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The Influence of Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), and Operating Costs Operating Income (BOPO) on Profitability in Banks Listed on the Indonesia Stock Exchange for the 2016-2018 Period

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Abstract

This study aims to analyze the effect of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), and Operational Cost of Operating Income (BOPO) on Profitability (ROA). The data used in this study were obtained from the annual published financial reports of banks listed on the Indonesia Stock Exchange for the 2016-2018 period. The sampling technique used was a sample size of 33 commercial banks listed on the Indonesia Stock Exchange (BEI) for the period 2016–2018. The analysis technique used is statistical test with multiple regression methods and hypothesis testing using the F test and T test which previously had been done with the classical assumption test first. The results showed that simultaneously the Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), and Operating Costs Operating Income (BOPO) had a significant effect on Return on Assets (ROA) in banking companies on the IDX for the 2016-2018 period. Partially, the variable Capital Adequacy Ratio (CAR) has no and insignificant effect on Return on Assets (ROA). The Non Performing Loan (NPL) variable has no and insignificant effect on Return on Assets (ROA). Operational Cost Variable Operating Income (BOPO) has a significant effect on Return on Assets (ROA). From this study, the coefficient of determination (R²) was 0.746; this means that 74.6% of the Return on Assets (ROA) variable can be explained by the independent variables, namely Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), and Operational Costs. Operating Income (BOPO), and the remaining 25.4% is explained by other variables outside the equation.

Keywords: *CAR, NPL, BOPO, and ROA.*

1. Introduction

Banks play an important role in the economy in relation to their function in the form of fund raising, as well as financial intermediaries between parties who have funds (surplus units) and parties who need funds (deficit units) and banks also function as financial institutions. which streamlines the flow of payment traffic. In addition, banks are also an industry that relies on public trust in their business activities, so that the health of banks must be maintained. According to the Republic of Indonesia Law Number 10 of 1998 concerning Banking, Banking is everything that is related to a bank, both institutions, business activities, methods and processes in carrying out business activities.

The monetary crisis that has continued in the last few years has turned into an economic crisis, due to the increasing number of companies that have closed down, liquidated banks and the increasing number of unemployed. This reminds us that if a banking business fails, it will have an impact on the economy. Therefore, it is necessary to carry out a series of analyzes to determine the possibility of financial difficulties and even failure of the banking business as early as possible. This condition is a serious concern for the Minister of Finance where Sri Mulyani (2020) emphasized that the government will make every effort to revive the economy so that it does not contract, as predicted by the government that in the second quarter of 2020, economic growth will be minus 3.8%.

Due to the inability to compete in the market, a large number of banks have caused bank performance to become worse, and competition is getting tougher. So many banks are actually unhealthy, not even financially healthy. The soundness of a bank can be seen from its financial performance, especially the bank's profitability.

By analyzing and calculating financial ratios, the level of profitability can be seen and measured through financial reports. This ratio is very important to obtain information related to the company's financial status and results.

Profitability is influenced by several factors, one of which is the Bank's Capital Adequacy Ratio (CAR) in maintaining sufficient capital and the ability of bank managers to identify, measure, monitor, and control possible risks that can affect bank performance in creating profits and maintaining the amount of capital it owns. Banks that are able to manage capital effectively and efficiently are profitable banks or companies that have good profitability.

The high and low value of the Non Performing Loan (NPL) has an effect on profitability. This ratio describes the customer's ability to pay off all obligations or part of the bill to the bank as promised. A low NPM value indicates a bank's good ability to manage customers in fulfilling their obligations so as to generate profits for banks.

Operational Costs Operational Income (BOPO) measures the level of a bank's ability to operate. The main activity of the bank is to act as an intermediary that collects and distributes public funds. Then the costs and operating income of the bank are controlled by interest costs and interest yields. Any increase in operating costs will result in a decrease in profits, thereby reducing bank profits. If BOPO is not controlled properly, it will be difficult for the company to make a profit, which will have a negative impact on banks.

Table 1. The phenomenon of CAR, NPL, and OEOI Research on ROA for the 2016–2018 Period (in Percentage)

Company Name	Year	CAR	NPL	BOPO	ROA
PT. Bank Central Asia, Tbk	2016	21,9	1,3	60,4	4,0
	2017	23,1	1,5	58,6	3,9
	2018	23,4	1,4	58,2	4,0
PT. Bank Mega, Tbk	2016	26,21	3,44	81,81	2,36
	2017	24,11	2,01	81,28	2,24
	2018	22,79	1,60	77,78	2,47
PT. Bank Negara Indonesia, Tbk	2016	19,4	3,0	73,6	2,7
	2017	18,5	2,3	71,0	2,7
	2018	18,5	1,9	70,1	2,8

Source: Bank Published Financial Reports (Annual Report)

The sample Capital Adequacy Ratio (CAR) from table 1.1 shows that the CAR of Bank BCA from 2016 to 2017 has increased by 1.2%, but Return on Assets (ROA) has decreased by 0.1% from 2016 to 2017. From these data it can be concluded that, the data above shows the theory is inversely proportional to the data. Where ROA should have increased when CAR has increased.

Non Performing Loans (NPL) from Bank Mega decreased by 1.43% from 2016 to 2017, while Bank Mega's ROA from 2016 to 2017 also decreased by 0.12%. From these data it can be concluded that, the data above shows the theory is inversely proportional to the data, namely if the NPL has decreased, the ROA will increase.

At Bank BNI, it can be seen that the Operational Cost of Operating Income (BOPO) from 2016 to 2017 has decreased by 2.6% and ROA from 2016 to 2017 has not changed. From these data it can be concluded that, the data above shows the theory is inversely proportional to the data, that is, if the OEOI decreases, the ROA will decrease.

Based on the above background, the researcher is interested in taking the title "The Effect of Capital Adequacy Ratio (CAR), Non Performing Loans (NPL), and Operational Operating Income (BOPO) on Profitability in Banks Listed on the Indonesia Stock Exchange 2016-2018 Period".

2. Literature Review

Effect of Capital Adequacy Ratio (CAR) on Profitability (ROA)

According to Mudrajad Kuncoro and Suhardjono (2011: 519), CAR shows the bank's ability to maintain sufficient capital and the ability of bank management to identify, measure, monitor, and control risks that can affect the amount of capital in a bank.

According to Kasmir (2014: 46), CAR is the ratio between the ratio of capital to risk-weighted assets and according to government regulations.

According to Irham Fahmi (2015,153), Capital Adequacy Ratio is the ratio of bank performance to measure the adequacy of bank capital against supporting assets that contain or pose risks (such as credit risk).

H1: Capital Adequacy Ratio (CAR) affects Return on Assets (ROA)

Effect of Non Performing Loans (NPL) on Profitability (ROA)

According to Kasmir (2013: 155), NPL is credit in which there are obstacles caused by 2 elements, namely from the banking sector in analyzing and from customers who deliberately or unintentionally do not make payments in their obligations.

According to Herman Darmawi (2011: 16), non-performing loans are caused by the non-smooth payment of loan principal and interest which can directly reduce bank performance and cause banks to be inefficient.

According to Fahmi (2014: 101), NPL is a form of the inability of a company, institution, institution or individual to complete its obligations in a timely manner both at maturity and after maturity and it is all in accordance with applicable rules and agreements.

H2: Non performing loans (NPL) have an effect on Return on Assets (ROA).

The Effect of Operating Costs Operating Income (BOPO) on Profitability (ROA)

According to Veitzhal (2013: 131), BOPO is the efficiency and level of the bank's ability to carry out its operational activities.

According to Irfan Fahmi (2012: 49), Banks can increase the ratio of operating costs to income by reducing costs which will increase profits in the future.

According to Frianto Pandia (2012: 72), BOPO is used to measure the ability of bank management to control operating costs on operating income. The smaller the ratio, the more effective the operational costs incurred by the bank concerned, which makes the bank less likely to be in a problematic situation. Operational costs are calculated based on the total amount of interest costs and the total amount of other operating costs.

H3: Operating Expenses Operating Income (BOPO) affects Return on Assets (ROA).

3. Methodology

The research approach used is quantitative research which is prepared based on the financial statements of banks listed on the Indonesia Stock Exchange (BEI).

According to Sugiyono (2013: 13) Quantitative research methods are used to examine certain populations or samples. The sampling technique is usually done randomly. The research tool is used for quantitative / statistical data collection that aims to achieve predetermined assumptions.

The relationship used in this study is a causal relationship. According to Sugiyono (2017: 37) Casual relationships are relationships that are causal in nature, which consists of independent variables (variables that affect) and dependent (variables that are affected).

The research conducted is deductive in nature, according to Sugiyono (2017: 8) where to answer the problem formulation a concept or theory is used so that a hypothesis can be formulated. The hypothesis is then tested through data collection. The collected data were then analyzed quantitatively by using descriptive statistics.

Population and Sample

According to Sugiyono (2010: 117) population is a generalization area consisting of objects / subjects that have certain qualities and characteristics that are determined by researchers to be studied and then draw conclusions. The population used in this study were all banking companies listed on the Indonesia Stock Exchange (BEI) from 2016–2018. The total population in this study was 44 companies.

The sampling technique in this study is based on purposive sampling. According to Sugiyono (2017: 85), purposive sampling is a sampling technique with certain considerations. The considerations in selecting samples in the study are as follows:

1. Banking companies listed on the IDX in 2016 - 2018.
2. Banking companies that made a profit during 2016 - 2018.

Table 2. Sample Selection Table

No.	Information	Total
1.	A banking company listed on the Exchange Indonesian Securities for the period 2016 - 2018	44
2.	Banking company on the Indonesia Stock Exchange who suffered losses for the 2016 - 2018 period	(11)
	The number of companies that were the research samples	33
	Observation Year	3
	Total sample during the study period	99

The total number of observations used in this study was 99 taken from a sample of 33 companies multiplied by the 3 years of the study period.

Data Collection Techniques

The data collection method in this research is carried out by studying documentation, which is a collection technique by recording, collecting, and studying company data related to the problem being examined, sourced from financial reports and documents related to banking companies published by the official website of the Indonesia Stock Exchange (IDX) from 2016 - 2018.

Types and Sources of Research Data

The type of data used in this study is secondary data. According to Sunyoto (2013: 21), secondary data is data that comes from records in the company and from other sources, namely by conducting literature studies by studying books that are related to the object of research. Secondary data is obtained from the official website of the Indonesia Stock Exchange, namely www.idx.co.id in the form of financial statements of banking companies.

Identification and Operational Definition of Research Variables

Operational definitions are descriptions of the variables that have been selected. The variables used in this study consisted of 3 independent variables, namely the Capital Adequacy Ratio (X1), Non Performing Loans (X2), and Operating Expenses Operating Income (X3) while the dependent variable used was Return on Assets (Y). For more details, the identification and operational definition of each variable can be seen in the table below:

Table 3. Operational Definition and Variable Measurement

Variabel	Definition	Indicator	Scale
Capital Adequacy Ratio (X1)	Capital Adequacy Ratio (CAR) is the ratio between the ratio of capital to risk-weighted assets and according to government regulations. Source: Cashmere (2014: 46)	Weighted Sssets According to Risk Source: Kasmir (2014:46)	Ratio
Non Performing Loan (X2)	Non-Performing Loans (NPLs) are loans in which there are obstacles caused by 2 elements, namely from the bank in analyzing and from the customer who intentionally or unintentionally does not make payments Source: Cashmere (2013: 155)	Source: Kasmir (2013:155)	Ratio

Variabel	Definition	Indicator	Scale
Operational Expenses Opinion (X3)	Operating Expenses Operating Income (BOPO) is a ratio which is often called the efficiency ratio, which is used to measure the ability of bank management to control Operating Costs and Operating Income. Source: Frianto Pandia (2012: 72)	Source: Frianto Pandia (2012:72)	Ratio
Return on Assets (Y)	Return On Asset (ROA) is the ratio of net profit before tax to assess how much the rate of return of assets owned by the company. Source: Frianto Pandia (2012: 71)	Source: Frianto Pandia (2012:71)	Ratio

Classic Assumption Test

Classic assumption testing is needed to determine whether the regression estimation results carried out are truly free of heteroscedasticity symptoms, multicollinearity symptoms, and autocorrelation symptoms. The regression model can be used as an unbiased estimation tool if it meets the requirements of BLUE (best linear unbiased estimator), namely data is normally distributed, does not occur multicollinearity, does not occur heteroscedasticity, and does not occur autocorrelation.

Research Data Analysis Model

Hypothesis testing in this study is to test whether the independent variable has a partial or simultaneous effect on the dependent variable using the F test and T test, while the regression model used is multiple regression analysis with the formula:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$$

Information:

Y = Return On Assets (ROA)

A = Constant

X1 = Capital Adequacy Ratio (CAR) X2 = Non Performing Loan (NPL)

X3 = Operational Expenses Operating Income (BOPO) b1 - b4 = Regression Coefficient

E = Standard Error

4. Results and Discussion

Descriptive Statistics

Descriptive statistics function to see an overview or description of data from the mean, standard deviation, variation, maximum, minimum, number, range, kurtosis and skewness (distribution abnormalities). The following are descriptive statistics of the data obtained:

Table 4. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CAR	99	10,52	66,43	23,0385	7,67981
NPL	99	,01	6,37	1,7377	1,25395
BOPO	99	58,20	101,01	83,4037	10,26206
ROA	99	,09	12,40	1,9416	1,88993
Valid N (listwise)	99				

Table 4 shows the results of descriptive statistics with the following details:

1. CAR (Capital Adequacy Ratio) has a total sample size of 99, with a minimum value of 10.52; maximum value 66.43; the average value (mean) is 23.0385 and the standard deviation (standard deviation) is 7.67981. It can be concluded that the data are quite varied and scattered.
2. NPL (Non Performing Loan) has a total sample size of 99, with a minimum value of 0.01; maximum value of 6.37; the average value (mean) 1.7377 and the standard deviation (standard deviation) of 1.253. It can be concluded that the data are quite varied and scattered.
3. BOPO (Operating Expenses Operating Income) has a total sample of 99, with a minimum value of 58.20; the maximum value is 101.01; the average value (mean) is 83.4037 and the standard deviation (standard deviation) is 10.26206. It can be concluded that the data are quite varied and scattered.
4. ROA (Return On Assets) has a total sample size of 99, with a minimum value of 0.09; maximum value 12.40; the average (mean) value is 1.9416 and the standard deviation (standard deviation) is 1.88993. It can be concluded that the data are quite varied and scattered.

Normality Test

This study uses non-parametric statistics Kolmogorov Smirnov Test so that the guidelines for data decision making approach or constitute normal distribution provided that if the value is significant > 0.05 then the distribution is normal. The results of the Normality Test are as follows:

Table 5. One-Sample Kolmogorov-Smirnov Test (Before transformation)

	Unstandardized Residual	
N	99	
Normal Parameters ^{a,b}	Mean	0E-7
	Std. Deviation	1,30049756
Most Extreme Differences	Absolute	,275
	Positive	,275
	Negative	-,157
Kolmogorov-Smirnov Z	2,736	
Asymp. Sig. (2-tailed)	,000	

a. Test distribution is Normal.

b. Calculated from data.

From table 5 the Kolmogorov - Smirnov test above shows that the variables CAR, NPL, BOPO, and ROA have Asymp. Sig. (2-tailed) $0.000 < 0.05$ so that the results of the data are not normally distributed.

Table 6. One-Sample Kolmogorov-Smirnov Test (after Transformation)

		Unstandardized Residual
N		99
Normal Parameters ^a ,	Mean	0E-7
	Std. Deviation	,43372264
Most Extreme Differences	Absolute	,105
	Positive	,066
	Negative	-,105
Kolmogorov-Smirnov Z		1,047
Asymp. Sig. (2-tailed)		,223

a. Test distribution is Normal.

b. Calculated from data.

From table 5 the Kolmogorov - Smirnov test above shows that the variables CAR, NPL, BOPO, and ROA have Asymp. Sig. (2-tailed) $0.223 > 0.05$ so that the model has a residual that is normally distributed.

This study also uses Histogram analysis and Normality Probability plots. The display of the two charts is as follows:

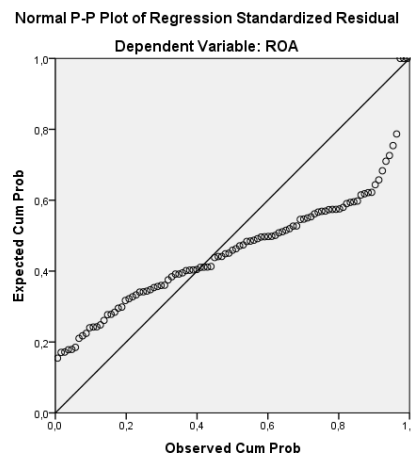


Figure 1. Graph of Normality Probability Plot (before transformation)

The results of the normality probability plot test in Figure 1 show that the dotted pattern does not spread and does not follow the pattern in the direction of the diagonal line of the graph. Thus, this result cannot meet the requirements because the data is not normally distributed.

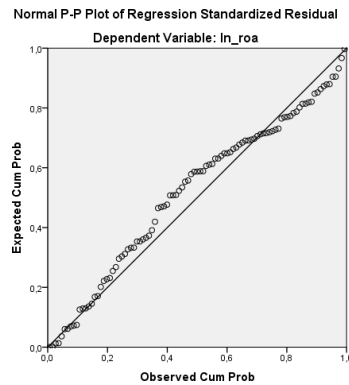


Figure 2. Normality Probability Plot Graph (after transformation)

The results of the normality probability plot test in Figure 2 show that the dots spread out and follow the pattern in the direction of the diagonal line of the graph. Thus, the data results are normally distributed.

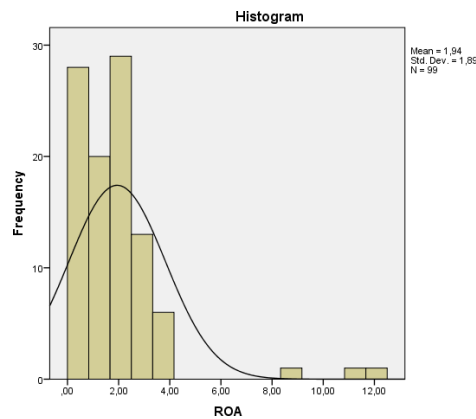


Figure 3. Histogram (before transformation)

The histogram test results in Figure 3 show that the curve is not bell-shaped and the direction of the histogram is sloping to the left, which means that the data is not distributed close to normal for each variable.

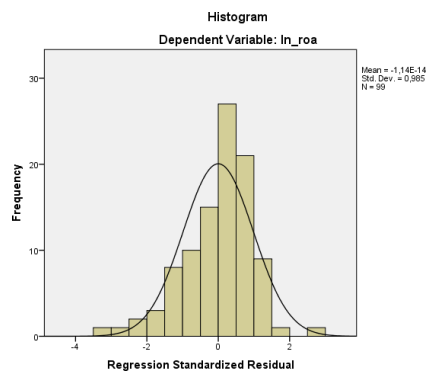


Figure 4. Histogram (after transformation)

The histogram test results in Figure 4, show a bell-shaped curve and the direction of the histogram is not tilted to the left, which means the data is normally distributed.

Multicollinearity Test

To determine whether there is multicollinearity in the regression model, it can be seen from the tolerance value and the variance inflation factor (VIF) value. Therefore, a low tolerance value equals a high VIF value because $VIF = 1 / \text{tolerance}$ and indicates high collinearity. The results of the multicollinearity test in this study are as follows:

Table 7. Coefficients^a (before transformation)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
	(Constant)	11,742	1,226				9,575
1 CAR	,026	,018	,107	1,493	,139	,965	1,036
NPL	-,144	,116	-,096	-1,236	,219	,835	1,198
BOPO	-,122	,014	-,661	-8,642	,000	,851	1,175

a. Dependen Variable: ROA

Table 7 shows that the tolerance value for all independent variables, namely CAR, NPL, and BOPO is above 0.1 and the VIF value obtained for the independent variables CAR, NPL, and BOPO is less than 10. So it can be concluded that in this study it is not multicollinearity occurs.

Table 8. Coefficients^a (After transformation)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
	(Constant)	24,530	1,761				13,929
1 ln_car	,180	,167	,058	1,079	,283	,905	1,104
ln_npl	-,067	,045	-,083	-1,509	,135	,848	1,180
ln_bopo	-5,606	,368	-,824	-15,232	,000	,888	1,127

a. Dependen Variable: ln_roa

From table 8, it shows that the tolerance value for all independent variables, namely CAR, NPL, and BOPO is above 0.1 and the VIF value obtained for the independent variables CAR, NPL, and BOPO is less than 10. So it can be concluded that in this study it is not multicollinearity occurs.

Autocorrelation Test

The autocorrelation test is a statistical analysis used to determine whether there is a correlation between variables in the prediction model and changes in time. Following are the results of the Autocorrelation test with the Durbin - Watson test (DW - test):

Table 9. Model Summaryb (before transformation)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,726 ^a	,526	,512	1,32087	1,713

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

b. Dependen Variable: ROA

From table 9, it shows that the Durbin-watson value obtained from the data processing is 1.713, with $K = 3$ and the number of samples 99, the value of $dl = 1.6108$ and the value of $du = 1.7355$. $1.7355 > 1.713 < 4 - 1.7355$, namely $1.7355 > 1.713 < 2.2645$ so that it can be concluded that there is autocorrelation in this study.

The autocorrelation test with the Durbin - Watson test produces data with autocorrelation symptoms so that the run - test test is presented as follows:

Table 10. Test Runs (before transformation)

	Unstandardized Residual
Test Value ^a	-,13640
Cases < Test Value	49
Cases >= Test Value	50
Total Cases	99
Number of Runs	34
Z	-3,333
Asymp. Sig. (2-tailed)	,001

a. Median

From table 10 above shows the asymp sig. at the output runs test of $0.001 < 0.05$, then the data contains autocorrelation.

Table 11. Model Summaryb (After transformation)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,868 ^a	,754	,746	,44052	1,581

a. Predictors: (Constant), ln_bopo, ln_car, ln_npl

b. Dependen Variable: ln_roa

From table 11, it shows that the Durbin-watson value obtained from the results of data processing is 1.581, with $K = 3$ and the number of samples of 99, the value of $dl = 1.6108$ and the value of $du = 1.7355$. $1.7355 > 1.581 < 4 - 1.7355$, namely $1.7355 > 1.581 < 2.2645$ so it can be concluded that there is no autocorrelation in this study.

The autocorrelation test with the Durbin - Watson test produces data with autocorrelation symptoms so that the run - test test is presented as follows:

Table 12. Test Runs (after Transformation)

	Unstandardized Residual
Test Value ^a	,09706
Cases < Test Value	49
Cases >= Test Value	50
Total Cases	99
Number of Runs	50
Z	-,100
Asymp. Sig. (2-tailed)	,920

a. Median

From table 12 above shows the asymp sig. the output runs the test of $0.920 > 0.05$, the data does not contain autocorrelation.

Heteroscedasticity Test

The heteroscedasticity test was carried out to determine the variance inequality from the residuals of one observation to another in the regression model. The results of the heteroscedasticity test are as follows:

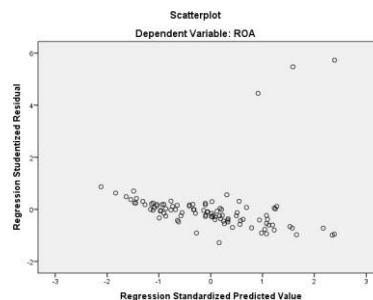


Figure 5. Scatterplot graph (before transformation)

From Figure 5, it shows that this heteroscedasticity test has a problem. Judging from the clear pattern and the points on the scatterplot graph do not randomly spread above or below zero on the Y axis.

Heteroscedasticity testing with this scatterplot graph shows a heteroscedasticity problem so the following are the results of the Park test:

Table 13. Coefficients (before transformation)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1,809	2,307		,784	,435
1 CAR	,095	,033	,269	2,848	,005
NPL	-,064	,219	-,030	-,291	,772
BOPO	-,076	,027	-,286	-2,848	,005

a. Dependent Variable: PARK

From table 13, it shows that the significant value of BOPO and CAR is $0.005 < 0.05$ and the significant value and NPL is $0.772 > 0.05$. It can be seen that the BOPO and CAR variables have heteroscedasticity problems while the NPL variables do not experience heteroscedasticity problems.

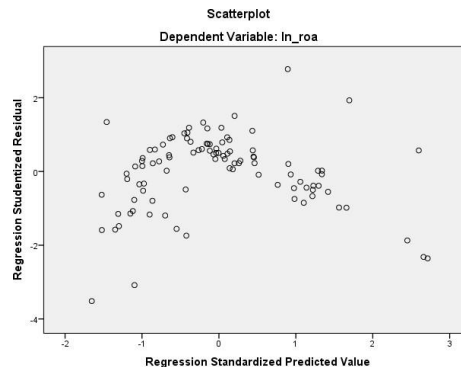


Figure 6. Scatterplot graph (after transformation)

From Figure 6, it shows that this heteroscedasticity test does not have a problem. Judging from the unclear pattern and the points on the scatterplot graph randomly spread above or below the zero on the Y axis.

Table 14. Correlations (Spearman test after transformation)

		ln_car	ln_npl	ln_bopo	Unstandardized Residual	
Spearman's rho	ln_car	Correlation Coefficient	1,000	-,270**	-,219*	-,048
		Sig. (2-tailed)	.	,007	,030	,636
		N	99	99	99	99
	ln_npl	Correlation Coefficient	-,270**	1,000	,416**	-,028
		Sig. (2-tailed)	,007	.	,000	,786
		N	99	99	99	99
	ln_bopo	Correlation Coefficient	-,219*	,416**	1,000	-,091
		Sig. (2-tailed)	,030	,000	.	,369
		N	99	99	99	99
	Unstandardized Residual	Correlation Coefficient	-,048	-,028	-,091	1,000
		Sig. (2-tailed)	,636	,786	,369	.
		N	99	99	99	99

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

From table 14, it shows that the significant value of CAR is 0.636; NPL 0.786; and BOPO 0.369 > 0.05. It can be seen that the variables CAR, NPL and BOPO do not experience heteroscedasticity problems.

Multiple Linear Regression Analysis

Multiple linear regression analysis functions to find the effect of two or more independent variables (independent variable or X) on the dependent variable (dependent variable or Y). The following are the results of the Multiple Regression Analysis of this study:

Table 15. Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	24,530	1,761		13,929	,000
1 ln_car	,180	,167	,058	1,079	,283
ln_npl	-,067	,045	-,083	-1,509	,135
ln_bopo	-5,606	,368	-,824	-15,232	,000

a. Dependen Variable: ln_roa

Based on Table 15 it can be formulated as follows: $\ln \text{ roa} = 24.530 + 0.180 \ln \text{ car} - 0.067 \ln \text{ npl} - 5.606 \ln \text{ bopo}$

1. A value of 24,530 units states that CAR, NPL, OEOI, and ROA are considered constant or zero so that ROA will increase by 24,530.
2. The CAR coefficient value of 0.180 indicates a positive relationship. An increase in CAR every one unit can increase ROA by 0.180, assuming other variables remain.
3. The NPL coefficient value of 0.067 indicates a negative relationship. An increase in NPL every one unit can reduce ROA by 0.067, assuming the other variables are constant.
4. The BOPO coefficient value of 5.606 indicates a negative relationship. An increase in BOPO every one unit can reduce ROA by 5.606, assuming the other variables are fixed.

Coefficient of Determination (R²)

The coefficient of determination can be used to predict and see the magnitude of the influence of the independent variable (X) on the dependent variable (Y). The results of the coefficient of determination in this study are:

Table 16. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,868 ^a	,754	,746	,44052

a. Predictors: (Constant), ln_bopo, ln_car, ln_npl

Based on Table 16, the value of the coefficient of determination is 0.746 or 74.6% which affects ROA and the remaining 25.4% is influenced by other variables such as NPM, NIM and DER.

Simultaneous Hypothesis Test (Test Statistic F)

The F test is used to prove whether the independent variables (CAR, NPL, and BOPO) together affect the dependent variable ROA. The results of the F test in this study are as follows:

Table 17. Results of the F Statistical Test ANOVAa

Model	Sum of Squares	df	Mean Square	F	Sig .
1 Regression	56,360	3	18,787	96,811	,000 ^b
Residual	18,435	95	,194		
Total	74,795	98			

a. Dependen Variable: ln_roa

b. Predictors: (Constant), ln_bopo, ln_car, ln_npl

Based on Table 17, the F count is 96.811 and the F table is 2.70. Then the value is $96.811 > 2.70$. A significant value of $0.000 < 0.05$, then CAR, NPL, BOPO simultaneously have a significant effect on ROA in banking companies on the Indonesia Stock Exchange 2016 - 2018.

Partial Hypothesis Testing (t test)

The T test aims to determine the effect of each independent variable on the dependent variable partially so that it is obtained as follows:

Table 18. Partial Hypothesis Testing Coefficientsa

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig .
	B	Std. Error	Beta		
(Constant)	24,530	1,761		13,929	,000
1 ln_car	,180	,167	,058	1,079	,283
ln_npl	-,067	,045	-,083	-1,509	,135
ln_bopo	-5,606	,368	-,824	-15,232	,000

a. Dependen Variable: ln_roa

Based on Table 18, the results of partial statistical testing are as follows:

1. Capital Adequacy Ratio (CAR) with a T count of $1.079 < T$ table value of 1.98525 and a significance value of $0.283 > 0.05$ so that the Capital Adequacy Ratio (CAR) has no and insignificant effect on Return on Assets (ROA) in banking companies listed on the Indonesia Stock Exchange (IDX) for the period 2016 - 2018.
2. Non Performing Loan (NPL) with T count $-1.509 > T$ table value - 1.98525 and a significance value of $0.135 > 0.05$ so that Non Performing Loans (NPL) have no and insignificant effect on Return on Assets (ROA) in banking companies listed on the Indonesia Stock Exchange (IDX) for the period 2016 - 2018.

3. Operational Expenses Operating Income (BOPO) with a value of T count - 15.232 < T table value of -1.98525 and a significance value of 0.000 < 0.05 so that the Operating Expenses Operating Income (BOPO) has a negative and significant effect on Return on Assets (ROA) in banking companies listed on the Indonesia Stock Exchange (IDX) for the period 2016 - 2018

Effect of Capital Adequacy Ratio (CAR) on Profitability (ROA)

The results of partial hypothesis testing show that the Capital Adequacy Ratio (CAR) has no and insignificant effect on Return on Assets (ROA) in banking companies listed on the Indonesia Stock Exchange (BEI) for the period 2016-2018. This is in line with research conducted by Slamet Fajari and Sunarto (2017) show that there is no influence between CAR and ROA. However, it contradicts the results of research conducted by Kunto Wibisono (2013) which states that CAR has a significant positive effect on ROA.

Effect of Non Performing Loans (NPL) on Profitability (ROA)

The results of partial hypothesis testing show that Non Performing Loans (NPL) have no and insignificant effect on Return on Assets (ROA) in banking companies listed on the Indonesia Stock Exchange (BEI) for the period 2016-2018. This is in line with the research conducted by Arief Prih Wicaksono (2013) states that NPL has no effect on ROA. The results of this study contradict the research of Wildan Farhat Pinasti and RR. Indah Mustikawati (2018) which shows that Non Performing Loans (NPL) have a significant positive effect on Return On Assets (ROA).

Effect of Operational Expenses Operating Income (BOPO) on Profitability (ROA)

The partial results of hypothesis testing show that Operating Expenses Operating Income (BOPO) has a negative and significant effect on Return on Assets (ROA) in banking companies listed on the Indonesia Stock Exchange (IDX) for the period 2016-2018. This is in line with research conducted by Hani Maulida Khoirunnisa, Rodhiyah, Saryadi (2016) showed a negative influence. However, contrary to the research conducted by Muhammad Yusuf (2017), it shows positive results on the effect of BOPO on ROA.

The Effect of Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), and Operating Costs Operating Income (BOPO) on Return on Assets (ROA)

The results of simultaneous testing (Test-F), F count is 96.811 and F table is 2.70. Then the value is $96.811 > 2.70$. A significant value of 0,000 < 0.05, the Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), and Operating Expenses Operating Income (BOPO) simultaneously have a significant effect on Return on Assets (ROA) in banking companies on the Indonesia Stock Exchange 2016 - 2018. It can be seen from the value of the Determination Coefficient of 0.746 or 74.6% which affects ROA and the remaining 25.4% is influenced by other variables such as NPM, NIM and DER.

5. Conclusion

Capital Adequacy Ratio (CAR) has no and insignificant effect on Return on Assets (ROA) in banking companies listed on the IDX for the period 2016 - 2018.

Non Performing Loans (NPL) have no and insignificant effect on Return on Assets (ROA) in banking companies listed on the IDX for the 2016 - 2018 period.

Operating Expenses Operating Income (BOPO) has a negative and significant effect on Return on Assets (ROA) in banking companies listed on the IDX for the period 2016 - 2018.

Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), and Operating Expenses Operating Income (BOPO) simultaneously have a significant effect on Return on Assets (ROA) in banking companies on the Indonesia Stock Exchange 2016 - 2018.

For investors, as a consideration in making decisions to increase profitability by taking into account factors related to capital, bad credit, and expenses incurred by the company.

For further researchers, as a reference material to know more about other factors that influence profitability apart from CAR, NPL, and OEOI, other variables can also be used such as loan to deposit ratio, debt to equity ratio, and third party funds that might affect the results. research into a more diverse range of sectors with longer and more recent observation periods.

For Banking companies must pay attention to profitability and optimize lending and maintain capital for the continuity of company operations in order to generate the desired profit so that profitability can increase in the coming years and attract potential investors.

For Creditors must be careful in making credit decisions. Creditors should pay more attention to factors related to capital, bad credit, and expenses incurred by the company.

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