



The influence of credit, liquidity and non-performing loans on profitability in Commercial Banks listed on the IDX for the 2019-2022 Period

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ARTICLE HISTORY

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ABSTRACT

This study explores the correlation among non-performing loans (NPL), credit (DER), liquidity (CR), and profitability (ROA). The data used in this investigation were extracted from the Annual Published Financial Reports of 44 Commercial Banks listed on the Indonesia Stock Exchange for the period 2019–2022. The sample selection involved a comprehensive approach, targeting all 44 Commercial Banks listed on the Indonesia Stock Exchange (BEI) during the years 2019 to 2022. Statistical tests, specifically multiple regression methods, were applied for hypothesis testing, utilizing the F-test and T test after conducting conventional assumption tests. The findings indicate that profitability (ROA) is significantly influenced by the interplay of non-performing loans (NPL), liquidity (CR), and credit (DER). Credit (DER) has a discernible impact on profitability (ROA), whereas liquidity (CR) does not significantly affect profitability (ROA). Non-performing loans (NPL) exert a modest and unfavorable influence on profitability (ROA). The coefficient of determination (R^2) for this study is 0.139, suggesting that factors beyond the scope of this research contribute to 86.1% of the variance, while variables related to credit, liquidity, and non-performing loans (NPL) can account for 13.9% of the variance in the profitability (ROA) variable.

KEYWORDS

Debt to Equity; Current Ratio; Nonperforming Loans; Return on Assets

1. INTRODUCTION

Banking is a catalyst that has a number of roles, namely, developing the community business sector, advancing the economic capabilities of entrepreneurs, especially MSMEs, and being the main funding base other than bonds and shares. Therefore, the economy is not optimal if banking is not healthy. To maintain consistency in the financial system and economic growth, banks need to maintain healthy banking conditions and performance. Financial performance, especially profitability, can indicate a bank's health. This ratio is important for obtaining information about the company's results and financial status. The profitability ratio is the main instrument for monitoring a bank's overall financial soundness and soundness. Return on Assets is a measure of profitability (ROA). Because a higher asset value means that more investment returns

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are received, a high ROA value indicates strong profitability.

DER is one of the many factors that influence profitability and is used to test the extent to which banking assets are financed with debt and the bank's ability to pay all its obligations. When the DER is higher, the take rate is lower, indicating poor performance. Conversely, when the DER is lower, the rate of return is higher, indicating better performance. Liquidity is measured through the current ratio (CR), considering the relationship between cash and current liabilities for the company. The higher the CR, the greater the possibility that the company will gain profits; thus, the ROA will be smaller. Conversely, if the CR is lower, the ROA increases. The impact of bank management regarding the management of credit that have problems, for example, in the form of non-performing loans (NPL). An increase in NPL causes losses and reduces ROA. On the other hand, reducing NPL reduces the risk of loss, so ROA increases.

Table 1. Profitability Research Phenomenon in Banking Companies for the 2019 – 2022 Period (In Percent)

No.	Code	Period	DER	CR	NPL	ROA
1	BBCA	2019	4.3	1.23	1.34	3.11
		2020	4.8	1.21	1.79	2.52
		2021	5.1	1.20	2.16	2.56
		2022	4.9	1.20	1.71	3.10
2	BBNI	2019	6.6	1.19	2.30	0.37
		2020	6.6	1.15	4.30	0.40
		2021	6.6	1.15	3.70	1.14
		2022	6.3	1.16	2.80	1.79
3	BMRI	2019	4.8	9.10	1.88	1.83
		2020	5.8	8.43	2.81	1.07
		2021	6.0	6.94	3.29	1.98
		2022	6.1	5.59	2.39	3.19

Source : Financial Report (2019-2022)

Table 1 shows that Bank BCA's ROA increased by 0.4% and its DER increased by 0.3% between 2020 and 2021. This is inversely proportional to the theory supported by research showing that ROA decreases as the DER increases (Puspitasari et al., 2021). However, it is different from research from (Imanah, Alfinur, & Setiyowati, 2021) show that DER has a positive impact on ROA.

At BNI Bank, ROA increased by 0.65%, whereas CR increased by 0.01% between 2021 and 2022. The data show that the theory, which states that ROA will decrease the higher the CR, is inversely proportional to the data. Research conducted by Andriyanti (2015) showed that CR does not have a significant influence on ROA. Meanwhile, research from (Olfiani and Handayani, 2019), the ROA of a business is greatly influenced by the current ratio.

Bank Mandiri's NPL has increased by 0.48% between 2020 and 2021. All other things being equal, the ROA increased by 0.91% in the same year. We can conclude that the data above support the theory that is contrary to the data, namely that an increase in NPL will reduce the ROA value, in accordance with research conducted by Fauziah (2021). This is not the same as that of (Nurfitrani, 2021) who show that NPLs have a positive impact on ROA.

2. LITERATURE REVIEW

2.1. Profitability (ROA)

Ratio that describes the profitability of a business. (Hery, 2018).

The profitability ratio of a business indicates its capacity to generate income from sales, assets, profits, and equity. (Sujarweni & Wiratna, 2017)

$$\text{Return on Asset} = \frac{\text{Net Profit}}{\text{Total Asset}}$$

2.2. Credit (DER)

The debt-to-equity ratio is used to determine the proportion of liabilities to the business capital structure. This ratio is considered significant when assessing the extent to which an increase in company liabilities is associated with an increase in business risk (Sukamulja, 2021). The amount of money loaned to the business owner must be determined; some argue that this ratio is useful for understanding in depth the capital required to guarantee a loan. (Kashmere, 2021)

$$\text{Debt to Equity} = \frac{\text{Total Liabilities}}{\text{Total Equity}}$$

2.3. Liquidity (CR)

A ratio called liquidity indicates how well a business can meet its immediate needs. (Hantono, 2018) A ratio called the current ratio (CR) is used to assess how well a business can make payments on its short-term loans. (Hery, 2018)

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

2.4. Non-performing Loans (NPL)

The net present value (NPL) is one way to calculate the business risk ratio of a bank. This ratio illustrates the possibility that a bank will experience credit problems because of sporadic principal and interest payments. This can have a negative impact on bank performance and cause inefficiencies (Bioshop, 2018). Ratio called NPL is used by banks to measure their non-performing loans (Akbar, 2019)

$$\text{Non Performing Loan} = \frac{\text{Kredit Bermasalah}}{\text{Total Kredit}} \times 100\%$$

2.5. Conceptual Framework

2.6. Research Hypotheses

Based on the above discussion, the hypotheses of this study are as follows:

- H1: Credit partially influences the profitability of commercial banks during the IDX period 2019-2022.
- H2: Liquidity partially influences the profitability of commercial banks during the IDX period from 2019-2022 to.
- H3: Non-performing loan partially influence the profitability of commercial banks on the IDX period 2019-2022

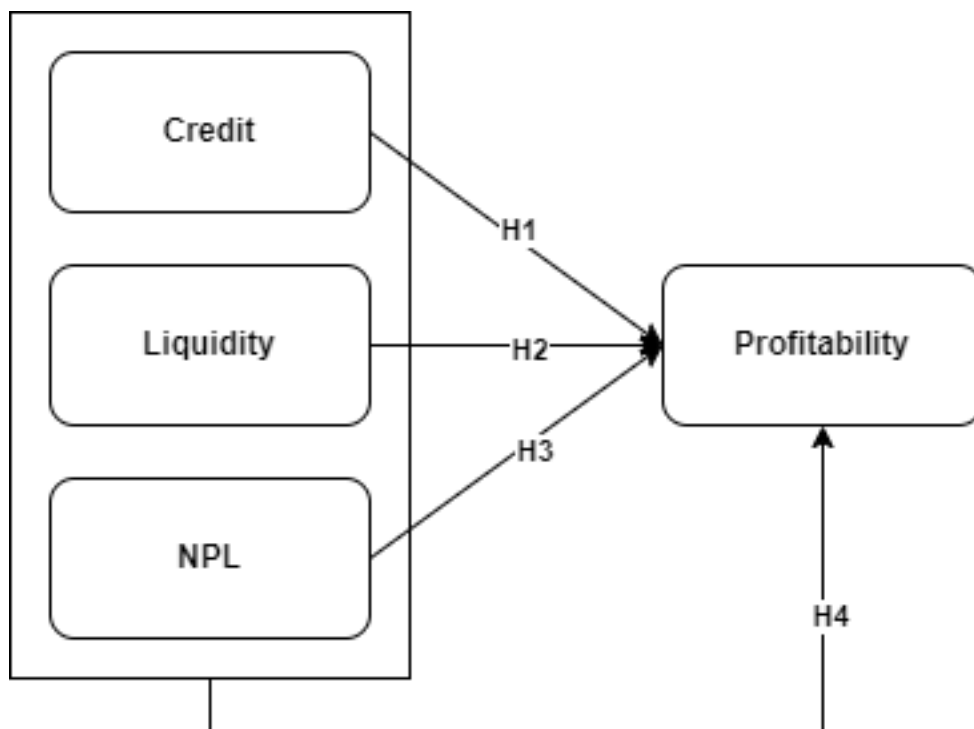


Figure 1. Conceptual Framework

- H4: Credit, liquidity, and non-performing loans simultaneously influence profitability in commercial banks during the IDX period 2019-2022.

3. METHODOLOGY

3.1. Place and Time of Research

This research was taken from the annual report of commercial banks listed on the Indonesia Stock Exchange (IDX) from 2019 to 2022. The research was conducted from the beginning of September 2023 until December 2023.

3.2. Population and Sample

The population of this research is commercial banks listed on the Indonesia Stock Exchange (IDX) from 2019 to 2022, with a total of 46 commercial banks. Sample is part of the number and characteristics of the population (Sugiyono, 2018) which in this research used Purposive Sampling method where samples are selected based on predetermined standards and collected systematically, not randomly.

Table 2. Research Sample Criteria

No.	Criteria	Total
1	Banking companies listed on the Indonesia Stock Exchange (IDX) period 20219 – 2022.	46
2	Banking companies that do not report financial statements consecutively	(2)
	Total number of companies samples	44
	Total research sample	176

3.3. Data Collection Techniques

The sample is a part of the number and characteristics of the population (Sugiyono, 2018). Purposive sampling is the method used, in which samples are selected based on predetermined standards and collected systematically, not randomly.

3.4. Source and Types of Data

According to a study by Sugiyono (2018): Quantitative analysis uses positive methods. This numerical research data will be measured using statistics, a computational testing method relevant to the subject under study, to arrive at an interesting conclusion from the annual financial reports of banking companies listed on the Indonesia Stock Exchange from 2019 to 2022.

3.5. Operational Definition of Variables

Profitability (Y): The profitability ratio of a business indicates its capacity to generate income from sales, assets, profit, and equity (Sujarweni & Wiratna, 2017)

- Credit (X^1): The amount of money loaned to the business owner must be determined; some argue that this ratio is useful for understanding the capital required to guarantee a loan in depth. (Kashmere, 2021)
- Liquidity (X^2): A ratio called The current ratio (CR) is used to assess how well a business can make payments for its short-term loans. (Hery, 2018)
- Non-performing Loan (X^3) : A ratio called NPL is used by banks to measure their non-performing loans (Akbar, 2019)

3.6. Classic Assumption Test

Normality Test: The purpose of the normality test is to determine whether the regression model for variables x, y, or both has a regular distribution (Ghozali, 2018). Multicollinearity Test: Multicollinearity testing provides evidence of a relationship between independent variables and the regression model (Ghozali, 2018). Autocorrelation Test: The autocorrelation test is used to determine whether the linear regression model is hampered by confounding errors in period t and confounding errors in period t-1 (previous) (Ghozali, 2018). Heteroscedasticity Test : The hetoscedasticity test is used to find out if the residual regression model has variance from one observation to the next (Ghozali, 2018)

3.7. Research Data Analysis Model

A multiple line regression analysis relates to one or more variables. According toGhozal (2018), the purpose of multiple line regression analysis is to determine the degree and direction of influence of the independent variable on the dependent variable. The multiple regression analysis formula was as follows:

$$Y = a + b_1x_1 + b_2x_2 + b_3x_3 + e$$

Y = Return on Assets

A = Constanta

X1 = Debt to Equity Ratio

X₂ = Current Ratio
 X₃ = Non-performing Loan
 b₁-b₄ = Regression Coefficients
 e = Standard Error

Coefficient of Determination Test: This study determines how well the independent variables explain the fluctuations in the dependent variable. Hypothesis testing with the F Test: The F-test is useful for assessing whether all x variables have an impact on variable y simultaneously. Hypothesis testing with t-test: The T test was used to assess the impact of each independent variable on the dependent variable.

4. RESULT AND DISCUSSION

4.1. Descriptive Statistics

(Sugiyono, 2019) the descriptive statistical method is a statistical methodology that is useful for analyzing data by displaying the information collected without drawing conclusions or making broad generalizations that can be applied to the entire population. The following are the descriptive statistics of the data obtained.

Table 3. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DER	176	,10	16,10	5,2290	2,87784
CR	176	0,78	13,35	1,5989	1,44667
NPL	176	0,00	22,07	3,2298	2,49170
ROA	176	-18,06	9,10	0,3711	2,75562
Valid N (listwises)	176				

Source : Reserch Results (Data Process 2023)

According to the table above, this proves the descriptive statistical results in detail as follows. The DER shows that there are 176 samples with a minimum value of 0.10, a maximum of 16.10, an average of 5.2290, and a standard deviation of 2.87784. It can be concluded that these data have wide variation and distribution. CR had 176 data samples with a value range from 0.78 13.35. The average of the data was 1.5989 and the standard deviation was 1.44667. With the significant variation and spread of data, it can be concluded that the data have large diversity. NPL data included 176 samples with values ranging from 0.00 to 22.07, mean 3.2298, and standard deviation 2.49170. It can be concluded that these data show significant diversity and spread. ROA includes 176 samples, with values ranging from -18.06 to 9.10, a mean of 0.3711, and a standard deviation of 2.75562. It can be concluded that these data show a significant variation and spread.

4.2. Classic Assumption Test

The classical hypothesis test can be conducted using normality, multicollinearity, autocorrelation, and heteroscedasticity. Data were processed using SPSS version 22.

4.2.1. Normality Test

The non-parametric Kolmogorov-Smirnov test was used to demonstrate the normality distribution of decision-making data. If the significance value is greater than 0.05, the

data can be assumed to have a normal distribution. If the significance value exceeded 0.05, the findings of the decision-making data distribution test were considered normal.

Table 4. One-Sample Kolmogorov-Smirnov Test

Unstandardized Residual		
N		147
Mean		0E+7
Nor- Std. Deviation		1,15189369
mal Absolute		,077
Most Positive		,066
Ex- Negative		-,077
Kolmogorov-Smirnov Z		,934
Asymp. Sig. (2-tailed)		,348

Source : Reserch Results (Data Process 2023)

According to the Kolmogorov-Smirnov test in Table 4, the Asymp value. The Sig for DER, CR, NPL, and ROA exceeded 0.05, namely, 0.348. Thus, it can be concluded that the data are normally distributed. Analysis histograms and normality probability plots were also generated to support the results of this test. Both figures show the data distribution patterns that support the previous conclusions.

Normal P-P Plot of Regression Standardized Residual

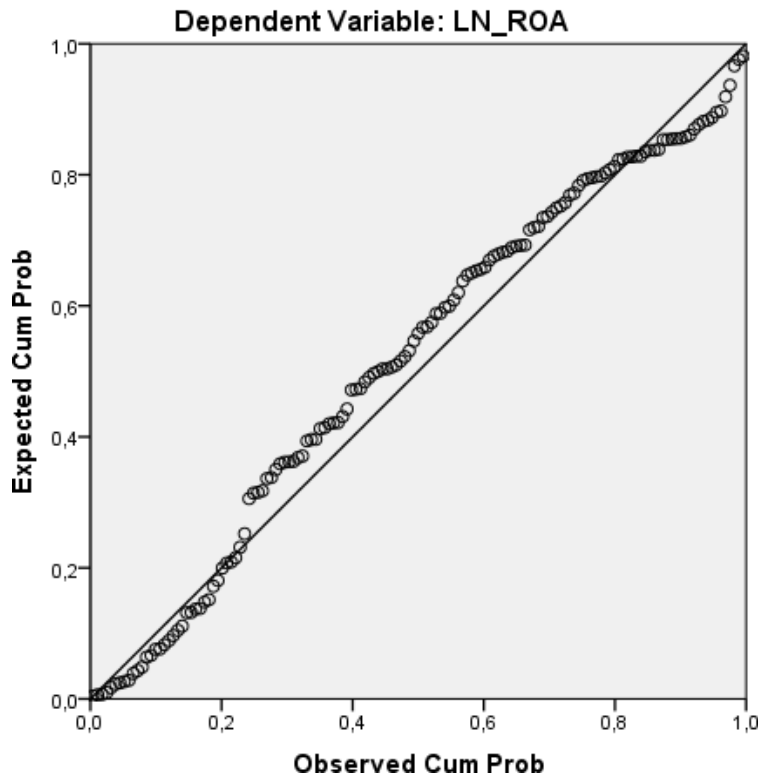


Figure 2. Normality Probability plot Graph

The graph contains large and small points connected by diagonal lines, indicating that the data are normally distributed.

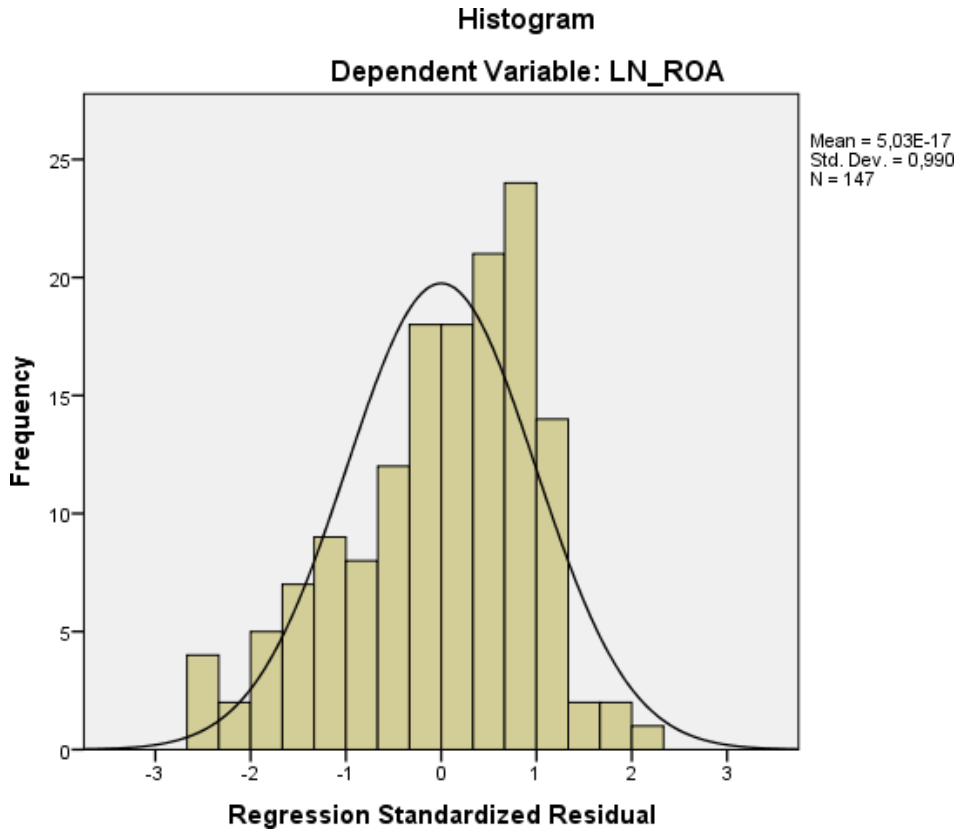


Figure 3. Histogram graph

The histogram test produces a bell-shaped curve with no dominant left or right direction, indicating that the data are distributed equally normally.

4.2.2. Multicollinearity Test

To check for multicollinearity in the regression model under consideration, use tolerance values as well as VIF, noting that tolerance and VIF values exceeding 0.1 and VIF values not exceeding 10 are considered appropriate. The findings were as follows:

Table 5. Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	LN_DER	,664	1,507
	LN_CR	,669	1,495
	LN_NPL	,989	1,011

Source : Reserch Results (Data Process 2023)

The data do not show multicollinearity, as shown by the Table 5, the tolerance value for each of the three x variables (DER, CR, and NPL) exceeds 0.1, or the resulting VIF value is <10.

4.2.3. Autocorrelation Test

In the linear regression, the Autocorrelation Test determines whether there is a relationship between mixed errors in the current period and errors in the previous period. The findings of the Autocorrelation Durbin-Watson Test are as follows:

Table 6. Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,395 ^a	,156	,139	1,16391	1,894

Source : Reserch Results (Data Process 2023)

Table 6 describes the results of the data processing, where the resulting Durbin-Watson value is 1.894. With parameter K = 4 and a sample size of 176, dl and du were 1.7072 and 1.800, respectively. From the comparison of dW with dU, namely 1.894, which is greater than 1.800, it can be concluded that there is no positive or negative autocorrelation in this study.

4.2.4. Heteroscedasticity Test

The Heteroscedasticity Test seeks to identify the ongoing misalignment of variance from the observed residuals to other residuals in the regression model. This test produced the following results:

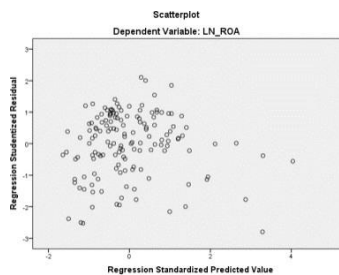


Figure 4. Scatterplot Graph

The heteroscedasticity test on this scatterplot graph passed well, as shown in Figure 4. Data were not clustered above, below, or near 0.

4.3. Multiple Linear Regression Analysis

The purpose of this test was to control for the influence of two or more independent variables on the dependent variable. This test yielded the following findings:

Table 7. Coefficients

Model		Unstandardized Coefficients		Standardize Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,138	,341		,406	,686
	LN_DER	-,101	,167	-,057	-,606	,546
	LN_CR	,471	,267	,166	1,768	0,79
	LN_NPL	-,645	,154	-,323	-4,188	0,000

Source : Reserch Results (Data Process 2023)

In Table 7, the following can be formulated.

$$\text{LN ROA} = 0.138 - 0.101 \text{ LN DER} + 0.471 \text{ LN CR} - 0.645 \text{ LN NPL}.$$

A value of 0.138 reflects the consistency or unchanged ability of DER, CR, and NPL, indicating an increase in ROA of 0.138. The DER coefficient was -0.101, proving a negative relationship. If all other variables remain constant, an increase in the DER per unit can reduce ROA by 0.101. A CR coefficient of 0.471 indicates a positive relationship. If the other variables are constant, an increase in the CR per unit can increase ROA by 0.471. An NPL coefficient of -0.645 indicates a negative relationship. If the other variables remain constant, an increase in NPL per unit can reduce ROA by as much as 0.645.

4.4. Coefficient of Determination Test

The effect of the independent variable on the dependent variable is determined using this value. The test results are:

Table 8. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.395 ^a	.156	.139	1,16391

Source : Reserch Results (Data Process 2023)

Based on Table 8, the coefficient of determination value is 0.139 (13.9%), and the remaining 86.1% is influenced by other variables, such as BOPO, ROE, and NIM.

4.5. Hypothesis testing with F Test

The function of this test is to prove how the independent factors (DER, CR, and NPL) simultaneously influence the dependent variable ROA. The results of the F-test are as follows.

Table 9. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35,894	3	11,965	8,832	0,000 ^b
	Residual	193,732	143	1,355		
	Total	229,616	146			

Source : Reserch Results (Data Process 2023)

The F number calculated in Table 3.8 reaches 8.832, while the F value of the table is 2.42. From this comparison, it can be concluded that the value of 8.832 far exceeded 2.42. This shows that from 2019 to 2022, the DER, CR, and NPL variables significantly influence ROA at the Bank General listed on the IDX, with a significance level of 0.05.

4.6. Hypothesis testing with T Test

To achieve comprehensive analysis results, this test was used to determine the partial impact of each independent variable on the dependent variable:

Source : Reserch Results (Data Process 2023)

From Table 10, the results of the partial statistical tests are explained as follows. The DER index shows a calculated t-value of approximately -0.606, with a t-table value of approximately -1.97385, which is accompanied by a positive sign of 0.546.

Table 10. Coefficients

Model		Unstandardized Coefficients		Standardize Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,138	,341		,406	,686
	LN_DER	-,101	,167	-,057	-,606	,546
	LN_CR	,471	,267	,166	1,768	0,79
	LN_NPL	-,645	,154	-,323	-4,188	0,000

The findings prove that DER has no significant impact on the ROA performance of Commercial Banks listed on the IDX from 2019 to 2022, with a coefficient of 0.05. The CR index shows a t-calculated value of approximately 1.768, whereas the t-table value is approximately 1.97385, with a significance level of 0.079, which is higher than 0.05. Thus, it can be concluded that CR does not have a significant impact on the ROA of Commercial Banks listed on the IDX in the period 2019 to 2022. Analysis of values The NPL t-count is -4.188, compared to the t-table value of -1.97385, with a significance level of 0.000 less than 0.05, indicating that NPLs have a significant negative impact on the bank's ROA General listed on the IDX from 2019 to 2022.

5. DISCUSSION

5.1. Effect of Credit (DER) on Probability (ROA)

Based on the results of partial hypothesis testing, we conclude that DER does not have a significant influence on ROA in commercial banks listed on the IDX in the 2019-2022 period. This finding is in line with a study by (Puspitasari et al., 2021) which proves that DER has an impact on ROA. However, this finding contradicts that of Imanah (2020), which proves that DER has an impact on probability.

5.2. Effect of Liquidity (CR) on Probability (ROA)

The findings of the second hypothesis imply that CR has no impact on ROA. This finding is in line with a previous study by Andriyanti (2015), who also concluded that CR had no impact on ROA. However, this finding contrasts with Olfiani and Handayani (2019), who find that CR has a significant impact on ROA.

5.3. Influence Non-performing Loan (NPL) to Probability (ROA)

The results of the partial hypothesis test reveal that NPLs have a negative but significant impact on ROA in commercial banks listed on the IDX from 2019 to 2022. These results are in line with a study conducted by Nurfitriani (2021), which shows that an increase in NPLs contributes to a decrease in ROA. However, this finding contradicts that of Fauziah (2021), who stated that NPLs have no impact on ROA.

5.4. Effect of Credit (DER), Liquidity (CR), and Non Performing Loan (NPL) to Probability (ROA)

The F value for simultaneous hypothesis testing was 8.832, while the F value in the table was 2.42. From these results, it can be concluded that the value of 8.832, which is higher than 2.42, indicates that DER, CR, and NPL significantly influence ROA at

Commercial Banks on the IDX from 2019 to 2022, with a significance figure of 0.000, which is less than 0, 05.

6. CONCLUSION

Based on this study, the following conclusions can be drawn: The DER has no influence on the ROA of Commercial Banks listed on the IDX from 2019 to 2022. The CR has no impact on the ROA of Commercial Banks listed on the IDX from 2019 to 2022. NPLs have a negative but significant impact on the ROA of Commercial Banks recorded in the IDX from 2019 to 2022. DER, CR, and NPL simultaneously have a significantly positive impact on ROA in Commercial Banks listed on the IDX from 2019 to 2022.

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