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PROFITABILITY OF BANKING COMPANIES BASED ON THE INFLUENCE OF NON-PERFORMING LOANS AND CAPITAL STRUCTURE

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This study examines the profitability of banking companies by analyzing the influence of non-performing loans (NPLs) and capital structure. Non-performing loans, indicative of the quality of a bank's loan portfolio, directly impact profitability by affecting the bank's revenue generation and risk management. The capital structure, which reflects the proportion of debt and equity financing, plays a critical role in determining the bank's financial stability and capacity for growth. This research utilizes a quantitative approach, analyzing financial data from a sample of banking institutions over a specified period. The results reveal a significant negative relationship between NPLs and profitability, indicating that higher levels of non-performing loans reduce bank profitability. Conversely, the study finds that a well-optimized capital structure positively influences profitability, with banks maintaining a balanced mix of debt and equity demonstrating better financial performance. These findings highlight the importance for banking companies to manage their loan portfolios effectively and optimize their capital structures to enhance profitability. The study contributes to the existing literature by providing empirical evidence on the dual impact of NPLs and capital structure on the financial performance of banks, offering valuable insights for bank management and policy makers.

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1. Introduction

Improving people's welfare and economic growth are closely related to the banking industry. One of the financial sectors that contributes directly to the economic growth of a country is banking, which indirectly describes the condition of the people's living standards in a country[1]. If the role of the banking industry improves, the country's economic condition will also be better[2]. The occurrence of the Covid-19 pandemic has caused the banking industry in Indonesia to experience very volatile conditions in the last six years. This can be seen from some of the largest banks listed on the Indonesia Stock Exchange, including BCA, BRI, BNI, and Bank Mandiri. Supervision of banking performance is very important for the Financial Services Authority (OJK), so the OJK has changed the rules in grouping banking from Commercial Banks for Business Activities (BUKU) to the Group of Banks Based on Core Capital (KBMI). This latest regulation regulates the gradual increase in capital of commercial banks through the fulfillment of the minimum core capital and minimum Capital Equivalency Maintained Assets (CEMA) of 3 trillion rupiah with a period of no later than December 31, 2022.

The larger the core capital, the safer the funds owned by customers in it[3]. The grouping of banking companies with the highest core capital is in the KBMI 4 category with the highest core capital of more than 70 trillion rupiah. When viewed from Return on Assets (ROA) in the 2017-2022 time frame, KBMI 4 tends to fluctuate. ROA is the most crucial profitability indicator for banking companies[4]. The tendency of fluctuating ROA can be seen from the lowest decline experienced by Bank BNI of 1.46% in 2019-2020. The ROA value can be influenced by several factors, including non-performing loans and capital structure.

Companies need to make various efforts to attract investors to invest their funds in the company in question[5]. Non-Performing Loan (NPL) is used to assess

the bank's ability to bear the entire risk of overall loan default by the borrower or debtor. Bank Indonesia regulations state that if a bank's NPL value is above 5%, it can be categorized as an unhealthy bank[6]. Just like ROA, the NPL value of KBMI 4 tends to fluctuate with the highest increase experienced by Bank BNI of 1.87% in 2019-2020. A high NPL value in a bank will increase the cost of depositing productive assets and other costs which means that this can have a negative impact on the bank's financial performance[7]. In line with research conducted by Utami and Silaen, Rinofah et al found that NPLs had a negative and significant effect on the ROA of conventional banking for the 2015-2020 period[8]. The same result was found by Suryana and Manda, namely NPL had a negative and significant effect on ROA in SOE Banks for the 2017-2019 period[9]. However, Sahabuddin et al got different results, namely NPL had a positive and insignificant effect on ROA at PT Bank Sulselbar for the 2012-2020 period[10].

Problem Formulation

Based on the background of the problem that has been described earlier, the formulation of this research problem is as follows:

1) How does Non-Performing Loan partially affect the Return on Assets of bank group companies based on KBMI 4 on the IDX from 2017-2022?

2) How does the Debt to Assets Ratio partially affect the Return on Assets of bank group companies on the IDX in the period 2017-2022 based on KBMI 4?

3) How does the Debt to Equity Ratio partially affect the Return on Assets of Bank Group Companies based on KBMI 4 on the Indonesia Stock Exchange between 2017-2022?

4) How do Non-Performing Loans, Debt to Assets Ratio, and Debt to Equity Ratio simultaneously have an impact on the Return on Assets of KBMI 4 Companies

on the IDX from 2017 to 2022?

Research Contributions

The contribution of research on the influence of non-performing loans (NPLs) and capital structure on company profitability is divided into scientific benefits and practical benefits:

a. Scientific Benefits:

Theory Development: This research can be helpful in developing a theory and understanding of how factors such as NPLs and capital structure affect a company's profitability. This could pave the way for further research in the field of financial management and corporate economics.

A Deeper Understanding: This research can provide a deeper understanding of the internal and external mechanisms that affect a company's profitability. This can help enrich the existing scientific literature on the topic.

Contribution to Methodology: This research can also contribute to the development of research methodologies, particularly in the analysis of relationships between variables in the context of corporate finance.

b. Practical Benefits:

Practitioners' Guide: The results of this study can provide guidance for financial managers and practitioners in managing their company's credit risk and capital structure to improve profitability.

Information for Decision Makers: Investors, creditors, and other stakeholders can use the results of this research as a basis for making better investment or lending decisions.

Policy Implications: The findings of this study can provide input to policymakers in designing more

effective regulations in managing credit risk and encouraging optimal capital structures to increase corporate profitability.

Improved Business Performance: The knowledge gained from this research can assist companies in identifying areas where they can improve their profitability through better credit risk management and more efficient management of capital structures.

As such, the study not only contributes to a theoretical understanding of the relationship between NPLs, capital structure, and corporate profitability, but also provides valuable insights for practitioners and policymakers to improve the financial performance of companies in a practical way.

2. Research Method

A research design is a plan of the research structure that directs the research process and results to be valid, objective, efficient and effective as much as possible[16]. This section describes in detail the approaches, designs, procedures, and techniques used to collect and analyze data.

Location and Time of Research

This study was conducted on the Indonesia Stock Exchange (IDX) and focused on banking sub-sector companies that are included in the category of Bank Groups based on Core Capital (KBMI) 4 during the period 2017–2022. To conduct this research, we used the official website of IDX, www.idx.co.id. IDX is the first stock exchange to have complete financial data and company information. In particular, the data used in this study was obtained from a subsidiary of the Indonesia Stock Exchange.

Research Model

This study uses an associative quantitative research model examining the casual correlation of two or more

variables. To illustrate the problem posed, correlative research is used to define a casual relationship as a causal relationship between two independent variables and bound variables. This study aims to determine the existence of causality or causation by looking at how the independent variables of Non-Performing Loan (NPL), capital structure (DER), and Return on Assets (ROA) have an impact on the dependent variables.

This research uses secondary data, namely research data sources obtained indirectly and through intermediary media or obtained and recorded by other parties. The data used by the research is the financial statements of companies that are included in the category of Bank Group based on Core Capital (KBMI) 4 which were listed on the Indonesia Stock Exchange during the vulnerable period from 2017 to 2022. The data source of this study was obtained directly from the Indonesia Stock Exchange.

Data Collection Methods

The data collection method used in this study is documentation carried out within the Indonesia Stock Exchange. Every banking sub-sector company that is included in the category of Bank Group based on Core Capital (KBMI) 4 and listed on the IDX from 2017 to 2022 is the subject of analysis or research focus. According to the Financial Services Authority Regulation No.12/POJK.03/2021 concerning Commercial Banks[17], here is the classification of banks based on core capital.

Table 2 Bank Category

Category	Total Core Capital
KBMI 1	Core Capital up to IDR 6 trillion
KBMI 2	Core Capital of more than IDR 6 trillion to IDR 14 trillion
KBMI 3	Core Capital of more than IDR 14 trillion to IDR 70 trillion
KBMI 4	Core Capital of more than IDR 70 trillion

The sample collection method used in this study is the judgement technique, also known as the purposive

sampling technique. To be used in this study, the samples must be identical or meet the previous criteria. This is done because the selected criteria can affect the variables to be studied. The criteria used to determine the sample of this study are presented in Table 2.

Table 3 Sample Determination Criteria

It	Sample Criteria	Number of samples
1	Bank sub-sector companies that are included in the KBMI 4 category on the Indonesia Stock Exchange during the 2017-2022 period	4
2	KBMI 4 companies that had negative profits consecutively during the 2017-2022 period	(0)
3	KBMI 4 companies that do not have complete data to calculate the NPL, DAR, DER, and ROA required in this study during the 2017-2022 period	(0)
Sum		4
Number of years		6
Total samples		24

Based on the table of sample determination criteria above, the total sample to be used is 24 samples, consisting of 4 samples of bank subsector companies listed on the IDX and included in the KBMI 4 category with a span of 6 years. Table 3 shows the details of the list of banking companies used as a sample in this study.

Table 4 Company Sample List

It	Code	Company Name
1	BBCA	PT Bank Central Asia Tbk.
2	BBNI	PT Bank Negara Indonesia (Persero) Tbk.
3	BBRI	PT Bank Rakyat Indonesia (Persero) Tbk.

4	BMRI	PT Bank Mandiri (Persero) Tbk.

Data Analysis

One of the objectives of the research is to test the hypothesis. The determination coefficient test, the partial test with the T-Test, and the simultaneous test with the F-Test are the steps used to test this hypothesis:

a. Multiple Linear Regression Analysis

This analysis will show how non-performing debt (NPL) and projected capital structure are affected by debt to assets (DAR) and debt to equity (DER). The effect of NPLs on the bound variable, namely Return on Assets (ROA), will be shown. This is the regression equation to be tested:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Information:

Y = *Return on Assets* (ROA)

α = Constant

$\beta_{1,2,3}$ = Regression coefficient

X_1 = *Non-Performing Loan* (NPL)

X_2 = Capital Structure (DAR)

X_3 = Capital Structure (DER)

e = *Error term*, the rate of error of guessing in the study

b. Coefficient of Determination Test with R-Squared (R^2) Test

One of the purposes of the coefficient of determination (R2) is to show how well the model's performance explains the variability of the bound or dependent variables. The value of R2 ranges between 0 and 1. The small result of the value of R2 shows that the ability of the free variable to explain the dependent variable is very limited over very limited. In contrast, a large result, i.e. detecting 1, indicates that the independent variable can

provide all the information necessary to forecast the bound variable. The need for a determination coefficient is as follows, a condition in which the determination coefficient is close to zero indicates that the impact of the free variable on the bound variable is not strong. Conversely, a condition in which the determination coefficient is close to one indicates that the impact of the free variable on the bound variable is strong.

c. Partially Test with T Test

The impact of one free variable partially on the variation of the bound variable is explained by the T test. To perform the T test, hypotheses one to three are tested with an analysis error rate (α) of 5% and a confidence level of 95%. The criteria for determining the hypothesis that will be accepted or rejected in this study are as follows:

1) If the Tcal< Table and significance value > 0.05 then the hypothesis is rejected (the regression coefficient is not significant). This means that partially or individually, there is no significant influence of the independent variable on the dependent variable (H0 is accepted).

2) If the Tcal > Table and significance value < 0.05 then the hypothesis is accepted (significant regression coefficient). This means that partially or individually, there is a significant influence of the independent variable on the dependent variable (H0 is rejected).

d. Test Simultaneously with Test F

The F test shows how much potential the free variable has to affect the bound variable simultaneously or simultaneously. An analysis error rate (α) of 5% and a confidence level of 95% were used when running this test. In this study, the hypothesis can be accepted or rejected based on the following criteria:

1) If F-count < F-table and the significance value < 0.05, then the hypothesis is rejected and H0 is accepted; This shows that the independent variable does not affect the bound variable significantly.

2) If the F-count < the F-table and the significance value < 0.05, then the hypothesis is accepted and H0 is rejected. This shows that the bound variable is significantly affected.

3. Result and Discussion

a. Descriptive Statistical Analysis

Table 6 shows the results of descriptive statistical tests conducted on the following variables: Non-Performing Loan (NPL), Debt to Assets Ratio (DAR), Debt to Equity Ratio (DER), and Retun on Assets (ROA).

Table 6 Descriptive Statistical Test Results

	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
NPL	24	1,342034	4,201562	2,48565983	0,733711290
DAR	24	74,516257	86,886916	81,54645671	3,098077806
DER	24	424,976292	662,597113	545,0108521	66,67264125
ROA	24	0,372636	3,134340	2,12619958	0,707457176
Valid N (listwise)	24				

Variables such as Non-Performing Loan (NPL), Debt to Assets Ratio (DAR), Debt to Equity Ratio (DER), and Retun on Assets (ROA) are depicted in Table 6:

1) **Non-Performing Loan (NPL)**

The Non-Performing Loan (NPL) variable has an average value of 2.48565983 and a standard deviation value of

0.733711290. This shows that there is no variation in the data and the data distribution range is quite small.

2) **Debt to Assets Ratio (DAR)**

The Debt to Assets Ratio (DAR) has an average value of 81.54645671 and a standard deviation value of 3.098077806. The mean value is greater than the standard deviation value, which indicates that there is no variation in the data and the data distribution range of the DAR variable is quite small.

3) **Debt to Equity Ratio (DER)**

The DER variable has very small data variation and has a standard deviation value of 66.67264125 and an average value of 545.0108521.

4) **Return on Assets (ROA)**

The Return on Assets (ROA) variable has an average value of 2.12619958 and a standard deviation value of 0.707457176. This shows that there is no variation in the data and the data distribution range of the ROA variable is very small.

b. Classical Assumption Test

1) **Normality Test with Shapiro-Wilk Test**

To test the normality of the study, the Shapiro-Wilk statistical test was used. The reference for determining the decision is that the residual data of the research is distributed normally if the Asymp value. Sig (2-tailed) is greater than the significant level, which is 0.05. Table 7 shows the results of the normality test of this study.

Table 7 Results of the Normality Test

	Kolmogorov-Smirnova			*Shapiro-Wilk*		
	Statistics	*Df*	*Sig.*	*Statistics*	*Df*	*Sig.*

Unstandardized Residual	0,114	24	0.200*	0,971	24	0,682

The Shapiro-Wilk results show that the value of Asymp. Sig (2-tailed) of 0.682, which indicates that the value of Asymp. Sig (2-tailed) is greater than the significance value of 0.05. This indicates that the data has been distributed normally.

2) **Multicollinearity Test with Tolerance Test and VIF (Variance Infaltion Factor)**

Multicollinearity Test with Tolerance and Variation Infalsion Factor (VIF). The purpose of the multicollinearity test is to find out whether or not there is a significant relationship between independent variables. If there is a sufficiently high correlation, it indicates that the same element is measured on an independent variable. Therefore, it is inappropriate to assign the participation of independent variables together with dependent variables. The tools used to test multicollinearity in this study are tolerance values and inflation density factors. If the tolerance value is more than 0.10 and the VIF is less than 10, then it can be concluded that this study does not contain multicollinearity. Table 8 shows the results of the multicollinearity test of this study.

Table 8 Multicollinearity Test Results

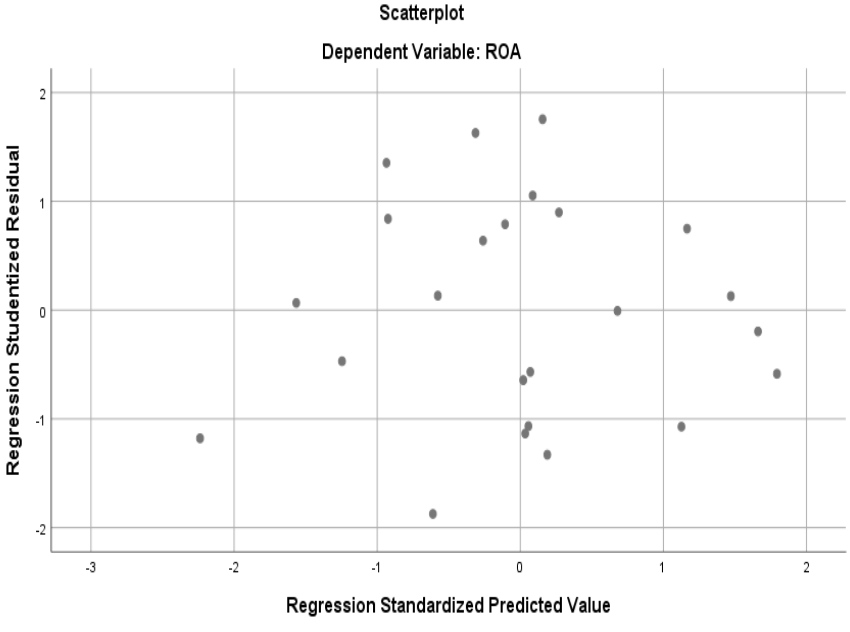
Coefficientsa								
		Unstandardized Coefficients		*Standardized Coefficients*			*Collinearity Statistics*	
	Type	B	*Std. Error*	*Beta*	t	*Sig.*	*Tolerance*	*VIF*
1	*(Constant)*	2,557	1,757		1,456	0,161		
	NPL	-0,609	0,116	-0,632	-5,234	0,000	0,610	1,639
	DAR	0,041	0,023	0,179	1,799	0,087	0,897	1,115

	DER	-0,004	0,001	-0,395	-3,139	0,005	0,561	1,783
a. *Dependent Variable*: ROA								

The results of the multicollinearity test show that the regression model used in this study does not contain multicollinearity; the tolerance value of all variables is greater than 0.10 and the VIF is less than 10.

3) **Heteroscedasticity Test with Scatterplot Graph Test**

The Heteroscedasticity test with Scatterplot Graph aims to find out if there is any discrepancy in the difference between the residuals from one observation to another in the regression model. In this study, the analysis of the presence or absence of a certain pattern is carried out on the scatterplot graph between SRESID and ZPRED, where the Y axis is the predicted Y and the X axis is the residual. The results of the heteroscedasticity test are as follows:



Picture 2 Heteroscedasticity Test Results

Since the dots have spread randomly both below the number 0 and above the number 0 on the Y axis, it is suspected that the

regression form satisfies the classical assumption test, as shown in Figure 2.

4) **Autocorrelation Test with Durbin Watson Test**

This test aims to find out whether there is a relationship or correlation between a certain period residual and the previous period residual in the linear regression model. The Durbin Watson method was used to perform this test, which resulted in the value of d count (dw) and the value of d table (dl and du). The results of the autocorrelation test using the Durbin Watson Test are presented in the following Table 9:

Table 9 Autocorrelation Test Results

Model Summary[b]					
Type	R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Durbin-Watson*
1	0.907 A	0,822	0,796	0,319810736	1,412
a. *Predictors: (Constant),* DER, DAR, NPL					
b. *Dependent Variable*: ROA					

to the data from Table 9, Durbin Watson's value is 1.412 and the du value is 1.6565 while the dl value is 1.1010 so there is no definitive conclusion from the research data. to proceed with a test run to find out how significant it is. If the value of Asymp. Sig (2-tailed) is greater than the significant level used, which is 0.05, so there are no autocorrelation symptoms. The results of the autocorrelation test (Runs Test) can be seen in Table 10.

Table 10 Runs Test Results

Runs Test	
	Unstandardized Residual
Test Valuea	0,00793
Cases < Test Value	12

Cases >= Test Value	12
Total Cases	24
Number of Runs	9
Z	-1,461
Asymp. Sig. (2-tailed)	0,144
a. Median	

It is possible that there are no autocorrelation symptoms in the data of this study, because the results of the Runs Test show Asymp values. Sig (2-tailed) of 0.144. This value is greater than the significance value of 0.05.

c. Hypothesis Test

1) Multiple Linear Regression Analysis

Since the study involved more than one independent variable variable, multiple linear regression analysis was used. The results of the multiple linear regression analysis test are presented in Table 11.

Table 11 Multiple Linear Regression Analysis Test Results

Coefficientsa						
Type		*Unstandardized Coefficients*		*Standardized Coefficients*	t	*Sig.*
		B	*Std. Error*	*Beta*		
1	*(Constant)*	2,557	1,757		1,456	0,161
	NPL	-0,609	0,116	-0,632	-5,234	0,000
	DAR	0,041	0,023	0,179	1,799	0,087
	DER	-0,004	0,001	-0,395	-3,139	0,005

According to the results of multiple linear regression analysis, the regression equation is as follows:

$$ROA = 2{,}557 - 0{,}609X1 + 0{,}041X2 - 0{,}004X3 + e$$

The conclusion of the multiple linear regression equation is as follows:

a) The regression constant obtained is 2.557, which indicates that the change in profit is 2.557 if the Non-Performing Loan (NPL), Debt to Assets Ratio (DAR), and Debt to Equity Ratio (DER) each have a value of zero (0).

b) The regression coefficient of Non-Performing Loans (NPLs) obtained is -0.609, which indicates that if NPLs increase by 1%, then ROA will decrease by 0.609.

c) The regression coefficient of the Debt to Assets Ratio (DAR) obtained is 0.041 which means, if the DAR increases by 1%, it will increase the ROA, which is 0.041.

d) The regression coefficient of the Debt to Equity Ratio (DER) obtained is -0.004 which means, if the DER increases by 1%, it will decrease the ROA, which is -0.004.

2) Coefficient of Determination Test with R-Squared (R^2) Test

The purpose of this test is to measure the ability of the model to explain the variation of the bound variable. The results of the determination coefficient (R2) test can be seen in Table 12.

Table 12 Determination Coefficient Test Results

Model Summary[b]					
Type	R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Durbin-Watson*
1	0.907A	0,822	0,796	0,319810736	1,412
a. *Predictors: (Constant),* DER, DAR, NPL					
b. *Dependent Variable*: ROA					

The value of the correlation coefficient is 0.907, according to

the results of the determination coefficient test shown in Table 12. Because the R value is more than 0.05, the independent variable with the bound variable has a bound influence. The adjusted R 2 value is 0.796, which indicates that the percentage effect of Non-Performing Loan (NPL), Debt to Assets Ratio (DAR), and Debt to Equity Ratio (DER) on Return on Assets (ROA) is 79.6%. Other variables outside the study affected 20.4%.

3) Partially Test with T Test

To show the effect of one independent variable specifically on the variation of the dependent variable, the T test was used. The results of the partial test with the T test can be found in Table 13.

Table 13 Partial T Test Results

Coefficientsa						
Type		*Unstandardized Coefficients*		*Standardized Coefficients*	t	*Sig.*
		B	*Std. Error*	*Beta*		
1	*(Constant)*	2,557	1,757		1,456	0,161
	NPL	-0,609	0,116	-0,632	-5,234	0,000
	DAR	0,041	0,023	0,179	1,799	0,087
	DER	-0,004	0,001	-0,395	-3,139	0,005

In the T test, the first step to consider is to find the T value of the table with α = 0.05. This value is obtained by looking at the list of T valuesin the table (α/2: n-k-1), where n is the number of samples. Thus, the t-value of the table is 2.5% of 20, which is 2.08596. According to Table 4.8, the regression equation is as follows:

ROA = 2,557 - 0,609X1 + 0,041X2 - 0,004X3 + e

a) The Non-Performing Loan (NPL) variable has a negative and significant impact on the Return on Assets (ROA) variable, as indicated by the value of -0.632, then the calculated T value is greater than theT table, which is 5.234 greater than 2.08596 with a significance level of 0.000 less than 0.05.

b) The Debt to Assets Ratio (DAR) variable has a positive and insignificant impact on the Return on Assets (ROA) variable, as indicated by the β value of 0.179. Then the T value of the table< T calculation was obtained which was 1.799<2.08596 and the significance level was 0.087>0.05.

c) The Debt to Assets Ratio (DER) variable has a negative and significant effect on the Return on Assets (ROA) variable. This can be seen from the β value of -0.395. Then the T valueof the > T table was 3.139>2.08596 and the significance level was 0.005<0.05.

4) Test Simultaneously with Test F

The F test was used in this study to determine how far the Non-Performing Loan (NPL) ratio and Debt to Assets Ratio (DER) can affect the company's Return on Assets (ROA) simultaneously. The results of the simultaneous test with the F test can be seen in Table 14:

Table 14 Simultaneous F Test Results

ANOVAa						
Type		*Sum of Squares*	*Df*	*Mean Square*	F	*Sig.*
1	*Regression*	9,466	3	3,155	30,850	0,000B
	Residual	2,046	20	0,102		
	Total	11,511	23			
a. Dependent Variable: ROA						

b. *Predictors: (Constant),* DER, DAR, NPL

In the F test, the first step to consider is to know the F value of the table with α = 0.05. The degree of freedom 1 (df1) = (k-1), then (4-1) =3, and the degree of freedom 2 (df2) = (n-k), then 24-4=20, and the significant value is 5%. Therefore, the F valueof table 30.850 is greater than the Ftable 3.10 and the significant value is 0.000 lower than 0.05. Therefore, it can be concluded that Non-Performing Loans (NPL), Debt to Assets Ratio (DAR), and Debt to Equity Ratio (DER) simultaneously have a significant effect on Return on Assets (ROA).

d. Discussion

1) Non-Performing Loans Have a Significant Effect on the Return on Assets of Bank Group Companies based on Core Capital (KBMI) 4 on the IDX for the 2017-2022 period

The results of the T test partially showed that the hypothesis H0 was rejected and Ha was accepted. The results of the regression analysis test show this: the calculated T value is greater than the Ttable, which is 5.234 greater than 2.08596 and the significance level is 0.000 less than 0.05. Thus, based on core capital (KBMI) 4 on the IDX for the 2017-2022 period, NPLs have a negative and significant impact on the ROA of core capital bank group companies (KBMI) 4 on the IDX for the 2017-2022 period.

Signal theory is used to explain the relationship that occurs between banks and investors facing credit problems. The higher the NPL value, the worse the credit quality, which results in an increase in the number of non-performing loans, i.e. losses caused by the rate of return on bad loans. In other words, an increase in NPL value indicates an increase in ROA, which means the bank's financial performance is improving. Conversely, if the NPL value increases, the bank's ROA decreases, and the bank's financial performance deteriorates. This increase in the value of NPLs will definitely give a bad signal to investors because it shows that banks will not have the opportunity to get repayment and interest income from the loans given. The level of profitability obtained will be lower when interest

income decreases, which means that the bank's financial performance is getting worse.

The results of this study are in line with the results of Rinofah et al, finding that non-performing loans have a negative and significant impact on return on assets conventional banking from 2015 to 2020[8]. However, Sahabuddin et al, found a different result, where the variable Non-performing loan has a positive but not significant impact on return on assets PT Bank Sulselbar from 2012 to 2020[10].

2) Debt to Assets Ratio Does Not Have a Significant Effect on the Return on Assets of Bank Group Companies based on Core Capital (KBMI) 4 on the IDX for the 2017-2022 period

The results of the T test partially showed that the hypothesis H0 was accepted and Ha was rejected. The results of the regression analysis test show this. The T values of the calculation and the Tof the table are 1.799 and 2.08596, and the significance level is 0.087 greater than 0.05. Thus, based on core capital (KBMI) 4 in the IDX for the 2017-2022 period, DAR has a positive and insignificant impact on the ROA of bank group companies.

According to Trade Off Theory, striking a balance between the gains and losses resulting from debt expenditures is key [18]. According to Trade Off Theory, the use of debt can reduce the tax burden. Companies tend to use the use of debt to reduce the tax burden because they can get incentives in the form of interest expenses that will reduce taxable income. Thus, companies that use debt will get tax savings, further increasing their profits. Therefore, the theoretical relationship of this research is proven. Because KBMI 4 companies tend to be less effective in maximizing debt to invest in profit-generating assets over the past six years, the study found insignificant results between DAR and ROA values. In addition, this situation has been exacerbated by the COVID-19 pandemic in Indonesia. Although policies such as relaxation and credit restructuring have been evaluated to improve credit quality, the pandemic has caused many debtors to fail to pay off their interest and principal payments.

The above problems will definitely have an impact on banking performance because banks can lose their assets consisting of credit, namely receivables. Therefore, previously granted credit cannot provide an optimal return on profit. In relation to signal theory, neither an increase nor a decrease in the value of DAR can be used as a basis for making investment decisions. This will lower investors' interest in investing in the company because changes in the DAR value cannot affect the company's ROA value in a significant way.

The results of this study are in line with Novita et al, which found that debt to assets ratio does not have a significant effect on return on assets. However, there is a difference in direction where Novita et al., found that debt to assets ratio have a significant effect on return on assets on food manufacturing companies on the IDX from 2017 to 2020[19]. In contrast, Efendi and Wibowo found different results that showed that debt to assets ratio has a significant effect on return on assets[20].

3) Non-Performing Loans, Debt to Assets Ratio, and Debt to Equity Ratio Simultaneously Have a Significant Effect on the Return on Assets of Bank Group Companies based on Core Capital (KBMI) 4 on the IDX for the 2017-2022 period

The results of the T test partially showed that the hypothesis H0 was rejected and Ha was accepted. The results of the regression analysis test show this: the value of thecalculated T is greater than the Tof the table, which is 3.139 greater than 2.08596 with a significance level of 0.005 less than 0.05. Thus, based on core capital (KBMI) 4 in the IDX for the 2017-2022 period, DER has a negative impact on ROA.

According to the trade off theory, the use of debt can reduce the tax burden. Companies tend to use the use of debt to reduce the tax burden because they can get incentives in the form of interest expenses that will reduce taxable income. Thus, companies that use debt will get tax savings, further increasing their profits. The study found that the debt-to-equity ratio was greater when the debt-to-equity ratio was lower.

This means, companies with high profit rates but high debts will need to pay their debts, which in turn will reduce their profitability[21]. Therefore, the swap theory is not proven in this study. Thus, based on signal theory, this increase in the value of DER will give a bad signal to investors because this increase will lead to a decrease in the value of the company's asset ratio (ROA). The decline in ROA value indicates a decline in the company's financial performance.

According to Efendi and Wibowo, debt to equity ratio have a negative and significant impact on return on assets financial sector companies of the banking subsector listed on the Indonesia Stock Exchange from 2013 to 2015[20]. However, Syafi'i and Haryono found different results where debt to equity ratio have a positive and significant impact on return on assets on Sharia Commercial Banks in Indonesia from 2012 to 2019[22].

4) Non-Performing Loans, Debt to Assets Ratio, and Debt to Equity Ratio Simultaneously Have a Significant Effect on the Return on Assets of Bank Group Companies based on Core Capital (KBMI) 4 on the IDX for the 2017-2022 period

The results showed that NPL, DAR, and DER affected ROA simultaneously. The adjusted R 2 value obtained at 0.796 shows the percentage of influence of non-performing loans of 79.6% on return on assets, while 20.4% is influenced by other variables outside the study. By looking at the results of the F test at the same time, the H0 hypothesis was rejected and the Ha hypothesis was accepted. The F valueof 30.850 is greater than the Fof table 3.10 and the significant value of 0.000 is less than 0.05. Thus, based on Core Capital (KBMI) 4 on the IDX for the 2017-2022 period, it can be concluded that NPLs, DAR, and DER simultaneously affect the ROA of the Bank Group's companies.

4. Conclusion

Based on the analysis and discussion of the research results, the following conclusions can be drawn:

a. Non-performing loans (NPLs) have a negative and significant effect on the return on assets (ROA) of bank group companies classified under core capital (KBMI) 4 listed on the IDX for the period from 2017 to 2022. The results of the partial T-test revealed that the T value was greater than the T table (5.234 > 2.08596) with a significance level of 0.000, which is less than 0.05.

b. The debt to assets ratio (DAR) has a positive but insignificant effect on the return on assets (ROA) of the same group of bank companies for the same period. The partial T-test results showed that the T value was less than the T table (1.799 < 2.08596) with a significance level of 0.087, which is greater than 0.05.

c. The debt to equity ratio (DER) has a negative and significant effect on the return on assets (ROA) of these bank group companies. According to the partial T-test results, the T value was greater than the T table (3.139 > 2.08596) with a significance level of 0.005, which is less than 0.05.

d. Collectively, the non-performing loans, debt to assets ratio, and debt to equity ratio have a significant effect on the return on assets (ROA) of Bank Group companies based on Core Capital (KBMI) 4 listed on the IDX for the 2017-2022 period. The simultaneous F-test results indicated that the F value was 30.850, which is greater than the F table value of 3.10, with a significant value of 0.000, which is less than 0.05.

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