

## **The Effect of *Capital Adequacy Ratio (CAR)*, *Loan To Deposit Ratio (LDR)* And *Non-Performing Loans (NPL)* On *Return On Asset (ROA)* In Banking Companies Listed On The Indonesia Stock Exchange During The Period Of 2016-2020**

**Sri Utami Permata, Riska Kumala Dewi**

Department of management, Universitas Sulawesi barat

[sriutamipermata@unsulbar.ac.id](mailto:sriutamipermata@unsulbar.ac.id)

### **ABSTRACT**

This study aimed to determine the partial and simultaneous effect of Capital Adequacy Ratio (CAR), Loan To Deposit Ratio (LDR) and Non-Performing Loans (NPL) on Return On Asset (ROA) in banking companies shares listed on the Indonesia Stock Exchange in 2016-2020. The population of this study were all conventional commercial banking companies listed on the Indonesia Stock Exchange in the period of 2016-2020. The sampling technique was carried out by purposive sampling, so that 9 banking companies were obtained as study samples. The data analysis technique used was linear regression analysis by Capital Adequacy Ratio (CAR), Loan To Deposit Ratio (LDR) and Non-Performing Loans (NPL) as independent variable and Return On Asset (ROA) as the dependent variable. The results of this study indicated that Capital Adequacy Ratio (CAR) partially had a significant and positive effect on Return On Asset (ROA), Loan To Deposit Ratio (LDR) had no significant and positive effect on Return On Asset (ROA), and Non-Performing Loans (NPL) had no significant and negative effect on Return On Asset (ROA). While Capital Adequacy Ratio (CAR), Loan To Deposit Ratio (LDR) and Non-Performing Loans (NPL) simultaneously had a significant effect on Return On Asset (ROA).

**Keywords:** *Capital Adequacy Ratio (CAR)*, *Loan To Deposit Ratio (LDR)* *Non-Performing Loans (NPL)*, *Return On Asset (ROA)*.

### **INTRODUCTION**

Bank is a business entity that collects funds from the public in the form of savings, and channels them to the public in the form of credit and other forms in order to improve the living standards of the people. Due to its crucial role, the performance of the banking sector has a significant influence on the economy of a country. The banking industry strives to promote national progress by advancing equity, economic expansion, and stability in order to enhance public welfare.

The bank's overall performance, which includes finance, management, fund collection and distribution, and human resources, can determine whether it is performing well or poorly. To ensure the continued trust of the public and to attract sources of funding,

bank management must strive to improve their performance and increase the prosperity of their shareholders. If a bank's profits are low and its performance is subpar, it will face difficulty in securing investments and may experience a decline in public trust.

Bank Indonesia gives priority to the profitability of banks, which is measured by their Return On Assets (ROA). The higher a bank's ROA, the more profitable it is, and the more efficient it is in utilizing its assets. Essentially, ROA is an indicator of how a company's increased profits can contribute to its overall profitability. ROA calculation can be influenced by various factors, such as the Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), and Loan to Deposit Ratio (LDR). The Capital Adequacy Ratio (CAR) serves as a measure of a bank's capacity to absorb potential losses. A CAR above 8% indicates a stable bank with high public trust. A bank's stronger ability to manage the risk of risky loans and productive assets is reflected by a higher CAR value, which enables the bank to finance its operations more effectively. By raising the CAR ratio, a company can enhance its profits and as a result, increase its ROA. Studies conducted by Watung E. Claudia Rembet and Dedy N. Baramuli (2020) and Deden Edwar Yokeu Bernardin (2016) proved that the CAR variable had a substantial impact on ROA. However, the findings of Agus Saputra, Muhammad Arfan, and Mulia Saputra's (2018) study indicated that profitability was not affected by CAR. The Loan to Deposit Ratio (LDR) is an indicator of how well a bank can use borrowed funds to meet the demands of depositors who want to withdraw their money. Essentially, the LDR reflects a bank's ability to lend out the money it receives from depositors. A bank's profitability can be impacted by the magnitude of its LDR ratio. The bank's performance is influenced by the Loan to Deposit Ratio (LDR), which can be improved if the bank extends credit effectively. A higher LDR can lead to increased bank profits, and in turn, improved performance. Hence, the size of a bank's LDR has a significant impact on its overall performance. Earlier studies conducted by Muhammad Alfian & Aliah Pratiwi (2021) and Watung E. Claudia Rembet and Dedy N. Baramuli (2020) demonstrated that the impact of LDR on ROA was not statistically significant. These findings differ from the studies conducted by Tan Sau Eng (2013) and Jontro Simanjuntak (2016), which indicated that the LDR value had a noteworthy influence on ROA.

The Non-Performing Loan (NPL) ratio indicates the level of credit risk by measuring the proportion of loans that are not performing well, in relation to the total loans. Non-performing loans are loans that are considered to be of low quality, including those that are substandard or doubtful. Banks that have high levels of NPL are more vulnerable to potential losses in their lending activities. According to the regulations set by Bank Indonesia through PBI No.17/11/PBI 2015, the highest limit for Non-Performing Loans (NPL) is 5%. Some previous studies have looked at the impact of NPL on Return on Assets (ROA). Agus Saputra (2018) and Watung E. Claudia Rembet and Dedy N. Baramuli (2020) found that NPL did not significantly affect ROA. However, Tan Sau Eng's (2013) study showed that NPL had a significant impact on ROA.

The purpose of this study was to investigate the impact of CAR, LDR, and NPL on the expected profitability of conventional commercial banks that were listed on the IDX, through their effect on ROA. The assessment of banking financial performance is crucial in

order to establish policies that ensure operational continuity and financial efficiency. As a result, the researchers conducted a study titled “The Effect of Capital Adequacy Ratio (CAR), Loan Deposit Ratio (LDR) and Non-Performing Loans (NPL) on Return on Assets (ROA) in Banking Companies Listed on the Indonesia Stock Exchange during the Period of 2016-2020”. The anticipated outcomes of this study are to enhance the existing knowledge on the impact of **CAR**, **LDR**, and **NPL** on **ROA**. Additionally, the findings are likely to be valuable for banking firms seeking to enhance their performance and achieve a sound financial status.

## LITERATURE REVIEW

Financial management refers to the operational task within an organization that deals with the management of financial resources. This task can be performed by individuals, corporations, and even the government. According to Sutrisno (2012:3), financial management encompasses all the activities within a company that involve obtaining funds at a minimal cost and allocating those funds efficiently.

Achieving maximum profits is frequently the primary objective in a business. The aim of financial management is to enhance the wealth of the company’s stakeholders or shareholders. In simpler terms, the objective of financial management is to increase the value of the company. Irham Fahmi (2012: 4) stated that financial management aims to enhance the value of the company while keeping financial stability intact in a regulated environment and reducing potential risks both presently and in the future. According to Sutrisno (2012: 5), the role of financial management involves making three essential decisions for a company: Investment decisions, Financing decisions, and Dividend decisions. These three decisions are interconnected and collectively help a company manage its financial resources effectively. Therefore, financial management plays a crucial role in helping companies manage their funding.

### Return On Asset (ROA)

The ability of a bank to generate profit in an effective and efficient manner is referred to as profitability. One way to calculate profitability ratios is by using the Return On Assets approach, which compares profit before tax to total assets. This ratio evaluates a bank’s capacity to earn profits by utilizing its assets. A bank’s level of profit and asset utilization improves as its ROA increases (Dendawijaya, 2009: 118). Companies that consistently generate high profits are typically less likely to engage in income smoothing practices, since their managers have confidence in their performance based on the profits generated. Conversely, companies with low profitability may be more susceptible to income smoothing practices, as poor profits could lead to questioning of managerial performance and doubts about the company’s existence in the eyes of society, ultimately impacting investor decisions. If the Return on Assets (ROA) is increasing, a business can be considered more profitable. Conversely, if the ROA is decreasing, the business is considered less profitable. Riyadi (2017: 380) (in Nadya Grilseda’s study in 2021) provided a formula to calculate ROA:

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}} \times 100\%$$

This formulation allows for the determination of the return on investment that the company receives through a comparison of its operating profit and total assets.

#### Capital Adequacy Ratio (CAR)

The Capital Adequacy Ratio (CAR) represents the bank's capability to maintain an adequate amount of capital and the bank management's proficiency in recognizing, evaluating, overseeing, and regulating risks that can impact the bank's capital level (Irham Fahmi, 2018). The Capital Adequacy Ratio is determined by allocating a specific percentage of capital to risky investments, with the aim of ensuring that banks remain financially healthy. To meet the standards set by the Bank for International Settlements (BIS), a bank should maintain a CAR of at least 8%. Based on the BI DIR Decree No. 30/12/KEP/DIR from April 30, 1997, a minimum CAR of 8% is required for a bank to pass the CAR ratio assessment.

According to I Wayan Sudirman, (2013: 112) (in Jamaludin's study, 2019), CAR can be calculated by the formula:

$$\text{CAR} = \frac{\text{Capital}}{\text{Risk Weighted Assets}} \times 100\%$$

#### Non-Performing Loan (NPL)

NPLs, also known as Non-Performing Loans, are a crucial factor in evaluating a bank's performance. Essentially, NPLs serve as an indicator of a bank's problems, and if not resolved promptly, can pose a serious threat to the bank's stability. When a customer is unable to fulfill their financial obligations to the bank as per their agreement, either partially or completely, it is referred to as a non-performing loan (Simanjuntak, J. 2016). Non-performing loans refer to loans that are of poor quality, doubtful, or substandard. On the other hand, credit includes loans given to third parties but excludes loans given to other banks. As per Bank Indonesia Regulations, the highest percentage of non-performing loans permitted by the bank is 5%.

According to Hariyani 2010: 52 (in Nadya Grilseda's study, 2021), The Non-Performing Loan (NPL) ratio is an indicator of a bank's ability to effectively handle loans that are not being paid back by customers. NPL can be calculated by the following formula:

$$\text{NPL} = \frac{\text{Non - Performing Credit}}{\text{Total Credits Granted}} \times 100\%$$

#### Loan to Deposit Ratio (LDR)

Banks face a complex challenge when it comes to handling their liquidity, since most of the money they manage comes from the public and is usually meant to be withdrawn on short notice. According to Dendawijaya (2009: 118), liquidity refers to a bank's ability to fulfill its immediate or near-term obligations. The LDR (Loan-Deposit Ratio) of a bank can safely reach up to 78%, but it can go as high as 100%. The LDR is measured by comparing the credit given to third parties to the funds obtained from them. This credit includes only the total amount of credit given to third parties, not to any other parties. The funds obtained from third parties include deposits, savings, and demand deposits, but not inter-bank funds.

If a bank's LDR is below 92%, it is considered to be in good health, while an LDR equal to or exceeding 92% is considered to be in poor health. According to Riyadi 2017: 397 (in Nadya Grilseda's study, 2021), the formula for the LDR ratio is as follows:

$$\text{LDR} = \frac{\text{Total credits granted}}{\text{Total third party funds}} \times 100\%$$

#### **METHOD OF THE STUDY**

This study employed a quantitative approach using an associative method to examine the relationship between multiple variables. Associative study is conducted to identify the impact or connection between various factors. In this study, the associative method was used to measure the level of influence of the X and Y variables, comprising the Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Loan To Deposit Ratio (LDR), and Return On Assets (ROA) ratios. The financial reports spanning from 2016 to 2020 were the source of data for this study. The data utilized in this study were derived from secondary sources. The secondary data employed in this study were acquired from the official website of the Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)) and the company's official website. These financial reports pertain to the management of various banking ratios such as Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR), Non-Performing Loan (NPL), and Return On Assets (ROA) of banking companies listed on the Indonesia Stock Exchange.

The population's features are an essential aspect to be noted during the study. The population under studied includes all the conventional commercial banking firms that were publicly traded on the Indonesia Stock Exchange between the years 2016-2020.

#### **Table 3.1 Sampling Criteria**

No	Criteria	Does Not Meet Criteria	Amount
1	Conventional commercial banks listed on the IDX during the period of 2016 to 2020	-	46
2	Banks that fail to release financial statements consecutively from 2016 to 2020.	(30)	16
3	Banks that did not have their shares removed or halted from trading on the IDX between 2016 and 2020.	(7)	9
4	Banks that lack comprehensive information on study factors from 2016 to 2020.	-	9
<b>Total Study Sample</b>			9

Source: *www.idx.co.id*, 2021

Table 3.1 above presents information indicating that the total population of companies at the outset was 46. During the purposive sampling stage, it was observed that 30 banks did not publish financial reports between 2016 and 2020, while 7 banks had their shares delisted and suspended from the Indonesia Stock Exchange during the same period. Additionally, banks that had complete data on the research variables during the 2016-2020 period were selected as 9. The number of study observations for these 9 banks is provided in the table:

**Table 3.2 Study Samples**

No.	Bank Name	Bank Code
1	PT Bank Rakyat Indonesia Tbk	AGRO
2	PT Bank CIMB Niaga Tbk	BNGA
3	PT Bank Maybank Indonesia Tbk	BNII
4	PT Bank Mega Tbk	MEGA
5	PT Bank OCBC NISP Tbk	NISP
6	PT Bank Tabungan Negara Indonesia Tbk	BBTN
7	PT Bank Negara Indonesia (Persero) Tbk	BBNI
8	PT Bank Central Asia Tbk	BBCA
9	PT Bank Victoria International Tbk	BVCI

#### Data Analysis Technique

The study utilized the quantitative analysis technique, which involved using statistical methods and numerical calculations. The data were categorized into specific groups using tables to facilitate analysis with the SPSS 25 program for windows.

The aim of this study was to examine whether the Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), and Loan To Deposit Ratio (LDR) affect the Return On Assets

(ROA) of conventional banking companies listed on the IDX between the years 2016 to 2020. The structure of the regression model utilized in this study is presented as follows:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + e$$

Description:

Y = Return On Asset (ROA)

a = Constant

b<sub>1</sub>, b<sub>2</sub> = Regression coefficient

X<sub>1</sub> = Capital Adequacy Ratio (CAR)

X<sub>2</sub> = Loan To Deposit Ratio (LDR)

X<sub>3</sub> = Non-Performing Loan (NPL)

e = Standard error

The significance of each independent variable (CAR, NPL, and LDR) on the dependent variable (ROA) was tested individually using a t test. The results were then evaluated to determine if they had a significance value of  $\leq 0.05$ , and if so, it was concluded that the model had a significant effect, Ghozali (2018).

To determine if the independent variable had a simultaneous effect on the dependent variable, the F test was performed by comparing the calculated F value with the F value from the table. If the results showed a significant value of  $< 0.05$ , it means that the model had a significant effect, Ghozali (2018).

The purpose of this analysis was to assess how much the independent variables (CAR, LDR, and NPL) contribute to the dependent variable (ROA). The adjusted R square value was used to state this analysis. If the adjusted R square value for an independent variable was high compared to the others, then it can be concluded that this variable had a significant impact on Return On Assets.

## FINDING AND DISCUSSION OF STUDY

### Descriptive Statistics

The results of general descriptive statistical calculations of all variable data are as follows:

**Table 4.1 Descriptive Statistics**

		Statistics			
		CAR	LDR	NPL	ROA
N	Valid	45	45	45	45
	Missing	0	0	0	0
Mean		20.3336	84.7320	1.6911	2.0518
Median		19.3400	88.1200	1.6600	2.0000
Std. Deviation		3.17886	13.03835	1.04133	1.01801
Minimum		15.70	55.35	.30	.08
Maximum		31.04	113.50	4.96	4.00
Sum		915.01	3812.94	76.10	92.33

Source: Results of SPSS data processing, 2022

### *Capital Adequacy Ratio (CAR)*

According to table 4.1, the results of the descriptive statistical test indicated that the smallest Capital Adequacy Ratio recorded was 15.70, which corresponded to PT Bank Negara Indonesia Persero Tbk in the year 2020. The largest value, on the other hand, was amounted to 31.04, which corresponded to the Capital Adequacy Ratio of PT Bank Mega Tbk in the same year. These findings suggested that the range of CAR values within the sample used for this study ranged from 15.70 to 31.04, with an average (mean) value of 20.3336 and a standard deviation of 3.17886.

### *Loan To Deposit Ratio (LDR)*

Based on Table 4.1, the results of the descriptive statistical test indicated that PT Bank Tabungan Negara Indonesia Tbk had the lowest LDR value of 55.35 in 2016 and the highest value of 113.50 in 2019. This suggested that the LDR values in the study varied between 55.35 and 113.50, with an average value (mean) of 84.7320 and a standard deviation of 13.03835.

### *No- Performing Loans (NPL)*

The descriptive statistical test in table 4.1 revealed that the NPL values in the study sample ranged from 0.30 (the NPL value of PT Bank Central Asia Tbk in 2016) to 4.96 (the NPL value of PT Bank Victoria Internasional Tbk in 2019). This indicated the variation in NPL values in the sample, which ranged from the lowest value of 0.30 to the highest value of 4.96, with an average value (mean) of 1.6911 and a standard deviation of 1.04133.

### *Return On Asset (ROA)*

The results of the descriptive statistical test presented in table 4.1 indicated that PT Bank Victoria Internasional Tbk had the lowest ROA value of 0.08 in 2019, while PT Bank Central Asia Tbk had the highest ROA value of 4.00 in both 2016 and 2019. This demonstrated that the range of ROA values in the sample studied was from 0.08 to 4.00, with an average (mean) value of 2.0518 and a standard deviation of 1.01801.

## **Classical Assumption Testing Results**

### **Normality Test**

The purpose of conducting a normality test was to determine whether the two study variables in the regression model have a normal distribution of data or not. The Kolmogorov-Smirnov test was used in this study for the normality test, and the decision was made based on the significance level ( $\alpha$ ). If the significance level was greater than 0.05 ( $\alpha > 0.05$ ), then the data was considered to have a normal distribution, and if the significance level ( $\alpha$ ) was smaller ( $\alpha < 0.05$ ), then the data was considered to not have a normal distribution. Below are the results of the normality test.

### **Table 4.2 Normality Test Results**

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		45
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	.82919701
Most Extreme Differences	Absolute	.087
	Positive	.061
	Negative	-.087
Test Statistic		.087
Asymp. Sig. (2-tailed)		.200 <sup>c,d</sup>
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		
d. This is a lower bound of the true significance.		

According to the information presented in Table 4.2, the normality test was performed using the Kolmogorov-Smirnov test with an Asym value. The results of the test, which are displayed in the Unstandardized Residual column, indicate a Sig. (2-tailed) value of 0.200, which was higher than the critical value of 0.05. Therefore, it can be concluded that the data used in this study were normally distributed, and that the regression model met the normality assumption test.

#### Multicollinearity Test

The purpose of the multicollinearity test was to determine if there is a connection between the independent variables in the regression model. The presence of multicollinearity can be identified by examining the Variance Inflation Factor (VIF) and tolerance value. If the VIF < 10 and the tolerance value > 0.10, there was no multicollinearity detected. The results of the multicollinearity test are provided below:

**Table 4.3 Normality Test Results**

**Coefficients<sup>a</sup>**

Model	Collinearity Statistics	
	Tolerance	VIF
1	CAR	.613
	LDR	.579
	NPL	.883

a. Dependent Variable: ROA

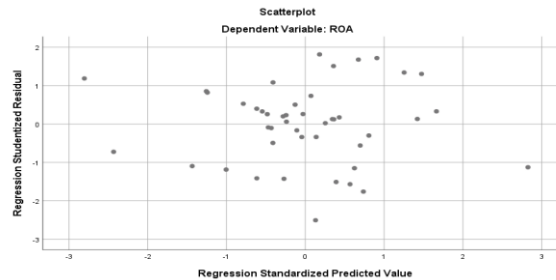
*(Source: secondary data processed with SPSS 25, 2022)*

According to table 4.3, the multicollinearity test results indicated that the three independent variables had tolerance values above 0.10 and a VIF value below 10. Therefore, it can be inferred that there was no evidence of multicollinearity among the independent variables in the regression model.

#### Heteroscedasticity Test

A regression model will be considered good if it exhibits homoscedasticity, which means there is no heteroscedasticity present (Ghozali, 2013). In this study, the scatterplot graphical method was used to analyze the relationship between the predicted value of the independent variable (ZPRED) and the residue (SRESID). The results of the heteroscedasticity test are presented in the following table.

**Table 4.4 Heteroscedasticity Test Results**



*(Source: secondary data processed with SPSS 25, 2022)*

Heteroscedasticity is not present if there is no distinct pattern and the data points are scattered above and below the Y axis without any apparent trend in a regression model (Ghozali, 2013). By analyzing the Scatterplot graph, it is evident that the data points were widely dispersed and did not show any clear pattern. Therefore, it can be inferred that there was no issue of heteroscedasticity.

### Autocorrelation Test

In order to determine whether there was a correlation between the confusing errors in a given period (t) and the intervening errors in the previous period (t-1) in a linear regression model, researchers conducted an autocorrelation test. This type of test is commonly used when analyzing time series data. The Durbin-Watson test can be used to assess autocorrelation, and a decision can be made based on whether the value of  $du < dw < 4-du$ . The Autocorrelation test produced the following results:

**Table 4.5 Autocorrelation Test Results**

Model	Durbin-Watson
1	1.955 <sup>a</sup>

a. Predictors:  
(Constant),  
NPL, CAR, LDR

b. Dependent  
Variable: ROA

*(Source: secondary data processed with SPSS 25, 2022)*

The results of the autocorrelation test in Table 4.5 indicated that the Durbin-Watson (DW) value was amounted to 1.955. Although the DW value was based on a sample size of  $n=45$  and  $K=3$ , the values for  $du = 1.6662$  and  $4-du = 2.3338$  were derived. Consequently, it can be inferred that the regression model did not exhibit signs of autocorrelation, as long as  $1.6662 < 1.955 < 2.3338$ .

### Multiple Regression Analysis Test Results

The analysis employed in this study was multiple linear regression analysis, which sought to determine the extent to which the relationship between two or more independent variables and a dependent variable exists. Multiple linear regression analysis was utilized to investigate the relationship between the independent variables, including Capital Adequacy Ratio (CAR), Loan To Deposit Ratio (LDR), Non-Performing Loans (NPL), and the dependent variable, Return On Assets (ROA).

The following are the results of multiple linear regression analysis processed using SPSS 25:

**Table 4.6 Multiple Linear Analysis Test Results**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.291	2.037		-1.124	.267
	CAR	.179	.052	.560	3.446	.001
	LDR	.013	.013	.171	1.020	.314
	NPL	-.257	.132	-.263	-1.940	.059

a. Dependent Variable: ROA

(Source: processed secondary data, SPSS 25, 2022)

Based on table 4.6 above, the regression equation that can be compiled are as follows:

$$Y = -2,291 + 0,179 + 0,013 - 0,257 + e$$

The above equation can be interpreted as follows:

1. The constant value of (-2.291) indicated that, when the independent variables (CAR, LDR, and NPL) remained constant, the dependent variable (Return On Assets) would have a negative value of (-2.291). If CAR, LDR, and NPL were all zero, Return On Assets would decrease since the constant value was negative.
2. The coefficient for the variable Capital Adequacy Ratio was amounted to 0.179. This implied that if the CAR increased by one unit and all other independent variables remained constant, Return On Assets would also increase by 0.179. A positive coefficient value suggested that CAR and Return On Assets were positively correlated.
3. The coefficient for the variable Loan to Deposit Ratio was amounted to 0.013. This indicated that if the LDR increased by one unit and all other independent variables remained constant, Return On Assets would increase by 0.013. A positive coefficient value suggested that LDR and Return On Assets were positively correlated.
4. The Non-Performing Loans variable has a coefficient of -0.257, which means that an increase in NPL by one unit would result in a decrease of -0.257 in the ROA value. The negative coefficient on the NPL variable suggested that any increase in the NPL value would lead to a reduction in the Return On Assets value.

#### Hypothesis Testing Results

##### Partial Test (t)

A t test was conducted to assess the individual effects of the independent variables (CAR, LDR, and NPL) on the dependent variable (ROA). The test was conducted using a significance level of 0.05. If the significance value  $\leq 0.05$ , then the independent variable had a partial influence on ROA. The t test results are provided below:

Table 4.7 Partial Test Results (t)

Model	Coefficients <sup>a</sup>					
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.291	2.037		-1.124	.267
	CAR	.179	.052	.560	3.446	.001
	LDR	.013	.013	.171	1.020	.314
	NPL	-.257	.132	-.263	-1.940	.059

a. Dependent Variable: ROA

(Source: processed secondary data, SPSS 25, 2022)

According to table 4.7, the partial test results presented above can be interpreted as follows:

1) *Capital Adequacy Ratio (CAR)*

The CAR variable had a regression coefficient value of 0.179, and the t count value of 3.446 > t table of 2.01954. The significant level was 0.001 < 0.05, indicating that H1 was accepted. Therefore, it can be concluded that CAR partially had a significant and positive effect on Return On Assets.

2) *Loan Deposit Ratio (LDR)*

The LDR multiple linear regression coefficient had a value of 0.013, and the t count value of 1.020 < t table of 2.01954. The significant level was 0.314 > 0.05, indicating that H2 was rejected. Thus, it can be inferred that LDR partially had no significant effect on Return On Assets.

3) *Non-performing Loans (NPL)*

The NPL multiple linear regression coefficient provided a value of -0.0257, and the t count value of -1.940 < t table of 2.01954. The significant level was 0.059 > 0.05, indicating that H3 was rejected. Therefore, it can be concluded that NPL had no significant effect on Return On Assets, partially.

1. Simultaneous Test (F)

The objective of conducting the F test was to observe the collective impact of the independent variables on the dependent variable. In this case, the F test was performed to assess the impact of CAR, LDR, and NPL on the Return On Assets of banking companies that were listed on the IDX between 2016 and 2020. To determine whether the model had a significant effect, the F count value was compared to the F table. If the F count > F table, with a significance value 0.05, then the model was deemed to have a significant effect. The results of the F test is presented below:

Table 4.8 Simultaneous Test Results (f)

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.346	3	5.115	6.933	.001 <sup>b</sup>
	Residual	30.253	41	.738		
	Total	45.599	44			

a. Dependent Variable: ROA

b. Predictors: (Constant), NPL, CAR, LDR

(Source: processed secondary data, SPSS 25, 2022)

Based on table 4.8, it is known that independent variables of this study simultaneously had a sig value < 0.05, namely 0.001 and F count = 6,933. By using the confidence level  $\alpha = 5\%$ ,  $df_1 = (\text{number of variables}-1)$ ,  $df_2 = (n-k-1)$ , where n is the amount of data and k is the number of independent variables, then  $df_1 = 4-1 = 3$ ,  $df_2 = 45-3-1 = 41$ , with F table = 2.83. Therefore, F count > F table (6.933 > 2.83), indicating that the independent variables (Capital

2. The coefficient of determination

To determine the level of contribution of each independent variable in explaining the dependent variable, the analysis of the coefficient of determination was used by the researchers. The Adjusted R Square value was used to measure the coefficient of determination, where a lower value indicated that the independent variables had limited or small explanatory power on the dependent variable. The results of the coefficient of determination test are presented below:

Table 4.9 Test Results for the Coefficient of Determination

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.580 <sup>a</sup>	.337	.288	.85900

a. Predictors: (Constant), NPL, CAR, LDR

b. Dependent Variable: ROA

(Source: processed secondary data, SPSS 25, 2022)

According to Table 4.9, the coefficient of determination test showed a value of 0.288 or 28.8% for the Adjusted R Square coefficient, indicating that the independent variables, namely Capital Adequacy Ratio, Loan to Deposit Ratio, and Non-Performing Loans, accounted for 28.8% of the variation in the dependent variable (Return on Assets),

while the remaining 71.2% could be attributed to other variables not included in this study's regression model.

#### The Effect of Capital Adequacy Ratio (CAR) on Return On Assets (ROA)

The findings suggested that the Capital Adequacy Ratio had a statistically significant and positive effect on Return On Assets in banking companies listed on the IDX between 2016 and 2020.

According to the first hypothesis, there was a positive and notable correlation between the Capital Adequacy Ratio (CAR) and the Return On Assets (ROA). Based on the study findings, the regression coefficient of the CAR variable was amounted to 0.179, with a significance value of 0.001. This significance value was significant at a level of 0.05 or lower. As a result, the first hypothesis that proposed a significant and positive relationship between the CAR and ROA was supported by the data.

The findings of this study suggested that a higher Capital Adequacy Ratio (CAR) led to a higher Return On Assets (ROA) for the bank. Because, a higher CAR indicates that the bank has sufficient capital to meet its requirements, which allows it to generate more income. Additionally, a higher CAR provided the bank greater flexibility in expanding its business and mitigating the risk of loss. Therefore, as the CAR increased, so did the potential for better financial performance.

The results of this study is in line with previous studies carried out by Deden Edwar Yokeu Bernardin (2016) and Watung E. Claudia Rembet and Dedy N. Baramuli (2020) that suggested the Capital Adequacy Ratio (CAR) had a significant and partly favorable effect on the Return On Assets.

#### **The Effect of Loan to Deposit Rasio (LDR) on Return On Asset (ROA)**

The findings of this study indicated that the effect of Loan to Deposit Ratio on Return On Assets for banking companies listed on the IDX during 2016 to 2020 was partially insignificant and positive. The regression coefficient for LDR in the multiple linear regression model was 0.013, with a significance level of 0.314, which was higher than the threshold of 0.05. As a result, the study dismissed the second hypothesis, which stated that there was a significant and positive correlation between LDR and ROA.

The LDR ratio not showing an effect implied that banks had surplus funds that need to be lent out as credit. Additionally, owning assets from banking companies could mean that some products which could generate commission-based income were not being optimized, suggesting a shift towards prioritizing income, starting with interest and then moving towards fee-based income. The results of this study is in line with previous studies done by Jihan Aprilia and Siti Ragil Handayani (2018) and Watung E. Claudia Rembet and Dedy N. Baramuli (2020), which found that the loan to deposit ratio did not have a significant effect, but partially had a positive effect on the Return On Assets.

### **The Effect of Non-Performing Loan (NPL) on Return On Asset (ROA)**

This study showed that non-performing loans did have a significant effect on the Return On Assets of banking companies listed on the IDX between 2016 and 2020. This was suggested by the coefficient of the NPL multiple linear regression, which was amounted to -0.0257. The significant level was  $0.059 > 0.05$ , leading to the rejection of H3. This was due to the fact that the conventional commercial banks investigated by the researchers had a Non-Performing Loan (NPL) ratio of  $\leq 5\%$ , which means they had a low credit risk. A low credit risk did not have any effect on Return on Assets (ROA), because the conventional banks had a large amount of capital, which could cover any risks.

Furthermore, the banks took precautions before providing loans to customers, such as assessing the feasibility of the collateral provided by the customer and insuring the collateral, which minimized the effect of NPL on the bank's net profit as long as it did not exceed the limits set by the BI rules. Moreover, it is important to note that banks generated income not only from financing but also from other sources such as investments in securities, bonds, and various operational revenues. The rise in expenses related to the management of non-performing loans resulting from an increase in NPLs would result in a decrease in bank profitability. The results of this study support the findings of previous studies conducted by Jihan Aprilia and Siti Ragil Handayani (2018) and Usman Harun (2016), which found that NPLs had a partially negative and insignificant effect on Return On Assets.

### **The Effect of Capital Adequacy Ratio (CAR), Loan to Deposit Rasio (LDR) and Non-Performing Loan (NPL) Simultaneously on Return On Asset (ROA).**

This study showed that the Return On Assets (ROA) of banking companies listed on the Indonesia Stock Exchange from 2016-2020 was affected simultaneously by three factors: Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR), and Non-Performing Loans (NPL), with the significance value of  $0.001 < 0.05$ .

The study's findings suggested that the independent variable was a reliable predictor of the dependent variable. Specifically, the study found that the CAR, LDR, and NPL variables could statistically predict Return On Assets for banking companies listed on the IDX between 2016-2020.

These results is relevant with previous studies conducted by Tan Sau Eng (2013) and Ridzki Aulia Rahman and Deannes Isywardhana (2019), which found that CAR, LDR, and NPL had a simultaneous effect on ROA.

## **CONCLUSION AND SUGGESTION**

Partially, the Capital Adequacy Ratio (CAR) variable had a significant and positive effect on the Return On Assets (ROA) for banking firms listed on the Indonesia Stock Exchange from 2016-2020. This indicates that the company was capable of managing any risks that may arise, making it a desirable option for investors to invest their funds.

Partially, the Loan To Deposit Ratio (LDR) variable did not have a significant or positive effect on the Return On Assets (ROA) for banking firms listed on the Indonesia Stock

Exchange from 2016-2020. This implies that the size of the LDR ratio did not significantly contribute to the growth of a bank's profits. It was possible that banks had started to prioritize income generation through interest and fees, including in investment activities.

In the years 2016-2020, the Non-Performing Loan (NPL) variable did not partially have a significant or negative effect on the Return On Assets (ROA) for banking companies listed on the Indonesia Stock Exchange. This suggests that these companies were able to effectively manage any risks they may face, which makes them attractive for investors to invest their money.

In the years 2016-2020, the Loan To Deposit Ratio (LDR) variable did not partially have a significant or positive effect on the Return On Assets (ROA) for banking companies listed on the Indonesia Stock Exchange. This means that the LDR ratio's size did not significantly contribute to a bank's profit growth. It was possible that banks had started to focus on generating income, initially through interest and then shifting towards fee-based income, such as through investments.

Partially, the variable of Non-Performing Loans (NPL) provided an insignificant and negative effect on the Return On Assets (ROA) of banking firms listed on the Indonesia Stock Exchange during the period of 2016-2020. In other words, the level of NPL did not significantly contribute to the growth of a bank's profit. This was due to precautionary measures such as providing insurance to borrowers, which limited the negative influence of NPL on a bank's net profit as long as it stayed within the regulatory limits set by BI.

During the years 2016-2020, Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR), and Non-Performing to Loans (NPL) simultaneously had a significant and positive effects on the Return On Assets (ROA) of banking firms listed on the Indonesia Stock Exchange. This indicates that the company could generate profits from the assets used, managed all risks faced by the company, earned profits through loans, and effectively handled non-performing loans within the company.

If investors or creditors want to invest in a company, they should take into account the values of CAR, LDR, and NPL, because these three factors provide an effect on the company's Return On Assets (ROA), as shown by the study. A high CAR and LDR value is indicative of a greater potential for profit for the investor.

In order to improve their Return On Assets, companies should focus on their CAR, LDR, and NPL values. Doing so can increase investor confidence, leading to greater investment and higher returns. This study can serve as a valuable reference for investors interested in selecting banking company shares on the Indonesia Stock Exchange during the period of 2016 and 2020.

Further researchers who intend to investigate the same issue should first conduct a thorough investigation of other organizations and incorporate additional independent variables that have the potential to impact the Return on Assets of banking firms.

## REFERENCES

- Alfian M., & Aliah P. (2021). Pengaruh CAR, BOPO, NPL, Dan LDR Terhadap ROA Pada PT. BANK Rakyat Indonesia (Persero) Tbk. *Jurnal Ekonomi dan Bisnis Dharma Andalas*, Vol. 23, No. 2, Juli 2021 , Hal. 299-307.
- Baramuli, W. E. (2020). Pengaruh CAR, NPL, NIM, BOPO, LDR Terhadap Return On Asset (ROA) (Studi Pada Bank Umum Swasta Nasional Devisa Yang Terdaftar Di BEI). *Jurnal EMBA*, Vol.8 No.3 Juli 2020 , Hal. 342 -352 .
- Dendawijaya,L. (2009) *Manajemen Perbankan*, Penerbit Ghalia Indonesia.
- Fahmi, Irham. 2012. “*Analisis Kinerja Keuangan*” , Bandung: Alfabeta.
- Fahmi, Irham. 2018. “*Pengantar Manajemen Keuangan*”, Bandung: Alfabeta.
- Handayani, J. A. (2018). Pengaruh Capital Adeqacy Ratio, Biaya Operasional Per Pendapatan Operasional, Non Performing Loan, Dan Loan to Deposit Ratio Terhadap Return On Asset Dan Return On Equity (Studi pada Bank Umum Swasta Nasional Devisa Tahun 2012-2016). *Jurnal Administrasi Bisnis*, Vol.61 No.3 Agustus 2018
- Harun, Usman. (2016). Pengaruh Ratio-Ratio Keuangan CAR, LDR, NIM, BOPO, NPL Terhadap ROA. *JurnalRiset Bisnis dan Manajemen*,Vol.4 No.1
- I Wayan, S. 2013. *Manajemen Perbankan Menuju Bankir Konvensional Yang Profesional*. Jakarta: Pustaka Setia.
- Isynurwardhana, R. A. (2019). Pengaruh CAR, LDR dan NPL terhadap Profitabilitas pada Industri Perbankan. *e-Proceeding of Management*, Vol.6 No.1.
- Nadya Grilseda, S. R. (2021). Pengaruh CAR, LDR, KAP dan NPL terhadap ROA Bank Go Public yang terdaftar di BEI . *Jurnal Ilmu Manajemen*, Vol. 11, No. 1, Desember 2021 , Hal. 53 - 67 .
- Riyadi,S. 2017. “*Manajemen Perbankan Indonesia (Teori Praktik Dan Studi Kasus)*. Jakarta. PT. Raja Grafindo Persaja.
- Simanjuntak, J. (2016). Pengaruh Capital Adequacy Ratio (CAR), Loan To Deposit Ratio (LDR) Dan Non Performing Loan (NPL) Terhadap Return On Assets (ROA) Pada Sektor Perbankan Di Bursa Efek Indonesia. *Jurnal Bisnis & Manajemen*, Vol. 2, No. 2, Desember 2016 , Hal. 102-111.
- Tan Sau Eng. (2013). Pengaruh Net Interest Margin, Biaya Operasional Pendapatan Operasional, Loan to Deposit Ratio, Non Performing Loan & Capital Adequacy Ratio Terhadap ROA Bank Internasional Dan Bank Nasional Go Publik Periode 2007-2010. *Jurnal Dinamika Manajemen*. Vol. 1 No.3 [www.idx.co.id](http://www.idx.co.id)