical data;

- A detailed and descriptive analysis of the collected data will be conducted by sorting, filtering, and grouping it to verify the research hypotheses.
- Application of simple linear regression, verification, and assessment of the quality of the econometric model;
- Analyzing statistical results to determine key drivers of M&A efficiency in Moldova through regression modeling and contextual conclusions.

The originality of this paper consists in conducting a unique case study for the economic environment of the Republic of Moldova in the field of M&A, using multiple techniques and tools for collecting and processing statistical data, such as R Studio, regression analysis through Excel and JASP, and bibliometric analysis using Bibliometrix and Web of Science.

## 2. LITERATURE REVIEW

In the last five years, the number of publications related to this topic has been growing rapidly. Thus, by conducting a simple bibliometric analysis on the Web of Science database, approximately 679 articles published from 2019 to the present can be identified that meet the search criteria for the keywords "mergers and acquisitions" and "performance," as shown in Figure 1. Therefore, the interest in this subject among researchers is superior.

**Figure 1:** Number of Publications in Web of Science (2019–2025)


*Source:* Author's illustration.

Starting points for this task are the results of researcher Chiriac I (Chiriac, 2023), regarding the significant relationship between government investments in human capital and the number of mergers from the EU, which includes a detailed analysis of the typology of government expenses for the 27 European states and the number of M&A between 2012 and 2020, conducted using the panel regression method. This paper is remarkable due to its method of grouping and analyzing government expenditures, as well as the way it presents and displays the results.

Contrarily, the author Aevoae G. M. (Aevoae, 2024) studied the dynamics of the M&A market in Romania during the period from 2010 to 2018, using a multiple linear regression model. In this case, the characteristics of the premium paid by acquirers in Romanian mergers were studied in correlation with the following variables: the number of shares controlled, the percentage of shares acquired, the size of the target entity, and the accounting regulations applied during the respective period.

The authors Chernenko N., Moiseienko T., and others (Chernenko et al., 2021) managed to identify an optimal solution in the case of the linear regression model for assessing the degree of investment capitalization and the technological development of the enterprise in the post-merger stage. The results of this study demonstrate that the most significant investments obtained from mergers primarily refer to hostile takeovers of enterprises in the United States and Asia.

From another perspective, the authors Lin J.L., Yen Y.H., and Chan C. (Lin et al., 2025) structure their research on corporate social responsibility by defining the fees from mergers depending on the size of the entity, market value of shares, shareholding, type of participant (governmental or private capital), and dummy variables introduced for hostile or horizontal takeover, type of payment in cash or stocks, etc. Additionally, the methodology estimates financial indicators such as asset turnover rate, marginal profit, leverage ratio, or cash ratio, which define the quality of the independent variable of corporate social responsibility.

In the analysis conducted by Chen R., Wang X., et al. (Chen et al., 2025) to determine the influence of the tax regime on corporate M&A in China for the period 2015-2021, the authors used control variables through the indicators: leverage, return on assets, cash ratio, and current liquidity. Therefore, the financial information of entities quantifies and describes the extent of the M&A

process through the numerical materialization and coding of transactions.

Similarly, Bai Y. and Zhang H. (Bai & Zhang, 2024), as well as Chakraborty I. and Kattuman P. (Chakraborty & Kattuman, 2023), use control variables in their studies, such as operating marginal profit, firm size (logarithm of total assets), Tobin's Q ratio, and the number of firms. The impact of these studies targets, on one hand, the effect of mergers and acquisitions on technologization and innovation (Bai & Zhang, 2024) for listed enterprises in China, and on the other hand, the consequences of India's implementation of the Agreement on Trade-Related Aspects of Intellectual Property Rights, which substantially affects post-merger performance (Chakraborty & Kattuman, 2023).

Another form of research exposition is presented by Can R. and Dizdarlar H.I. (Can & Dizdarlar, 2022), where three econometric models are employed to highlight the negative impact of managerial overconfidence on the value of the target entity. All three multiple linear regression models include calculations based on financial indicators such as Tobin's Q ratio, the stock value of the target entity for 12 months before and after the transactions, and the market value of the entity expressed in liquidity. The results of these studies demonstrate the negative influence of managers' overconfidence on the estimated value of the target entity.

The attribution of return on assets (ROA) as the key indicator for analyzing the efficiency and performance of M&As was identified in the work of researchers Lachwani V.M., Tiwari S., and Jauhari S. (Lakhwani et al., 2018). This publication examines the impact of the following indicators: ROA, marginal net profit, and asset turnover on merger performance, based on a study of 24 acquiring firms during the period 2005 to 2006.

In conjunction with multiple previous studies, Faccio M. and Masulis R. (Faccio & Masulis, 2005) described the factorial dependence of managerial decision-making regarding the choice of payment method in M&A, quantified based on asset growth, liquidity, leverage ratio, cash weight, and market value of shares.

## 3. METHODOLOGY

Our research is focused on establishing the efficiency of the M&A process in the Republic of Moldova from 2019 through 2024, a time when the country's economy was shaken by multiple phenomena such as the COVID-19 pandemic crisis, followed by an energy, logistical, and socio-political emergency resulting from the outbreak of the war in Ukraine, which disrupted the normal functioning of the economic activities of many local enterprises.

Since the purpose of this study is to assess the efficiency of local mergers and acquisitions operations, it is appropriate to develop the following research hypotheses:

Hypothesis 0: Corporate M&A is conditioned by the variation of the return on assets and equity.

Hypothesis 1: The efficiency of a merger is determined by changes in the capital structure and the company size of the acquirer or acquiree.

Therefore, in this paper, we will assess the extent to which the ROA and ROE indicators are properly measurable and timely for evaluating the success of M&A, as well as whether changes in the capital structure and size of the merged enterprises correlate with the performance of this process.

### 3.1. Sample selection

The purpose of this study is to identify the resultant influence of the return on assets and equity indicators for merged enterprises in the Republic of Moldova during the period 2020-2024. The selected data includes a sample of 375 enterprises, of which 164 are acquirers, 209 are acquirees, and just 2 are mergers by consolidation. We collect data from the publicly available financial statements of the National Bureau of Statistics for the year before and following the acquisition.

### 3.2. Analysis Method

Guided by the ideas of Aenoae G.M. (2024), Chen R., Wang X., et al. (2025), Lakhwani V.M. (2017), and Fuad, J.A. (Fuad & Jatmiko, 2022), we define the dependent variables: return on assets (ROA) and return on equity (ROE) for assessing the quality of a merger.

The independent variable Year is a binary (dummy) variable, estimated as 1 for the year in which the merger was finalized and 0 for the preceding year. Such a dummy variable more easily defines the opportunity for grouping companies to assess the impact of the end of the process and individual financial performance. All the variables used in the research are defined in Table 1.

**Table 1:** Meaning and explanation of the variables

| Variable type | Variable symbol | Formula | Meaning of variable |
|---|---|---|---|
| Dependent variable | ROA | Net Profit ÷ Assets | > ROA – efficient use of assets,<br>< ROA – inefficient use of assets |
| Dependent variable | ROE | Net Profit ÷ Equity capital | > ROE – Increased return on capital investment<br><ROE – low return on capital investment |
| Control Variable | LogAssets | Ln (Assets) | Target company size |
| Control Variable | LogDebts | Ln (Debts) | Effects of indebtedness |
| Independent variable | Profitmarginal | Net profit ÷ Sales revenue | Proportional increase in capital |

| | | | |
|---|---|---|---|
| Independent variable | Gross marginal | (Sales revenue – Cost of sales) ÷ Sales revenue | Degree of coverage of costs from sales |
| Independent variable | Leverage | Debts ÷ Equity capital | < 1 – low financial risk<br>= 1 financial balance<br>> 1 increased financial risk |
| Dummy | Year | Year of M&A | 1 – Merger completed<br>0 – year before the merger |

*Source:* Author's aggregation

As mathematical modeling options, the following multiple linear regression models have been established.

The ROA efficiency model is defined as follows:

**ROAi=β0 +β1×·Grossmarginal i+β2×·log(Debtsi)+β3×·Yeari+εi**

The defined ROE efficiency model:

**ROEi=β0 +β1×·Profitmarginal i+β2×·Leveragei+β3×·Yeari+εi**

And the ROE combined model:

**ROE combined i=β0 +β1×·Profitmarginal i+β2×·Leveragei+β3×·log(Assets)I + β4×·Grossmarginali +β5×·log(Debts)I + β6×·Yeari+εi**

As mentioned before, we used to validate the research hypotheses and model the R Studio, Excel, and JASP tools.

## 4. RESULTS

Due to structuring the research based on the three multiple linear regression models, the independent verification stages are applied consecutively and identically for each case, and finally, the data and results are compared reciprocally.

Hypothesis 0 regarding the efficiency of applying the dependent variables, asset return, and capital return, can be tested and validated through the development of the ROA and ROE models using various tools. Initially, the data collected in an Excel file was tested using linear regression. Through multiple exclusions and repetitive checks, the indicators presented in Table 1 were deemed appropriate for analysis.

The analysis of asset return is defined by the gross margin and the debt structure, which, to reduce data dispersion, is mathematically manipulated through the natural log of total debt and Year, a binary variable specifying the period of the merger and the previous one. The descriptive statistical data of the variables are specified in Table 2.

**Table 2:** Descriptive statistical results of the variable

| Variable | Min | Max | Mean | Std. Dev. | Median | No. of observations |
|---|---|---|---|---|---|---|
| ROE | -1357,0940 | 8173,9072 | 16,9928 | 337,219025 | 0,0350 | 645 |
| ROA | -1357,0940 | 8173,9072 | 16,3782 | 337,010863 | 0,0000 | 645 |
| LogAssets | 0,0000 | 10,4730 | 6,4940 | 2,1404778 | 6,8520 | 645 |
| Profitmarginal | 0,0000 | 10,8420 | 5,3520 | 330,066937 | 6,3840 | 645 |
| Leverage | -1554,0124 | 8173,9072 | 9,7221 | 344,908686 | 0,3428 | 645 |
| LogDebts | 0,0000 | 10,3220 | 5,9890 | 2,19962437 | 6,390 | 645 |
| Grossmarginal | -5794,1459 | 1,38100 | -8,7225 | 227,448757 | 0,1552 | 645 |
| Year | 0,0000 | 1,0000 | 0,4576 | 0,4985855 | 0,0000 | 645 |

*Source:* Author's calculation.

Subsequently, to verify the accuracy of the instruments and assess the reliability of the econometric and statistical applications, the same stages were simulated using R Studio. In this regard, Table 3 and Table 4 include the values of the coefficients and the results of these tests.

**Table 3:** Impact of debts and gross margin on ROA

| Variable | Coefficient | Standard Error | T value | P value | Significance |
|---|---|---|---|---|---|
| Error ε | 44,087314 | 12,914216 | 3,413859 | 0,0006806 | *** |
| LogDebts | -5,376292 | 1,859033 | -2,891983 | 0,0039571 | ** |
| Grossmarginal | -1,412047 | 0,017796 | -79,346533 | 0,0000000 | *** |
| Year | -17,100050 | 8,208745 | -2,083150 | 0,0376308 | * |
| $R^2$<br>$R^2$ adjusted | 0,9071<br>0,9067 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| F-statistic<br>p-value | 2101<br><0,001 | | | | |
| Note: Significance: 0 '***', 0.001 '**', 0.01'*', 0.05 '.' 0,1 ' ', 1 | | | | | |

*Source:* Author's calculation with R Studio.

Therefore, we obtained a regression model, calculated using the Ordinary Least Squares (OLS) method, which estimates the values of return on assets (ROA) based on the commercial gross margin, debts, and the year of the merger. The model explains a statistically significant proportion of the variance in the dependent variable ROA, justified by the $R^2$ coefficient of determination, as well as the adjusted $R^2$ of 91%, and the p-value < 0.001. The standard error, corresponding to the values of zero, is 44,09 within the confidence interval from 18,73 to 69,45 in this model:

The effect of the gross margin is statistically significant and negative, with a beta parameter value of -1,41 and a p-value < 0,001. The obtained data confirms an inverse relationship, meaning that in this model, an increase in the gross margin is associated with a decrease in asset profitability.

The impact of logarithmically transformed debt is statistically significant and negative, due to the beta parameter slope of -5,38, p = 0,004. Therefore, an increase in the company's debt conditions a decrease in ROA, although the effect is smaller than that of the gross margin.

And the year effect is statistically significant and negative, which means that ROA will decrease over time, according to the obtained model.

The standardized parameters were applied by adjusting the model, and the 95% confidence intervals and p-values were calculated using a Wald t-distribution approximation with the help of the R Studio tool.

All the variables in the ROA model have a negative slope, which explains the inverse relationship with the dependent variable. Similar to this analysis, we will proceed with the ROE model.

**Table 4:** Impact of variation of debts and profit margin on ROE

| Variable | Coefficient | Standard Error | t-Value | p-value | Significance |
|---|---|---|---|---|---|
| Error ε | 4,82799 | 0,52509 | 0,272 | 0,0234 | * |
| Leverage | 0,25719 | 0,03277 | 0,848 | 0,0000 | ** |
| Profitmarginal | 0,70283 | 0,03426 | 0,517 | 0,0000 | *** |
| Year | 12,60466 | 0,65261 | 1,306 | 0,1921 | |
| $R^2$<br>$R^2$ adjusted<br>F-statistic<br>p-value | 0,8689<br>0,8683<br>425,00<br>0,001 | | | | |
| Note: Significance: 0 '***', 0,001 '**', 0,01'*', 0,05 '.' 0,1 ' ', 1 | | | | | |

*Source:* Author's calculation with R Studio.

Similarly, this model was obtained using the ordinary least squares (OLS) method to describe the dependence of return on equity (ROE) on leverage, profit margin, and year. The model explains a statistically and substantially significant proportion of the variance in the ROE variable by the selected independent variables for analysis ($R^2$ and adjusted $R^2$ = 0,87, p < 0,001). The model error term, corresponding to the zero values for all defined variables, is 14.83, with a moderate significance level p = 0,023. Within this model:

The effect of the debt ratio is statistically significant with a positive elasticity of 0,26, p < 0,001. This means that with the increase in debt, the return on equity will also increase, albeit insignificantly.

The impact of the profit margin on ROE is statistically significant and positive, and the slope of the beta parameter also has a positive value of 0,70 with p < 0,001. An increase in the profit margin by 1000 c.u. will result in an approximate increase in profitability by 700 c.u.

The effect of the year is statistically insignificant and negative. The slope of this variable is negative at -12,60, and due to the p-value of 0,192, the impact on the change in ROE over time will not be felt.

All calculations were performed by adhering to the standardized adjustment parameters of the model with 95% confidence intervals (CI), similar to the previous model.

The results obtained statistically inform us that the independent variables have a significant impact on the profitability of assets and capital, either positively or negatively, depending on the values of the coefficients, except for the Year variable in the ROE model; therefore, this indicator does not produce changes or effects for analysis.

**Table 5:** Impact of variation of debts and profit margin on ROE combined

| Variable | Coefficient | Standard error | t-value | p-value | Significance |
|---|---|---|---|---|---|
| Error ε | 0,243 | 0,450 | 0,237 | 0,025649 | * |
| LogAssets | 0,070 | 0,372 | 0,097 | 0,036409 | * |
| Profitmarginal | 0,547 | 0,308 | 0,104 | 0,916810 | |
| Leverage | 8,178 | 0,221 | 0,025 | 0,979752 | |
| LogDebts | 1,111 | 0,251 | 3,417 | 0,00673 | *** |
| Grossmarginal | 1,410 | 0,955 | 15,750 | 0,0000 | *** |
| Year | 1,564 | 0,314 | 1,881 | 0,060439 | . |
| R2<br>R2 adjusted<br>F-statistic<br>p-value | 0,9066<br>0,908<br>39<br>0,001 | | | | |
| Note: Significance: 0 '***', 0,001 '**', 0,01'*', 0,05 '.' 0,1 ' ', 1 | | | | | |

*Source:* Author's calculation with R Studio.

The third linear regression model was also estimated using the ordinary least squares (OLS) method to predict return on equity (ROE) based on firm size (LogAssets), profit margin (Profitmarginal), leverage (Leverage), debt value (LogDebts), gross margin (Grossmarginal), and year (Year). The model explains a statistically and substantially significant proportion of the coefficient of determination, with an adjusted $R^2$ close to 1 ($R^2$ and adjusted $R^2$ = 0,91) and a p-value close to zero ($p < 0.001$). The corresponding standard error for the null values of the indicators is 32,43, and the p-value is 0,026. In this model:

The effect of enterprise size is statistically significant and positive; the slope value β is 7,07 and meets the high significance level (p = 0,036).

The influence of the variation in debts and gross margin is also statistically significant but inversely proportional due to the negative slope, with β for debts being -11 and for gross margin, β = -1,41.

The effects of profit margin, leverage, and the year of merger are statistically insignificant. For the profit margin, the slope has a positive value of β = 0,00555, while the other mentioned variables have negative values of -0,000818 and -15,64, respectively.

Due to the fact that the variation of the independent variables for all three linear models is highly significant at approximately 90%, we need to determine whether they are econometrically efficient.

In this case, the specialized literature suggests that we apply tests for heteroscedasticity, normality, and covariance. Using the same calculation R Studio tool, we illustrate the results of these tests in Table 6.

**Table 6:** Results of econometric tests on ROA, ROE, and ROE combined

| Model type | ROA | ROE | ROE combined |
|---|---|---|---|
| P-value | 0,0001 | 0,0001 | 0,0001 |
| F-statistic | 2101 | 1425 | 1039 |
| R2 | 0,9071495 | 0,86888 | 0,9066281 |
| R2 adjusted | 0,9067176 | 0,86827 | 0,9057555 |
| Shapiro–Wilk Test | No,<br>W= 0,12526 | No,<br>W= 0,16115 | No,<br>W= 0,1467 |
| Durbin–Watson Test | Yes<br>DW = 1,9871,<br>p-value = 0,4373 | Yes<br>DW = 2,003<br>P-value = 0,5077 | Yes<br>DW = 1,997,<br>p-value = 0,4861 |
| Homoscedasticity | Yes,<br>Chi-square = 1,4885,<br>DF=1 | Yes,<br>Chi-square = 62,9109,<br>DF = 1 | Yes,<br>Chi-square = 2,0125<br>DF = 1 |
| Multicollinearity | Weak:Grossmarginal,<br>LogDebts si Year | Moderate: Leverage și Profitmarginal<br>Slabă: Year | Weak: LogActive, LogDebts, Year,<br>Moderate: Leverage<br>High: Profit marginal,<br>Gross Marginal |
| Autocorrelation | No,<br>p=0,378 | No,<br>p=0,752 | No,<br>p=0,770 |

*Source:* Author's calculation with R Studio.

However, some of the tests mentioned here present uncertainties in application; intuitively, if errors had been admitted in the processed financial data, the respective data would not have been sufficiently well corrected and filtered, and therefore these effects would produce residual and marginal values that have a high degree of deviation, which causes the impact of homoscedasticity.

Concluding at this stage of the analysis, we can ascertain that the presented models largely meet the criteria for acceptance and validation through the validation of the significant influence of dependent variables on independent ones, and the application of other statistical tests does not suggest clarity due to the degree of dispersion and variety of entities in the sample.

## 5. DISCUSSION

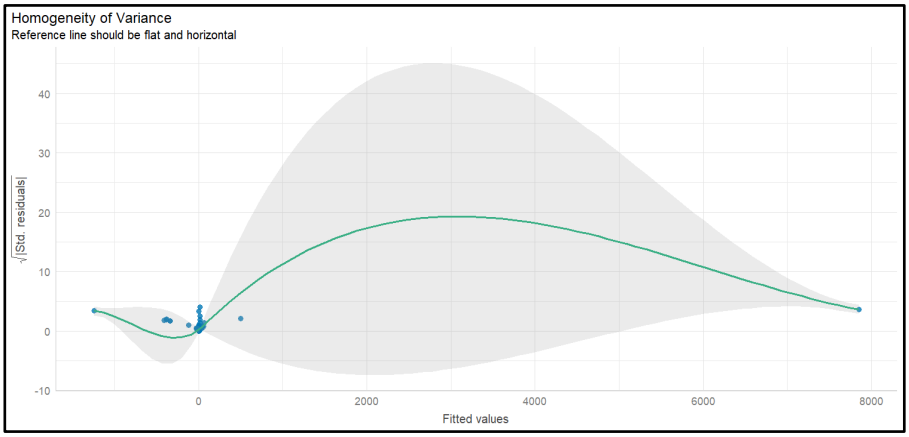
We recognize the extensive variety of regression models that exist, each distinguished by its unique typology, methodological application, validation techniques, and economic interpretations. However, the models presented in this scientific endeavor were developed to assess the variation in asset and capital profitability for mergers in the Republic of Moldova, original and unique empirical research for the local academic environment.

This result's validity is further corroborated by diverse non-linear studies and research findings that have reached comparable conclusions. The regression analyses of Gu Y., Xie W., and others (Gu et al., 2022) argue that the impact of independent variables sometimes does not have mandatory normality and heteroscedasticity. Therefore, there are determining factors that can distort some results, or by invalidating standard hypotheses, it can suggest another way of addressing the situation itself.

As a result, obtaining a probabilistic value of the model (p-value) for all three models less than 0,001 indicates the existence of an imminent dependence between the ROA or ROE variable and at least one of the independent variables. A p-value so low (well below the conventional threshold of 0,05) indicates that the models are extremely statistically significant, supported by the results presented by Fuad J. (2022) and Agyei-Boapeah et al. (2019). These findings, coupled with the 90% coefficient of determination and its adjusted value across all three models, validate the high predictive and explanatory capabilities of our analysis, representing a significantly positive outcome for our research.

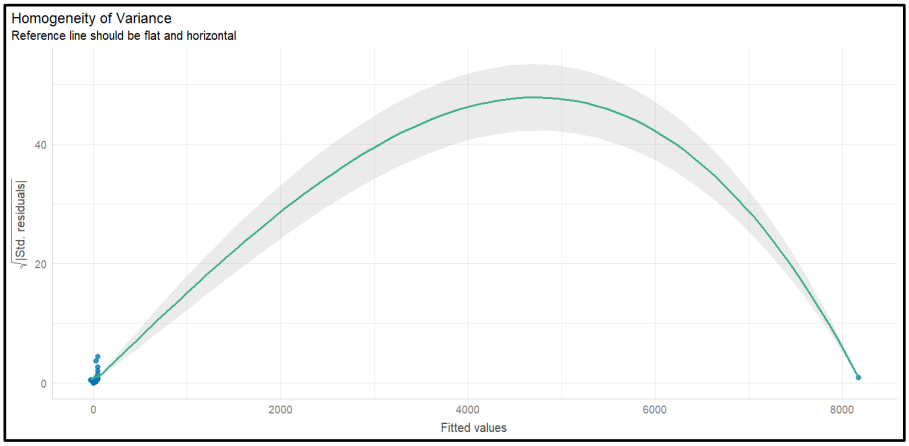
We obtained the same result for the homoscedasticity test for all models, but the illustrations can explain the differences in Figures 2 and 3.

**Figure 2:** Homoscedasticity for the model ROE




*Source:* Author's illustration with R Studio.

**Figure 3:** Homoscedasticity of the model ROA



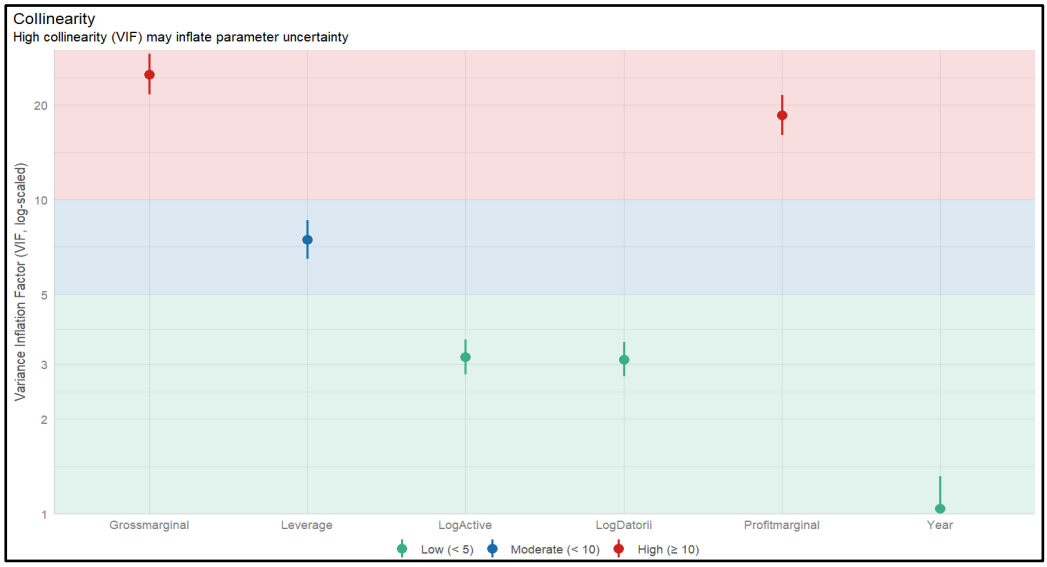

*Source:* Author's illustration with R Studio.

This means that the variance of the errors (residuals) is constant throughout the range of values of the independent variables. There is no "funnel" in the residuals plot. Implication: This is a key assumption of OLS linear regression. The fact that it is met means that the model coefficient estimates are efficient and that the standard errors and p-values associated with the individual coefficients are reliable. It is an excellent result.

In parallel with these assessments, the results obtained for the multicollinearity test for the ROA model are outstanding; therefore, all indicators have values below 5, which demonstrates the lack of connection between the independent variables. However, the ROE model is less advantageous in this regard, as there is a moderate but acceptable connection without distorting the overall image of the model. The combined ROE model involves multiple instances of collinearity, including between gross commercial margin and marginal profit indicators, which demonstrate the direct relationship between indicators such as net profit and sales revenue, as presented in image 3.

The collinearity between marginal profit and gross commercial margin can also be influenced by the financial instability of enterprises caused by external economic effects, such as the COVID-19 crisis and the war in the neighboring country. The most basic explanation for this phenomenon is insolvency or cessation of activities due to the loss of markets, distribution networks, or leverage effect, resulting from rapidly escalating inflation in energy resources and territorial trade limitations and restrictions.

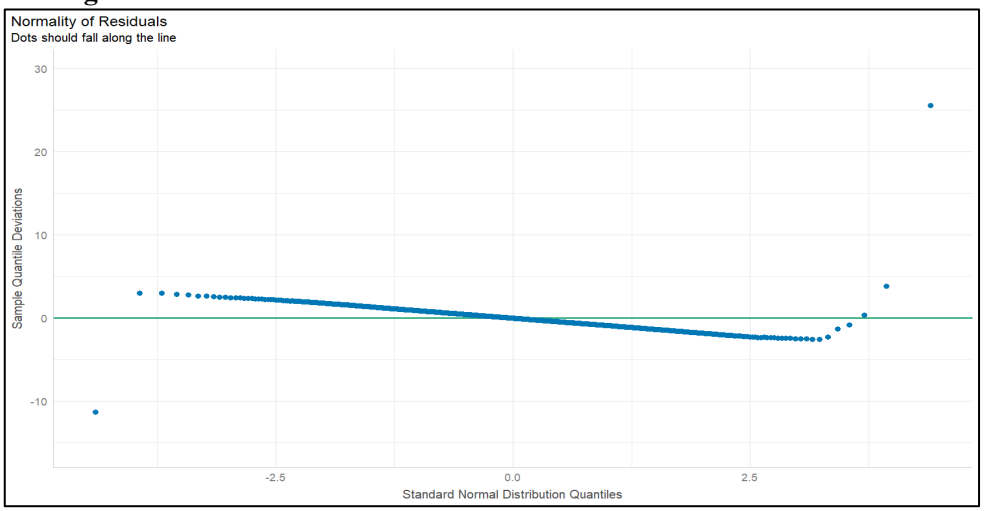
**Figure 4:** Multi–collinearity of the ROE combined model




*Source:* Author's illustration with R Studio.

And finally, the negative result of the Normality Test—the Shapiro-Wilk Test—for all the models studied confirms that in the process of systematizing primary data and calculating financial indicators, in the case of obtaining an unassigned result, the respective data were supplemented with zero, which produces certain non-normal deviations of the residual and marginal values. Figure 5 supports this hypothesis and addresses these side effects for multiple linear regression models.

**Figure 5:** Distribution of residual values of the ROE combined model




*Source:* Author's illustration with R Studio.

Returning to the subject of hypothesis validation, Hypothesis 0 is justified by the support of the quality of the ROA, ROE, and combined ROE research models presented through descriptive and econometric analysis. However, the second hypothesis, which establishes a direct dependence of the variation of performance indicators on the variation of capital or the size of the enterprise, requires attention. In this case, it is necessary to focus attention on the descriptive results of the LogDebts and LogAssets indicators. To understand how these variables affect ROA and ROE, it is appropriate to separate and analyze them distinctly. The independent variable LogAssets mathematically defines the size of the sample enterprises. Thus, this indicator is included in the combined ROE model, and the p-value of 0,03, acceptable within the confidence interval, justifies a partially significant influence on the resulting indicator. Moreover, the coefficient $\beta = 7,07$ suggests that the slope of this variable is positive; however, if we forecast an increase in assets by 1%, this will result in an ROE increase of 0,07 units, when ceteris paribus.

The second variable, LogDebts, was stipulated in both the combined ROA and ROE models. As the natural logarithm of assets, this indicator is meant to provide calibration and statistical manipulation. For both models, the slope of this indicator is negative and can describe an inverse influence. The real increase in debt leads to a decrease in the return on equity and assets. Thus, with a 1% increase in corporate debt, ROE will decrease by 0,01 units, while ROA will decrease by 0,05 units, when ceteris paribus. However, the variation of this indicator is extremely significant for both outcome variables.

The arguments presented above for Research Hypothesis 1 validation demonstrate a significant connection between the debts and assets of the analyzed companies to the return on assets and equity, as the resulting indicators of the linear regression analysis.

Therefore, these investigations have allowed us to conclude that the purpose and objectives of the research fully encompass the analyzed domain. However, we must point out that these three linear regression models are not entirely perfect and unique, but they do serve as a starting point for future case studies and deterministic analyses of mergers and acquisitions in the Republic of Moldova.

## 6. CONCLUSION

This research allows us to conclude that the efficiency and performance of a merger and acquisition procedure in the Republic of Moldova are determined by the quality of the information presented and contained in the financial statements. The descriptive analysis conducted based on three multiple linear regression models, which target the variation in asset and capital profitability strictly dependent on marginal profit, gross commercial margin, debt variation, and the size of the participating companies' assets, is supported by statistical results and the validity of the tests.

The decrease in asset return is conditioned by all independent variables, including the gross commercial margin and the passage of time, as well as the debt variation. While the return on equity (ROE) model shows that marginal profit and the degree of leverage have a significant positive impact, the combined ROE model reveals significant implications of debt, enterprise size, and gross commercial margin.

In this paper, we have attempted to highlight the importance of the financial performance of mergers and acquisitions in the Republic of Moldova, carried out during a period of social, economic, and geographical instability due to multiple crises and the situation in the neighboring country.

In the following studies, we will develop new statistical analysis models and establish the degree of volatility of financial indicators for mergers and acquisitions in the Republic of Moldova.

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