ADOPTING DECISIONS IN THE CORPORATE BANKING SECTOR: A CASE STUDY ON ROMANIA

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Abstract

This paper examines the relationship between corporate loan growth and banking risk and how this relationship is used to adopt decisions in the corporate banking sector, using a panel dataset of 5 banks functioning in Romania over the period 2007-2021. Main findings include the following. The rise of corporate loan growth and the increasing size of the banks decrease the ratio of non-performing loans and therefore the associated risk. Usually, larger banks may have a higher reliance on debt financing instead on equity. The profitability of banks rises when the number of corporate loans is growing and falls as expected when costs increase, when a greater proportion of assets is allowed for allocated for loans and may be influenced negatively by the size of the bank. These insights have a pivotal role, leading to strategic choices to foster growth and resilience in the dynamic landscape of Romania's corporate banking area.

Keywords: corporate banking, decisions, Romania, corporate loan growth

JEL Classification: G20, G30, G32

1. Introduction

In the banking area, the needs for individuals and companies differ from one another and therefore, banks adapted their products and services portfolios to meet the requirements of the clients. Big companies need more complex banking solutions than individuals and much higher amounts of loans. This is the reason why many banks developed corporate banking areas.

Corporate banking comprehends the total banking products and services provided to large companies, usually publicly traded ones with high profit and turnover. Some examples are corporate loans, treasury and cash management services, trade finance, private equity financing. Loans enable corporations to grow even more, enabling new job opportunities for people and contributing therefore to the growth of the economy.

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To better understand the corporate banking area and its impact on a bank, a short comparison with retail banking area is necessary, carefully outlined by [1]. Firstly, corporate clients need very large loans to fund their investments. The revenue is higher because of the higher interest amount paid. Secondly, while services for retail clients are mainly standardized, the ones for corporates need to be custom tailored to their present and future needs. This helps strengthen the long-term relationship. Lastly, the different banking fees are higher for corporate clients, increasing the revenue for the bank. Because of bigger loans with higher interest and fees, together with a good long-term relationship, corporate banking turns out to be more profitable than retail banking.

Nowadays banks from all over the world offer a large variety of products and services for corporates. These range from corporate loans, trade finance, cash management to risk management solutions and capital market services. In Romania, the most common and the most important ones are corporate loans, trade finance and cash management.

Given that loans are one of the main sources of income for a bank, the changes in the amounts of loans do affect the banking risk. Some authors have studied the impact of bank loan growth on the banking risk in different countries.

Given the fact that corporate banking is of higher importance for banks because of the better financial benefits it brings, the impact of corporate loans on banking risk is of great interest. Their growth will be a crucial indicator in understanding banking financial situation, risk and how to adopt decisions to foster growth and stability. This relatively newly examined aspect will potentially help contribute to future research in the corporate banking area.

The purpose of this study is to show the impact that corporate loan growth has on banking risk in Romania and how this impact can be analyzed to make informed decisions at the management level. Key financial indicators of banks will be examined with the relationships between them and corporate loan growth together with other control variables, which will be carefully explained, considering their potential implication in shaping the decision process.

2. Literature Review

[2] conducted a study to investigate the relationships between loan growth and bank risk, profitability, and solvency. They showed that an increase in loan growth can lead to an increase in the risk faced by banks and that between profitability and bank risk is a statistically significant relationship. Rapid expansion of lending is the cause of an increase in non-performing loans and reduces the return. Even though loan growth may seem beneficial, resulting in an increase in earnings from interest and therefore to a sustainable and continuous process of financial development, if the growth is does eventually become

assertive, the corresponding rise in the banking risk will be situated on the same ascending trend.

[3] reveal in their scientific study how general loan growth impacts banking risk. According to their main findings, loan growth negatively affects non-performing loans and the ratio of equity to total assets, while positively influencing return on assets. The idea that loan growth generates notable profits for banks is supported also by [2]. Also, they provide an essential implication for banks, stating that when banks decide to create a strategy to increase loan growth, they will need to carefully weigh the balance between profitability and risk.

In a scientific study, [4] examined a sample of Islamic banks from 29 countries to find out how loan growth and capitalization influenced credit risk. The research concluded with the discovery that elevated loan growth in Islamic banks leads to an escalation in credit risk, with the effects observed one year in advance. In addition, banks with higher capital have a higher tendency to take on bigger risk.

[5] showed no correlation between loan growth and profitability but revealed a positive relationship between loan growth and non-performing loans, stronger during financial crises.

[6] undertook an investigation to see the impact of non-performing loans on the lending activities of banks. As [2] revealed, a fast expansion in lending causes an increase in non-performing loans. To enlarge this finding, [6] found out that the presence of NPL exerts a detrimental influence on lending operations of banks, as higher rates of NPL are linked to reduced growth in performing loans. Therefore, the idea outlined by [3] that banks should be careful regarding the pace of lending rhythm is of great importance taking into consideration the potentially downward trend performing loans may be situated on.

[7] conducted research to prove the existence of a positive relationship between non-performing loans and loan growth in Europe, using a dataset of 200 banks for the period 2014-2019. It was observed that the limited expansion in lending during the designated period indicates the presence of a mechanism where non-performing loans diminish bank profits, elevate funding expenses, and undermine capital. The magnitude of the impact outlined in the study suggests that removing all NPLs from the sample would lead to doubling the growth rate of bank loans. Further, the effect of NPLs is stronger when its level is lower. NPLs not only affect a bank's financial situation directly regarding the lack of future interest incomes, but also escalate the costs of obtaining funds that make lending less profitable. A crucial aspect proven in the study is that the lending growth rate is particularly more responsive and sensitive to NPLs within the corporate loan portfolio.

3. Methodology

[3] used the following research model:

$$NPL_{it} = \alpha + \beta_1 LG_{it} + \beta_2 LTA_{it} + \beta_3 CI_{it} + \beta_4 SIZE_{it} + \varepsilon_{it} \quad (1)$$

$$ETA_{it} = \alpha + \beta_1 LG_{it} + \beta_2 LTA_{it} + \beta_3 CI_{it} + \beta_4 SIZE_{it} + \varepsilon_{it} \quad (2)$$

$$ROA_{it} = \alpha + \beta_1 LG_{it} + \beta_2 LTA_{it} + \beta_3 CI_{it} + \beta_4 SIZE_{it} + \varepsilon_{it} \quad (3)$$

To adapt it to the corporate banking area, CLG, corporate loan growth, will be used instead of LG, loan growth. In the case of Equation 3, ROAA, return on average assets, will be used instead of ROA, return on assets, to provide a more precise representation because by considering the average assets, it reduces the impact of fluctuations in asset value. The final model used for regressions is the following:

$$NPL_{it} = \alpha + \beta_1 CLG_{it} + \beta_2 LTA_{it} + \beta_3 CI_{it} + \beta_4 SIZE_{it} + \varepsilon_{it} \quad (1)$$

$$ETA_{it} = \alpha + \beta_1 CLG_{it} + \beta_2 LTA_{it} + \beta_3 CI_{it} + \beta_4 SIZE_{it} + \varepsilon_{it} \quad (2)$$

$$ROAA_{it} = \alpha + \beta_1 CLG_{it} + \beta_2 LTA_{it} + \beta_3 CI_{it} + \beta_4 SIZE_{it} + \varepsilon_{it} \quad (3)$$

This model will be used to assess how Corporate Loan Growth affects key financial indicators of banks' performance, non-performing loans, equity-to-assets ratio and return on average assets ratio. Also, the potential influence that the control variables have on these relationships will be thoroughly examined. It will be outlined how these performance indicators can be used to shape the decision-making process to improve risk management, optimize performance and foster financial stability.

Fundamental analysis models such as Ordinary Least Squares (Pooled OLS) Fixed Effects Model (FEM) and Random Effects Model (REM) will be employed. The Redundant Fixed Effects – Likelihood Ratio will be used to choose between Pooled OLS and FEM. After that, the Hausman test will help choose between FEM and REM. In case both tests fail, Pooled OLS method will be used. Serial correlation tests are relevant for macro panels, +20-30 years, not being a concern for micro panels, such as in this situation, the period being 15 years.

Variable Names	Definition
Independent Variables	
CLG	Corporate Loan Growth
Dependent Variables	
NPL	Non-performing Loans

ETA	Equity to Total Assets
ROAA	Return On Average Assets
Control Variables	
LTA	Loans To Total Assets
CI	Cost to Income
SIZE	Total Assets

Table 1: Variables Definition

Corporate Loan Growth indicates how much a bank's corporate loan amount increased compared to the previous year. A positive loan growth indicator shows an expansion in the economy. Banks are responsible for this expansion by providing funds to corporates for investments. However, excessive lending creates risks, taking into consideration the possibility of the corporate borrower to be unable to pay back the loan.

Loans become non-performing when the borrower encounters financial difficulties, as cash flow problems or declining profitability and therefore cannot meet the repayment obligations. The time that must pass for a loan to be considered non-performing is usually 90, but it can be also 180.

Return on Average Assets is a metric used by banks and by companies to assess their profitability in relation to the total assets. It is obtained by dividing the net income by the average assets. A higher ROAA denotes higher profitability.

The Equity-To-Assets ratio measures the amount of equity a bank has in relation to its total assets. It is obtained by dividing net worth by the total assets. It shows the percentage of bank's assets that are financed by its equity. A higher ratio indicates a larger part of assets are financed by equity, which generally implies a stronger financial position and reduced risk.

Loans to total assets ratio measures the composition of a bank's asset portfolio, showing how many assets are reserved for loans. The Cost to Income ratio shows a bank's costs as a proportion of its income. It is calculated by dividing the operating costs of the bank to its operating income. CI is used to estimate the bank's efficiency and a lower CI ratio indicates better performance for the banks. The size of a bank is represented by its total assets. As banks grow, they expand their activities by providing new or better products and services for clients.

The data for the 5 Banks functioning in Romania was collected for a period of 15 years to provide an overview of the corporate lending growth and banking risk locally. The reason

for choosing only 5 banks is the method of gathering the data. Regarding the Corporate Loan Growth and Non-performing loans, data was unavailable in various databases, and it had to be manually collected by going through the banks' annual reports. The variables LTA, ETA, SIZE, CI, ROAA were collected from the Orbis database. The period is 15 years due to the time availability of the data.

4. Results

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
NPL (ratio)	75	10,17	7,09	1,61	29,20
CLG (ratio)	75	12,32	16,11	-17,46	80,00
ETA (ratio)	75	10,62	1,51	7,68	15,38
ROAA (ratio)	75	1,47	1,22	-4,35	5,87
LTA (ratio)	75	57,68	6,69	39,18	70,48
CI (ratio)	75	52,16	8,15	30,60	77,77
SIZE (bn RON)	75	48,09	23,22	12,82	132,49

Table 2: Descriptive statistics

Table 2 contains a summary of the statistics for the variables used in the regressions. It shows the mean, the standard deviation, the minimum and the maximum value for each indicator. The dataset had a total of 75 observations. The mean of the NPL is 10,17 and the maximum value is 29,20. The standard deviation of CLG is 16,11, while the minimum is -17,46 and the maximum is 80,00. The average ratio of ETA is 10,62 with a standard deviation is 1,51. ROAA has the largest value 5,87 and the smallest is -4,35. LTA is averaging around 57,68, jumping from a bottom value of 39,18 to a peak value of 70,48. CI

has a standard deviation of 8,15 and a mean value of 52,16. The mid-range value of the SIZE reached 48,09 billion RON with the greatest value being 132,49 billion RON and the smallest value being 12,82 billion RON.

After the data was collected, to compute the regressions, EViews statistical tool was used. In this section, all regressions will have their results outlined and discussed. The graphs showing the trendlines for the NPL, ETA, ROAA and CLG were computed in Excel.

4.1. NPL as Dependent Variable

$$NPL_{it} = \alpha + \beta_1 CLG_{it} + \beta_2 LTA_{it} + \beta_3 CI_{it} + \beta_4 SIZE_{it} + \varepsilon_{it} \quad (1)$$

Dependent Variable: NPL	OLS	FEM	REM
CLG	-0.163506***	-0.161071**	-0.163506***
	(0.050594)	(0.050958)	(0.047047)
LTA	0.137597	0.020200	0.137597
	(0.148528)	(0.176269)	(0.138118)
CI	0.033964	-0.066776	0.033964
	(0.105874)	(0.121965)	(0.098453)
SIZE	-0.060085	-0.180924***	-0.060085
	(0.040944)	(0.052535)	(0.038074)
CONSTANT	5.365280	23.17081	5.365280
	(12.94402)	(15.99940)	(12.03674)
Observations	75	75	75
Redundant Fixed Effects -Likelihood Ratio		0.0084	
Hausman Test			0.0048

The value within the parenthesis represents the standard error. ***p < 0.01, **p < 0.05, *p < 0.1.			

Table 3: Regression Results for NPL

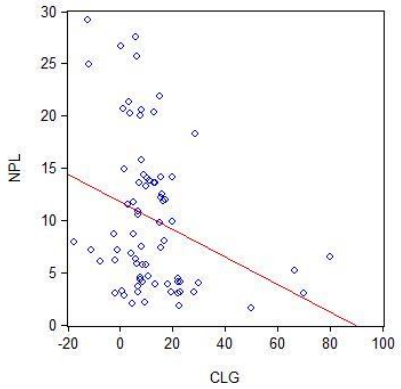

Figure 1. Relationship between CLG and NPL

The Redundant Fixed Effects -Likelihood Ratio indicates a value lower than 0.05 for the FEM model, therefore FEM is significant. To choose between FEM and REM Hausman test was used. The value is also lower than 0.05 so FEM is the right model. FEM will be used for the regression in which NPL is the dependent variable.

Corporate loans growth coefficient has a value of -0.161071 which denotes negative relationship. Hence, for an increase in corporate loan growth, NPL will be on a downward trend. The standard error is relatively small, 0.050958. P-value is lower than 0.05 meaning that the coefficient is statistically significant. Given that enterprises have a lower chance of encountering loan repayment problems, due to their financial size and the high number of transactions, an increase in CLG should be expected to decrease the overall ratio of NPL. Even though previous studies used general LG, the result is in accordance with [3].

LTA has a positive relationship and CI has a negative relationship with the dependent variable, but neither has a probability lower than 0.05. For that reason, the coefficient is not meaningful to interpret, having the relationship occurs probably because of random chance.

SIZE has a negative relationship with NPL and is statistically significant at both levels of significance, coefficient is -0.180924 and p-value < 0.01. When SIZE increases, NPL ratio decreases.

Larger banks, measured by their amount of total assets, have a smaller proportion of non-performing loans compared to smaller banks. A few reasons may be that larger banks have more diversified loan portfolios to reduce risk or that they may have much more resources to monitor and manage their loans. Other reason may be that larger banks, due to their loan capabilities, are able to have a bigger corporate loan portfolio.

4.2. Results for ETA as a dependent variable

$$ETA_{it} = \alpha + \beta_1 CLG_{it} + \beta_2 LTA_{it} + \beta_3 CI_{it} + \beta_4 SIZE_{it} + \varepsilon_{it} \quad (2)$$

Dependent Variable: ETA	OLS	FEM	REM
CLG	-0.011710	-0.004320	-0.011710
	(0.011292)	(0.010112)	(0.009336)
LTA	-0.069166*	-0.127078***	-0.069166**
	(0.033150)	(0.034979)	(0.027408)
CI	-0.034319	-0.034870	-0.034319*
	(0.023630)	(0.024203)	(0.019537)
SIZE	-0.013434	-0.022434*	-0.013434*
	(0.009138)	(0.010425)	(0.007555)
CONSTANT	17.18745***	20.89835***	17.18745***
	(2.888954)	(3.174948)	(2.388590)
Observations	75	75	75
Redundant Fixed Effects -Likelihood Ratio		0.0000	
Hausman Test			0.0000
The value within the parenthesis represents the standard error. ***p < 0.01, **p < 0.05, *p < 0.1.			

Table 4: Regression Results for ETA

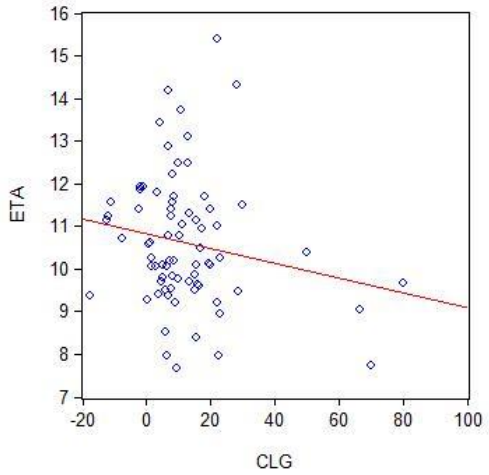

Figure 2. Relationship between CLG and ETA

Like in the previous regression, The Redundant Fixed Effects - Likelihood Ratio value is lower 0.05 for the FEM model, making it significant. The Hausman Test value is also lower than 0.05 so FEM is the right model.

The coefficient for Corporate Loan Growth (CLG) in the regression model is -0.004320, illustrating a negative connection. When CLG increases, Equity to Total Assets (ETA) decreases. But the p-value is not lower the 0.05, being higher than 0.1. This means that the result is not statistically significant. The evidence in the data is proven to not be sufficient to support the presence of a significant relationship. The possibility of a connection between ETA and LG may be proven in future research. A short explanation is provided below in the case of the existence of this correlation.

Banks may rely more on debt financing rather than equity. It can be a good strategy for expansion and investment opportunities, but it increases the exposure to financial risk. A higher debt-to-equity ratio can create vulnerability to negative changes in the economy. One possible explanation may be that given the amount of a corporate loan and the desired pace associated with CLG, existing equity may not be sufficient to fund all the loans. In this scenario, debt financing is an easier solution, but not necessarily better.

LTA has a negative bond with ETA, coefficient value is -0.127078, and is statistically significant at both levels of significance, p-value is lower than 0.5 and 0.1. When LTA

increases, ETA decreases. If a larger amount of assets is allocated towards loans, a smaller amount is allocated to equity. A decreasing ETA may indicate a higher reliance on debt, which may raise risk.

CI has a negative connection but is not significant. SIZE also has a negative relationship but is marginally significant. The p-value may be detected as higher than 0.05. Given that its value is closer to significance, it is worth interpreting. Therefore, when SIZE increases, ETA decreases. This bond suggests that larger banks tend to have a lower equity to assets ratio. The conclusion that banks have greater reliance on debt financing rather than equity financing is trustworthy especially when discussing leading banks.

4.3. Results for ROAA as a dependent Variable

$$ROAA_{it} = \alpha + \beta_1 CLG_{it} + \beta_2 LTA_{it} + \beta_3 CI_{it} + \beta_4 SIZE_{it} + \varepsilon_{it} \quad (3)$$

Dependent Variable: ROAA	OLS	FEM	REM
CLG	0.024245***	0.025566***	0.024245***
	(0.008631)	(0.009101)	(0.008403)
LTA	-0.057479**	-0.043724	-0.057479**
	(0.025339)	(0.031481)	(0.024668)
CI	-0.050670***	-0.055996**	-0.050670***
	(0.018062)	(0.021783)	(0.017583)
SIZE	-0.011846*	-0.004875	-0.011846*
	(0.006985)	(0.009383)	(0.006800)
CONSTANT	7.666071***	6.798807**	7.666071***
	(2.208219)	(2.857465)	(2.149740)
Observations	75	75	75
Redundant Fixed Effects -Likelihood Ratio		0.1101	
Hausman Test			0.0968

The value within the parenthesis represents the standard error. ***p < 0.01, **p < 0.05, *p < 0.1.			

Table 5: Regression Results for ROAA

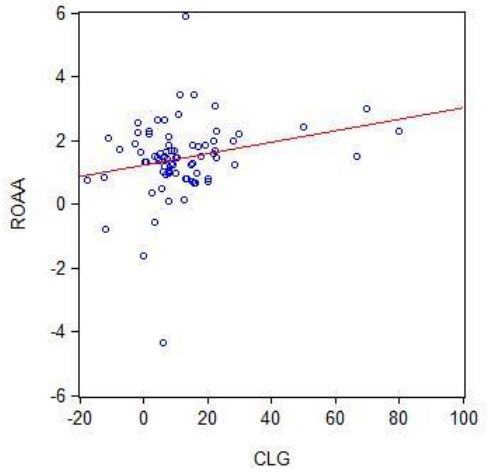

Figure 3. Relationship between CLG and ROAA

The Fixed Effect Test's value is higher than 0.5. In this case, the fixed effects are redundant, and the FEM is not appropriate. The Hausman Test value is also higher than 0.05. In conclusion, the REM model is the most appropriate to use when ROAA is the dependent variable.

CLG has a positive connection with ROAA (0.024245) and is statistically significant at both levels of significance (p-value lower than 0.05). When CLG increases, ROAA increases. The profitability of the bank is therefore on an upward trend. The increase in CLG indicates that the bank is effectively extending credit to corporate clients, which automatically leads to higher incomes from interest rates. A higher demand for financing may also be observed.

LTA has a negative relationship (-0.057479) and is significant. This finding exposes the fact that when LTA increases, ROAA decreases. The ability to generate funds from assets is diminishing as the amount of assets allocated to loans grows. A few reasons may be lower interest rates or bigger loans loss provisions. A lower LTA ratio may indicate that banks are prioritizing a conservative lending approach where risk management is crucial. Lower

interest rate may also result from the fierce market competition, forcing banks reduce interest earnings to continuously attract new corporate customers and remain competitive.

CI also has a negative bond. Coefficient value is -0.050670 and p-value lower the 0.1, being significant at both levels. A rise in CI leads to a fall in ROAA. This result is expected, as operating costs increase, profitability is reducing. Costs may come from various sources and their rise if subject to a lot of internal and external factors. [8] outlines some of the possible sources, from taxes and employee wages to utility expenses and sales and marketing expenses.

SIZE is also taking part in a negative connection with ROAA but is marginally significant. P-value lower than 0.1. This, as pointed out previously, may be because of the limited size of the sample. A truly significant relationship is possible to appear in future research. Therefore, interpreting this variable is of interest. As SIZE increases, ROAA decreases. Larger banks confront themselves with lower profitability. This may be due to a few key reasons. Firstly, the complexity of their operations can include higher operating costs and regulatory requirements. Secondly, leading banks may encounter greater competition and pronounced market saturation, thus reducing earnings.

5. Implications for Decision-Making in Corporate Banking

Understanding the dynamics of the corporate banking sector is essential for proper and informed decisions, planning and risk management. The relationships presented earlier are of great importance for practitioners, policymakers, and financial institutions by providing valuable insights.

One of the main findings of this study is the negative relationship between corporate loan growth and non-performing loans. This indicates that a focus on expanding the corporate loan portfolio can contribute significantly to risk mitigation. Therefore, banks can take advantage and optimize the loan portfolio to expand to institution size and increase the profits, with strategies that foster growth and enhance asset quality, lowering NPL so that they enhance the overall stability and resilience of the institution. Possible actions decision-makers might adopt using this insight are consisting of an increase in the marketing activities to attract new corporate customers, a more streamlined loan approval process and new expansion strategies to capitalize on economies of scale. The negative relationship between SIZE and NPL emphasizes the importance of scale. Decision-makers can leverage the advantages of size to minimize risk, possibly through diversified lending practices and enhanced risk monitoring capabilities.

The negative bond between loan-to-assets ratio and equity-to-assets ratio signifies that a higher allocation of assets to loans is associated with a decrease in equity. This underscores the trade-off between risk and return, suggesting that a conservative lending approach,

where assets are not heavily concentrated in loans, may contribute to a more resilient equity position. Possible actions would be assessing the optimal balance between debt and equity financing, considering the bank's size and implementing measures to diversify the asset portfolio and mitigate the potential risks associated with a high concentration of loans.

The positive relationship between corporate loan growth and Return on Average Assets provides a valuable insight. Actively extending credit to corporate clients positively impacts Return on Average Assets. Strategic initiatives can be aligned with CLG, potentially capitalizing on increased demand for financing and higher interest rate incomes. Possible actions to be taken are to promote corporate loans while closely monitoring the impact on operational costs and to consider implementing cost-cutting measures.

However, the negative relationship between SIZE and ROAA provides another perspective. Decision-makers should assess operational efficiency, considering factors such as regulatory requirements and market competition, because as operational costs rise, profitability diminishes.

Additionally, by using the evolution trends of the NPL, ETA and ROAA, CLG as seen in Figure 4, Figure 5, Figure 6 and Figure 7, decision-makers gain valuable insights. The downward trend in NPL indicates effective risk management strategies. To enhance these, decision-makers could refine credit-assessment procedures or lending criteria. The upward trend in ETA suggests that there is a strengthening of the equity position, suggesting lower risk and greater financial stability. The constant trend of ROAA can be interpreted as a sign of operational efficiency and consistent financial performance. The downward trend in CLG indicates a possible need for reassessment of the lending strategies. Solutions such as new market segments or better loan products could change the trajectory of the trend.

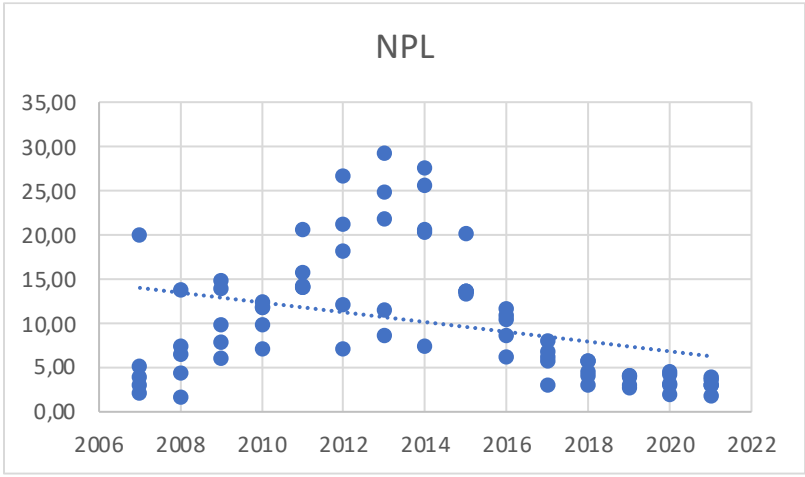

Figure 4. NPL Trendline

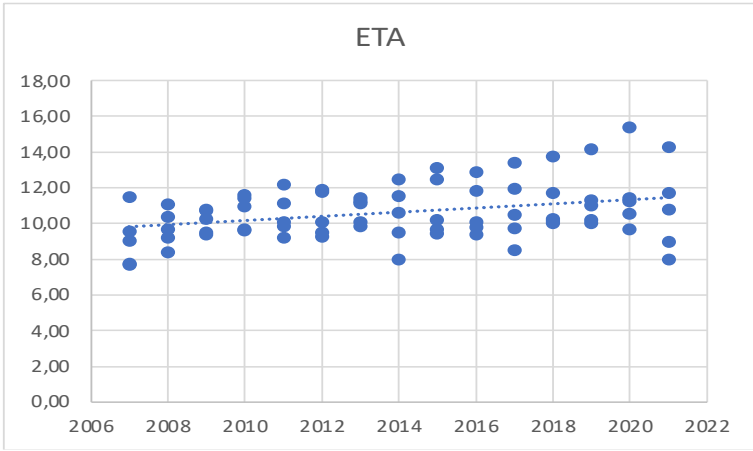

Figure 5. ETA Trendline

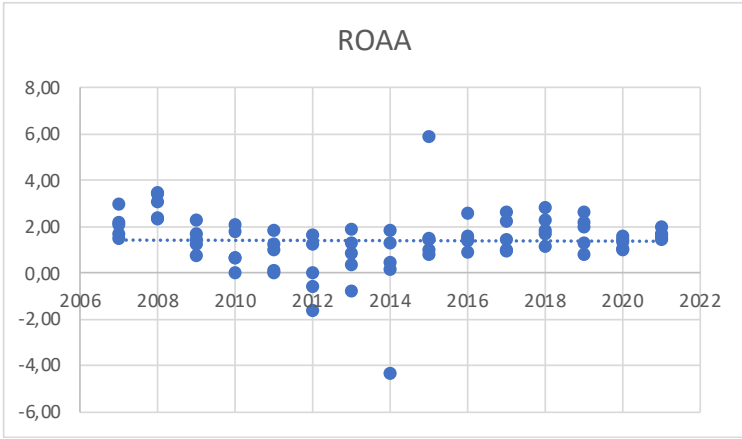

Figure 6. ROAA Trendline

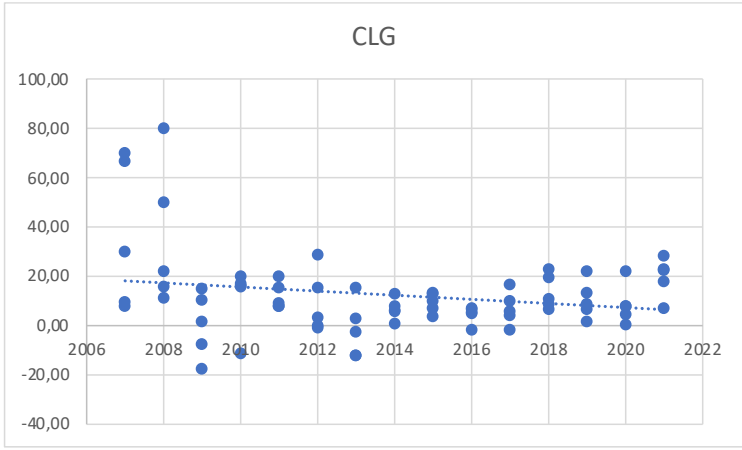

Figure 7. CLG Trendline

6. Conclusions

This study presented the how decisions are adopted in the corporate banking sector in Romania. Based on a panel dataset of 5 banks over the period 2007-2021, multiple regressions were computed to examine the kind of relationships that exist between corporate loan growth, together with control variables such as loans-to-assets ratio, cost-to-income ratio, the size of the bank measured in total assets, and key banking financial indicators such as non-performing loans, equity-to-total assets ratio and return on average assets.

The main findings show that NPL decreases as CLG and SIZE increase. ETA decreases when SIZE and LTA increases. ROAA increases when CLG increases and decreases when LTA and CI and SIZE increase. Therefore, it can be concluded that corporate loan growth plays an important positive role in influencing crucial banking indicators, improving profitability, and reducing risk and uncertainty related to non-performing loans. These findings are of great importance for decision-makers. They should prioritize strategies that foster CLG and operational scaling to reduce NPL and improve stability. Also, asset allocation is crucial to maintain a resilient equity position.

This study can theoretically improve research in terms of the importance of corporate loans in banks everyday activity and how they are used to adopt decisions, those being the most common banking corporate service. A broader view of their impact on risk mitigation, profitability enhancement and decision role could be observed and studied on research involving a larger scale, extending beyond borders of Romania, to Europe or worldwide. Further, conducting a longitudinal study over an extended period can provide deeper insights on the dynamic behavior of the relationship between corporate loan growth and banking risk and how decisions are adopted in the corporate banking area.

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