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# THE INFLUENCE OF LDR, NPL, AND BOPO ON ROA IN BUMN BANKING PERIOD 2015-2023

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## ABSTRACT

A company initially focuses on achieving large and fast profits, without regard for future consequences. The success of a company can be measured by its ability to win competition and create profits for its owners. The higher the ROA of a bank, the greater the bank's ability to generate profits. This research aims to determine and analyze the influence of LDR (Loan to Deposit Ratio), NPL (Non Performing Loan), and BOPO (Operating Costs and Operating Income) on ROA in state-owned banking in Indonesia. Research was conducted on state-owned banking for the 2015-2023 period. The data used in this research comes from secondary data in the form of panel data (pooled data). The data in this study is a combination of time series and cross section data obtained from the annual reports of state-owned banking in Indonesia during the period 2015 to 2023. The data collection technique in this research is documentation or archive techniques from the Annual Report documents of state-owned banks in Indonesia.Sample This research consisted of 69 samples with 4 state-owned banks. The results of the research show that LDR has a negative and insignificant effect, NPL has a positive and significant effect and BOPO has a negative and significant effect on ROA.

**Keywords :** Loan to Deposit Ratio, Non-Performing Loans, and Operational Costs Operational Income, Return On Assets.

## 1. INTRODUCTION

Banking plays an important role in the Indonesian economy. Having a big role for the economy banking has two functions, namely economic function and financial function (Setiana, 2018). Called the economic function economic function because it has a function as an intermediary between economic units with excess funds (surplus) and economic units with a shortage of funds (deficit). economic unit that lacks funds (deficit). Banks collect funds from the public in the form of deposits which are then channeled back to the community in the form of providing credit. In addition, banks also provide services in the form of banking services. Meanwhile, it is said to be a financial function because BI provides an opportunity opportunity to get a return for those who have funds (Setiana, 2018). So that with this opportunity can improve the economy. Banking is a go public company listed on the Indonesia Stock Exchange with the aim of increasing the prosperity of shareholders and maximizing the profitability of shareholders. Indonesia Stock Exchange with the aim of increasing the prosperity of shareholders and maximizing company value (Pertiwi, 2023).

The better the performance of a company, the higher investor confidence to invest capital in the company. in the company. Firm value describes the assessment of the evaluation of the public or investors on the company's excellence or achievement in the future (Pertiwi, 2023). the excellence or achievement of the company in the future (Pertiwi, 2023). Company value describes investors' perceptions of the company's success rate, which is often associated with the stock price (Hery, 2017). (Hery, 2017). So it can be concluded that financial performance shows good performance, the shares of the company will be in demand by investors. shares of the company will be in demand by investors. The more investors buy the company's shares then the share price will increase and can also increase the value of the company.

Analysis of the company's financial statements is basically a calculation of ratios to assess the company's financial performance. company's financial performance. Basically, financial statements are the result of an accounting process that can be used as a tool to communicate about the company's financial data. as a tool to communicate about the company's financial data. Financial ratios show the company's financial performance financial performance of the company and provides an overview of the conditions seen from the company's ability to generate profits and be able to pay long-term debt. generate profits and be able to pay short-term debt with the resources owned by the company.

In this study, financial performance is evaluated through the analysis of liquidity, credit, and profitability ratios in state-owned banks such as BRI, BNI, Bank Mandiri, and BTN. LDR describes the ratio of the amount of loans provided by banks to their customers to the funds raised from the public. BOPO (Operating Expenses to Operating Income) is a ratio that in its operation describes the effectiveness of banking. NPL can also be interpreted as an indicator used to measure the bank's ability to cover the risk of non-payment of a loan by the borrower. ROA as an indicator of financial performance measurement is the value of a company's ability to run, manage and allocate its resources.

Loan to Deposit Ratio (LDR) is a traditional measurement that shows time deposits, demand deposits, savings, and others used in fulfilling customer loan requests. The higher the LDR, the higher the company's profit (assuming the bank is able to distribute credit effectively, so the number of bad loans will be small) (Andreani, 2016). Previous research conducted by Heliani et al (2023) showed that LDR has a negative and significant effect on ROA. Furthermore, research that has been conducted by Putra (2021) shows results where LDR has no effect on ROA. Finally, research conducted by Widyastuti (2021) shows that LDR has no effect on ROA.

Companies are required to be able to manage and use capital (assets) effectively to obtain maximum profit which is the output of the company. An efficient company is a company that can use capital (assets) effectively to obtain maximum results. One of the tools used to assess the efficient use of capital from a company is the amount of profitability that is labeled by the company which can be measured by BOPO (Operating Expenses to Operating Income) (Musyawirah, 2019). Previous research conducted by Heliani et al (2023) showed that BOPO has a positive and significant effect on ROA. Furthermore, research that has been conducted by Putra (2021) shows results where BOPO has a negative effect on ROA.

Non Performing Loan (NPL) is a ratio that compares total non-performing loans to total loans disbursed in percentage form. NPL can be used as an indicator of credit risk, where the lower the level of the NPL ratio, the lower the level of non-performing loans that occur, which means that the better the condition of the bank and vice versa, if the higher the level of the NPL ratio, the greater the credit risk borne by the bank. Previous research conducted by Heliani et al (2023) showed that NPL has no effect on ROA. Research conducted by Widyastuti (2021) shows the results of NPL has a significant negative effect on ROA.

A decrease in Return on Assets (ROA) indicates that the company has decreased effectiveness in managing its assets to achieve profit. The higher the ROA, the greater the net profit generated from each unit of funds invested in total assets. Conversely, a decrease in ROA indicates that the net profit generated from each unit of funds invested in total assets is getting lower (Hery, 2014). A good standard for ROA, according to this study, is 5.98%.

This research is different from previous research. The reason for re-examining is because there are still inconsistent results from several previous studies. The variables used in this study are Return on Assets (ROA) as the dependent variable and Loan to Deposit Ratio (LDR), Non Performing Loan (NPL), BOPO (Operating Expenses to Operating Income) as independent variables. This study uses the latest year from 2018-2023 by examining BUMN banking.

# 2. LITERATURE REVIEW

## 2.1 Stakeholder Theory

The term stakeholder was first proposed by the Stanford Research Institute (SRI) in 1963 (Freeman, 1984). Freeman said stakeholder theory is a theory that describes to which parties the company is responsible. The company in carrying out all operational activities must be responsible to various parties, such as directors, employees, society. Stakeholder theory proposes that the activities of a company not only provide benefits for the company itself, but also for various parties that have related interests (Ghozali, 2007). Therefore, the business continuity of a company is highly dependent on the support of these stakeholders. Stakeholder theory aims to help company owners strengthen their relationships with various stakeholders, reduce potential losses that may occur, and increase the overall value of the company.

## 2.2 Financial Performance

Performance is an important thing that must be achieved by the company, because it is a description of the condition of a company, so that it can be known about the good and bad state of a company that reflects work performance in a certain period. This is very important so that resources are used optimally in the face of environmental changes (Satria, 2017).

Husnan (2013), evaluation of the company's financial condition can be done by analyzing the company's financial ratios as an indicator of financial performance. In addition, according to the Indonesian Institute of Accountants (2007), financial performance is the company's ability to manage and control its resources. In evaluating the financial performance of a company, there are various approaches and techniques available, which are selected based on the company's objectives and needs.

## 2.3 Return On Assets (ROA)

Return On Assets (ROA) is an indicator that measures the efficiency of a bank's management in generating overall profits. In assessing the health of banks, Bank Indonesia (BI) uses a maximum score of 100 as a reference for assessing the health category of banks, where banks are considered healthy if their ROA is more than 1.5% (Hasibuan, 2006). The higher the ROA value of a bank, the greater the level of profit achieved by the bank, indicating better financial performance due to a higher rate of return. ROA is calculated by dividing profit before tax by total average assets. Profit before tax refers to the profit earned in a period before taxation. Total average assets is the total amount of assets owned by the bank during the period.

## 2.4 Loan to Deposit Ratio (LDR)

Loan to Deposit Ratio or LDR is the ratio between the total amount of credit provided by the bank and the funds received by the bank.(Agustiningrum, 2016).

Loan to Deposit Ratio (LDR) is a measure that shows the extent to which a bank is able to repay funds withdrawn by its depositors using loans as a source of liquidity. This ratio is used as an indicator to assess the vulnerability and capability of a bank. The lower this ratio, the lower the liquidity capability of the bank. The condition occurs because the greater the amount of funds needed to finance the loans granted.

Loan to Deposit Ratio shows the ratio between the volume of loans compared to the volume of deposits owned by the bank. This means that the level of liquidity is getting smaller and vice versa because the sources of funds (deposits) owned have been used up to finance the financing of the credit portfolio. The higher this ratio, the lower the liquidity ability of the bank concerned so that the possibility of a bank in problematic conditions will be greater (Muljono, 1999).

## 2.5 Non Performing Loan (NPL)

Non Performing Loan (NPL) is a financial ratio related to credit risk. According to Hasibuan (2007), credit risk faced by banks is one of the various business risks of banks, which occurs due to uncertainty in the return of credit or the inability of the debtor to repay the credit that has been given by the bank.

Bank Indonesia limits NPLs to a maximum of 5% at present. The higher the NPL level, the greater the indication that the bank is inefficient in its credit management, which results in the accumulation of non-performing loans which in turn can cause losses for the bank (Agustiningrum, 2012).

Based on the opinions of the experts above, the author can conclude that NPL can be interpreted as Non-Performing Loans or Non-Performing Credit. NPL refers to credit or loans that have a risk of being uncollectible or unable to pay interest or principal on time. NPL is one of the important indicators in the banking industry to measure the quality of a bank's assets or credit portfolio. The higher the NPL level, the worse the quality of its credit portfolio. This could be a signal of problems in credit risk management, liquidity problems, or even broader economic problems that affect the debtor's ability to repay their loans.

## 2.6 BOPO

Operational efficiency is measured by comparing total operating costs with total operating income, known as BOPO. The ratio of Operating Costs to Operating Income, or BOPO, is often used as an efficiency indicator that shows the ability of bank management to control negative operating costs against operating income (Dendawijaya, 2013). The operating cost ratio is a measure used to assess the level of efficiency and ability of a bank to carry out its operational activities.

BOPO has a negative effect on bank performance as proxied by ROA. This shows that the greater the comparison of total operating costs with operating income will result in a decrease in return on assets (Mawardi, 2005).

Based on the opinions of the experts above, the author can conclude that BOPO is one of the ratios used in the banking or financial industry to measure the operational efficiency of a bank or financial institution. BOPO provides an overview of how efficient a bank is in managing its operational costs relative to the operational income generated. The lower the BOPO, the more efficient the bank is in managing its operational costs compared to the income earned.

# 3. RESEARCH METHODS

## 3.1 Types of Research

Quantitative research is an approach in scientific research that produces data that can be measured numerically to answer research questions (Basuki 2019). A research approach that collects and analyzes data in the form of numbers or numerical data to answer research questions. Quantitative research aims to measure phenomena measurably and explain the relationship between the variables studied. The goal is to test hypotheses, make generalizations, and identify patterns or trends in the data.

## 3.2 Population and Sample

### 3.2.1 Population

Population is a collection that includes objects or subjects that have certain relevant characteristics that are then selected by researchers to be investigated and analyzed to obtain conclusions (Basuki, 2019). Population is a complete unit of analysis for objects to be evaluated. The population in this study is state-owned banking in Indonesia.

### 3.2.2 Sample

The research sample is a small part of the population selected to be the object of observation in the study (Basuki, 2019). The use of samples allows researchers to collect data efficiently and practically, and to make broader conclusions about the population in general based on the results of the sample analysis that has been carried out. The entire population in this study was used as the subject of the study. The sample in this study was 4 state-owned banks in Indonesia during the research period from 2015 to 2023.

## 3.3 Data Analysis Methods

There are several methods that can be used to analyze data. Data analysis aims to obtain relevant information contained in the data and use it to solve a problem (Sugiyono, 2015:224). The data analysis carried out in this study is quantitative analysis, namely data analysis expressed in numbers. And in carrying out calculations using statistical methods assisted by the Stata data processing program.

This study uses descriptive and quantitative analysis using panel data regression to describe the effect of LDR, NPL, BOPO on financial performance in state-owned banking. Panel data regression analysis is carried out through several stages, namely starting from selecting an estimation model, testing classical assumptions, and testing hypotheses (Basuki & Prawoto, 2019).

## 3.4 Selection of Static Panel Data Models

The method of estimating a regression model using panel data can be done with three approaches (Basuki & Prawoto, 2019), namely as follows:

a. Common Effect Model (CEM)

Before conducting regression, this method basically requires combining cross-section and time series data (Basuki & Prawoto, 2019). This is the simplest method because it is constant. Because it is consistent, this is the easiest method. This model does not take into account individual or time dimensions, so it is assumed that the behavior of company data is the same over different time periods. This method can use the least squares technique or the Ordinary Least Square (OLS) method to estimate the panel data model.

b. Fixed Effect Model (FEM)

The FEM method appears if the individual effect and the explanatory variable have a correlation with Xit or have a non-random pattern (Basuki & Prawoto, 2019). This regression method assumes that each person has a character, so that the intercept can be distinguished. This method allows the use of dummy variables to distinguish intercepts, also known as Least Square Dummy Variables (LSDV).

c. Random Effect Model (REM)

The REM method will estimate panel data where disturbance variables may be correlated over time or between individuals (Basuki & Prawoto, 2019). In this method, the model can cause problems, one of which is the reduction in the value of the degrees of freedom which results in a reduction in parameter efficiency, so that a random effect model emerges which aims to overcome the problems caused by the fixed effect model.

Before processing panel data, several tests need to be carried out to determine the most appropriate model between Pooled Least Square (PLS), Fixed Effect Model (FEM), or Random Effect Model (REM). To choose the most appropriate model to use in processing panel data, there are three models that can be used, namely as follows (Basuki & Prawoto, 2019):

a. Chow Test

This test is used to select one of the models in panel data regression, by adding dummy variables so that it can be seen that the intercepts are different and can be tested with the Chow test (F statistical test) by looking at the Residual Sum of Squares (RSS) (Basuki & Prawoto, 2019).

b. Hausman Test

This test is used to select a random effect model with a fixed effect model. This test works by testing whether there is a relationship between the error in the model (composite error) and one or more explanatory variables (independent) in the model (Basuki & Prawoto, 2019).

c. Lagrange Multiplier Test

This test is used to compare or select the best model between the fixed effect model and the fixed coefficient model. This test is based on the Chi Squares distribution with degrees of freedom (df) equal to the number of independent variables (Basuki & Prawoto, 2019).

## 3.5 Regression Model Analysis Panel Data Regression

Regression analysis is a type of statistics that determines the magnitude of the strength and direction of the relationship between variables, both dependent and independent, in a study. Several combined techniques are in panel data regression, including time series data and cross sections. In time series, one or more research variables will be observed in the same observation unit with a certain time period. While cross section is an observation of several observation units carried out in one time period. Panel data regression analysis is a tool used for regression analysis in which the data will be collected with individuals (cross section) with a time limit (time series). The results that will be produced from the regression analysis are the regression coefficients of each independent variable, which are obtained by predicting the value of the dependent variable through an equation, namely as follows:

$$Y_{it} = \alpha_i + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 X3_{it} + e_{it}$$

where.

Y : Financial Performance (ROA)

α : constant

β1,2,3 : regression coefficient of independent variables

eit : Error term

i : Cross Section Data of 4 state-owned banking companies in Indonesia

t : Time Series Data 2015-2023

## 3.6 Classical Assumption Testing

Classical Assumption Testing is a statistical requirement that must be carried out in ordinary least square-based panel data regression analysis. To determine the accuracy of the model, it is necessary to test several classical assumptions, namely, normality test, multicollinearity test, heteroscedasticity test and autocorrelation test (Basuki, 2019).

# 4. RESULTS AND DISCUSSION

## a. Descriptive Statistics.

**Table 4.2**
**Descriptive Statistics Test Table.**

| | LDR | NPL | BOPO | ROA |
|---|---|---|---|---|
| Mean | 89.77 | 1.01 | 74.97 | 2.42 |
| Median | 0.13 | 0.89 | 72.49 | 2.60 |
| Maximum | 1.01 | 2.96 | 98.12 | 4.19 |
| Minimum | 77.61 | 0.26 | 51.88 | 0.13 |
| Std. Dev. | 7.79 | 0.56 | 10.16 | 1.09 |

Source: Stata 17 Output

Based on table 4.2 descriptive statistics, it can be concluded:

1. The independent variable LDR displays an average value of 89.77 with a standard deviation of 7.79. In the LDR variable there is also the highest value (maximum) of 113.500 in BUMN banking in 2015-2023 and the lowest value (minimum) of 77.61 in Indonesian BUMN Banking in 2015-2023.
2. The independent variable NPL presents an average value of 1.01 with a standard deviation of 0.56. In the NPL variable, there is the highest (maximum) value of 2.96 in Indonesian BUMN Banking in 2015-2023 and the lowest (minimum) value of 0.26 in Indonesian BUMN Banking in 2015-2023.
3. The independent variable BOPO displays an average value (mean) of 74.97 with a standard deviation of 10.16. The BOPO variable shows the highest value (maximum) of 98.12 in Indonesian BUMN Banking in 2015-2023 and the smallest value (minimum) of 51.88 in Indonesian BUMN Banking in 2015-2023.
4. The dependent variable ROA in table 4.2 shows an average value of 2.42 with a standard deviation value of 1.09. The ROA variable displays the highest value (maximum) of 4.19 in Indonesian BUMN Banking in 2015-2023, while the lowest value (minimum) is 0.13 in Indonesian BUMN Banking in 2015-2023.

**Table 4.3**
**Panel Data Regression Model Selection Test**

| Variabel | ce | fe | re |
|---|---|---|---|
| | P-Value | | |
| LDR | 0.358 | 0.034** | 0.351 |
| NPL | 0.078 | 0.502 | 0.068 |
| BOPO | 0.000*** | 0.000*** | 0.000*** |

Source: Stata 17 Output

Description: Observation Period: 2015-2023
***significant at 1% level
**significant at 5% level
*significant at 10% level

Table 4.3 shows that the best model chosen is the Fixed Effect Model. This is because the value of the LDR variable is significant in the Fixed Effect Model.

**b. Classical Assumption Test**

**1. Multicollinearity Test**

**Table 4.4**
**Results of Correlation Magnitude between Variables**
**Coefficient Correlations**

| | LDR | NPL | BOPO |
|---|---|---|---|
| LDR | 1.0000 | | |
| NPL | 0.8312 | 1.0000 | |
| BOPO | 0.5562 | 0.7296 | 1.0000 |

Dependent Variabel: ROA
Source: Stata 17 Output

**2. Heteroscedasticity Test**

**Table 4.5**
**Heteroscedasticity Test Results**

| | | |
|---|---|---|
| chi2(1) | 1.10 | |
| | Prob>chi2 | 0.8938 |

Source: Stata 17 Output

Based on the results shown in table 4.5, it appears that p>0.05 is worth 0.8938. If the significance value of all independent variables is p>0.05, then the model can be said to be free from symptoms of heteroscedasticity in the spurious variant.

**c. Fixed Effect Model Panel Data Regression Results**

**Tabel 4.6**
**Hasil Regresi Fixed Effect Model**

| R-*square* = 0.8671 | | Prob > F = 0.0000 | | |
|---|---|---|---|---|
| **Variabel** | **Coef.** | **Standar Error** | **t** | **Sig** |
| LDR | 0.0234758 | 0.0105395 | 2.23 | 0.034 |
| NPL | 0.1190179 | 0.1750522 | 0.68 | 0.502 |
| BOPO | -0.0918896 | 0.0068259 | -13.46 | 0.000 |
| _cons | 7.084006 | 1.082345 | 6.55 | 0.000 |

Source: Stata 17 Output

So that in the Y equation in the panel linear regression analysis using the Fixed Effect Model, a multiple linear regression model can be formulated as follows.

$$Y = 7.084006 + 0.0234758x_1 + 0.1190179x_2 - 0.0918896x_3 + e$$

Description:

| | |
|---|---|
| Y | = ROA |
| 7.084006 | = Constanta (Interceipt) |
| 0.0234758 | = Constanta LDR |
| 0.1190179 | = Constanta NPL |
| -0.0918896 | = Constanta BOPO |
| e | = Eror |

a. The constant result of 7.084006, shows that it has a positive direction, meaning that if there is a 1% increase in the constant, it will increase ROA by 7.084006. and if there is a decrease in the constant of 7.084006, it will decrease ROA by 1%.
b. The coefficient of the independent variable loan to deositot ratio as X1 of 0.0234758 shows a positive direction, which means that if there is an increase in LDR by 1%, it will increase ROA by 0.0234758%. And if there is a decrease in LDR by 0.0234758%, it will decrease ROA by 1%.
c. The coefficient of the independent variable non-performing loan as X2 of 0.1190179 shows a positive direction, indicating that if there is an increase in NPL of 1%, it will reduce ROA by 0.1190179%. And if there is an increase in NPL by 0.1190179%, it will reduce ROA by 1%.
d. The coefficient of the independent variable Operating Expenses to Operating Income (BOPO) as X3 of -0.0918896 shows a negative direction, this indicates that if there is a decrease in BOPO by 1 percent, it will increase ROA by -0.0918896%. And if there is an increase in BOPO by -0.0918896%, it will decrease ROA by 1%.

**Hypothesis Test Results**

**Table 4.7**
**Results of t test**

| Variable | Sig ( < 0.05%) | T | Keterangan | Hasil |
|---|---|---|---|---|
| LDR | 0.034 | 2.23 | Significant Positive Effect | Accepted |
| NPL | 0.502 | 0.68 | No Effect | Rejected |
| BOPO | 0.000 | -13.46 | Negatively Affected Significant | Accepted |

Source: Stata 17 Output

Based on the partial test results that have been carried out and explained previously, there are two answers where this partial test is known as follows.

- Testing H1: There is a significant positive effect of Loan to Deposit Ratio (LDR) on ROA ... Based on Table 4.7 above, it can be obtained that the t count of the LDR variable is 2.23 with a significance value of 0.034 This significance value is smaller than the significance limit, which is 0.05. besides seeing that the coefficient value is positive, the hypothesis stating that the Loan to DepostiT Ratio (LDR) variable is significantly positive on Return on Assets (ROA) is accepted.
- Hypothesis H2: There is a negative and insignificant effect of Non Performing Loan (NPL) on ROA. Based on Table 4.7 above, it can be obtained that the t count of the LDR variable is 2.23 with a significance value of 0.034 This significance value is smaller than the significance limit, which is 0.05. besides seeing the coefficient value is positive, the hypothesis stating that the Loan to DepostiT Ratio (LDR) variable is significantly positive on Return on Assets (ROA) is accepted.
- Hypothesis H3: There is a significant negative effect of Operating Expenses on Operating Income (BOPO) on ROA. Based on Table 4.7, it can be obtained that the t count of the BOPO variable is -13.46 with a significance value of 0.000. This significant value is smaller than the significance limit, which is 0.05. In addition, seeing from the negative coefficient value, the hypothesis H3 which states that Operating Costs to Operating Income (BOPO) is significantly negative to Return on Assets (ROA) is accepted. This shows that if BOPO increases, it will cause a decrease in ROA.

**d. Model Feasibility Test Results**

**Statistical F Test Results**

Based on the multiple linear regression estimation results, it can be seen that the probability value is 0.0000. With a probability or significance value of less than 0.05 or 5%, the H0 hypothesis can be rejected. Therefore, the conclusion can be drawn that as a whole or together, the independent variables have a significant influence on the dependent variable and the regression model is feasible/fit.

**e. Test Results of the Coefficient of Determination (R2)**

Based on Table 4.6, the coefficient of determination (R2) is 0.8671. This figure indicates that about 86.71% of the variability in the dependent variable is explained by the independent variables in the model. This shows that the regression model has a good fit with the data, while the remaining 13.29% is explained by other variables outside the study.

## 4.2 Discussion

### *4.2.1 The Effect of Loan to Deposit Ratio (LDR) on Return on Assets (ROA) in BUMN Banking*

The results of this study state that LDR has a positive and significant effect, thus hypothesis H1 is accepted, based on the partial test results that have been carried out that (LDR) has a significant effect on the Return On Asset (ROA) variable (Y). This means that the lower the Loan to Deposit Ratio (LDR) value, the lower the profit earned by the bank from its business activities. This is because the credit channeled by the bank makes a large contribution to the profitability of Return On Asset (ROA) obtained from loan interest given to debtors. The results of this study indicate that there is harmony with previous research conducted by Pudjowanti (2015) and in research conducted by Wityasari and Pangestuti (2014).

### *4.2.2 The Effect of Non Performing Loan (NPL) on Return on Assets (ROA) in BUMN Banking*

The results of this study state that NPL has a positive and insignificant effect, thus hypothesis H2 is rejected. NPL shows the ability of bank management to measure the risk of failure to return credit by debtors. In accordance with Appendix I SE No. 13/24 / DPNP / 2011, NPLs are non-performing loans, namely loans to non-bank third parties classified as substandard, doubtful and loss compared to total loans to non-bank third parties. Bank Indonesia stipulates through PBI number 15/2/PBI/2013 that the maximum NPL limit is 5%. In this study, the results where NPL is positive, this can happen because the average NPL value of BUMN banks for the 2015-2023 period is still within the maximum limit set by Bank Indonesia (Wijaya & Tiyas, 2019). banks can run their operations well if they have an NPL value below 5%. This makes the size of the NPL value does not have a strong influence in causing a decrease in ROA because the value of the Provision for Elimination of Earning Assets (PPAP) can still cover non-performing loans.

State-owned banks have a good image in the eyes of the Indonesian people and have a highly diversified portfolio, so that the negative impact of the NPL value can be minimized. In accordance with SE BI No. 3/30 / DPNP / 2001 that

NPL is the ratio of non-performing loans to total credit. A good NPL is an NPL that has a value below 5%. The smaller the NPL, the smaller the credit risk borne by the bank. Banks with high NPLs will increase the costs of both productive asset reserves and other costs, thus potentially leading to bank losses. This shows that NPL affects ROA.

### *4.2.3 The Effect of BOPO (Operating Expenses on Operating Income) on Return on Assets (ROA) in BUMN Banking*

The results of this study state that BOPO has a negative and significant effect, thus hypothesis H3 is accepted. Operating Expenses Operating Income (BOPO) has a negative and significant effect on ROA, indicating that when there is an increase in the BOPO ratio, it will affect the decrease in ROA. If the level of the BOPO ratio is high, it shows that the bank has not been effective in managing and using its resources and in carrying out operational activities. As a result, ROA will decrease. This can also be seen from Table 4.1 where it can be seen that from 2015 to 2023 if BOPO decreased, it was followed by an increase in ROA in the same year.

## 5. CONCLUSIONS AND SUGGESTIONS

### 5.1 Conclusion

a. LDR has a positive and significant effect on ROA in BUMN banking. Based on the partial test results that have been carried out that (LDR) has a significant effect on the Return On Asset (ROA) variable (Y). This means that the lower the Loan to Deposit Ratio (LDR) value, the lower the profit obtained by the bank from its business activities. The results of data analysis show that the significance level is below 0.05, namely 0.034, thus hypothesis H1 is accepted.

b. NPL has a positive and insignificant effect on ROA in BUMN banking. The results of data analysis show that the significance level is above 0.05, namely 0.502 and the regression coefficient value is 0.1190179, thus hypothesis H2 is accepted. In this study, the results where NPL is positive, this can happen because the average NPL value of BUMN banking for the 2015-2023 period is still within the maximum limit set by Bank Indonesia.

c. BOPO has a negative and significant effect on ROA in BUMN banking. The results of data analysis show that the significance level is below 0.05, namely 0.00 and the regression coefficient value is -0.0918896, thus hypothesis H3 is accepted. If the level of BOPO ratio is high, it indicates that the bank has not been effective in managing and using its resources and in carrying out operational activities.

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