



# Operating Cost Against Operating Income, Net Interest Margin, Capital Adequacy Ratio and Loan To Deposit Ratio on Profitability

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## ABSTRACT

Financial performance has become one of the considerations about the condition of banks. The research aims to find out the results of financial ratios effect profitability at state banks in the Indonesia Stock Exchange. The research period is taken for ten years starting from 2012 to 2021. Data collection in this research uses secondary data in the form of data collecting from the annual bank financial statement published on the Indonesia Stock Exchange and by each state-owned bank. The analytical method using multiple linear regression. The results of this research show that Operating Cost against Operating Income (BOPO), Net Interest Margin (NIM), Capital Adequacy Ratio (CAR), Loan to Deposit Ratio (LDR) partially each dependent variable have significant positive effect on profitability (ROA). Simultaneously, BOPO, NIM, CAR and LDR can also have significant positive effect on ROA.

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## INTRODUCTION

In every business, companies need a banking system to support the smooth operation of the company. The past few years, almost about six years until 2017 banking profitability continues to decline caused margin of reduction in interest on loans to the public. Generally credit distribution is still weak and high risk of bad credit couldn't payed. Causes of declining bank profitability due to weak interest margin due to the downward trend in loan interest, strict regulations from OJK and BI also banking competition in the financial services sector, such as the financial technology industry.

The phenomenon of economic development will affect the decline in profits in banking. Plus the C19 pandemic that hit the world seems to add to the economic difficulties. In addition, the level of profit from banking assets (Return On Assets/ROA) more and more pressure decreases. Credit growth target cannot be achieved. Sluggish performance experienced by four

state-owned banks throughout 2019. The ability of banks to increase profitability is difficult to climb up.

This research uses ROA to analyze the effectiveness of the company's operations to earn a profit by utilizing the assets owned by the company. ROA divided between profit before tax with the average total assets. Good company has big ROA (Rifansa & Pulungan, 2022). Bank Indonesia prioritizes the assessment of a bank's profitability as measured by assets whose funds mostly come from public deposits so that by using ROA is more representative of the bank's profitability (Pratiwi & Wiagustini, 2015). The relationship between ROA as a profitability value should be positive. High ROA generally indicates high profitability (profit) (Saputra, Arfan, & Saputra, 2018).

Based on data from the Indonesia Stock Exchange, Indonesian Banking presents the average ratio of BOPO, NIM, CAR and LDR show fluctuating results at state-owned banks in Indonesia for the period 2012 to 2021. Inconsistency of results found from previous research that has been done by (Rifansa & Pulungan, 2022), (Liniarti & Nasution, 2022), (Hutabarat, 2021), (Astutiningsih & Baskara, 2019), (Korri & Baskara, 2019), (Pandoyo, 2019), (Saputra et al., 2018), (Yatiningsih & Chabachib, 2015), (Harun, 2016) and (Vernanda & Widyarti, 2016). Therefore, further research is needed on the factors that influence ROA. This research period used is ten years. Using the purposive sampling method to draw samples with the criteria of banks listed on the Indonesia Stock Exchange and present complete data in the annual report and annual report for the period 2012 to 2021.

## RESEARCH METHOD

This type of research uses quantitative research. The research method from which the data was obtained of the numbers assessed by statistical analysis. The population used in this research is a state-owned bank (BUMN) which is registered in the Financial Services Authority Service Authority (OJK) and Bank Indonesia in the 2012 to 2021 period. The four state-owned banks State-owned enterprises (BUMN), namely PT Bank Negara Indonesia (Persero) Tbk. (BBNI), PT Bank Rakyat Indonesia (Persero) Tbk. (BBRI), PT Bank Mandiri (Persero) Tbk. (BMRI) and PT Bank Tabungan Negara (Persero) Tbk. (BBTN).

Data the analytical method that will be used in this research is the Multiple Linear Regression analysis method. To do some linear regression analysis, this method requires classical assumption testing to obtain the appropriate regression results (Ghozali, 2011). Hypothesis testing will use the individual parameter significance test tool (t statistical test) and simultaneous (F test) and also the determinant coefficient test tool (R<sup>2</sup>).

## RESULTS AND DISCUSSIONS

Descriptive statistical analysis aims to show a description of each data set including minimum, maximum, average and standard deviation values from ROA, BOPO, NIM, CAR and LDR variables.

**Table 1.** Descriptive Statistics

|                        | N         | Range     | Minimum   | Maximum   | Mean      | Std. Deviation |
|------------------------|-----------|-----------|-----------|-----------|-----------|----------------|
|                        | Statistic | Statistic | Statistic | Statistic | Statistic | Statistic      |
| BOPO (X <sub>1</sub> ) | 450       | 56.67     | 44.56     | 89.64     | 12.7540   | 14.3450        |
| NIM (X <sub>2</sub> )  | 450       | 46.23     | 3.35      | 31.71     | 7.4207    | 4.64012        |
| CAR (X <sub>3</sub> )  | 450       | 36.12     | 2.54      | 21.45     | 6.3450    | 6.96780        |
| LDR (X <sub>4</sub> )  | 450       | 41.23     | 42.12     | 75.56     | 9.2176    | 15.3210        |

|                       |     |      |      |       |         |          |           |
|-----------------------|-----|------|------|-------|---------|----------|-----------|
| ROA (Y)               | 450 | 8.15 | 2.65 | 14.65 | 15462.3 | 25977.05 | 16405.071 |
| Valid N<br>(listwise) | 450 |      |      |       |         |          |           |

Based on table 1 it can be concluded that the maximum value of the BOPO variable is greater than the other variables, so this variable doesn't have a strong influence on the variable ROA. NIM, CAR and LDR also strong influence on ROA. The maximum value of LDR is greater than the other maximum variables NIM, CAR and ROA.

**Table 2.** One-Sample Kolmogorov-Smirnov Test

|                                  |                | Unstandardized<br>Residual |
|----------------------------------|----------------|----------------------------|
| N                                |                | 450                        |
| Normal Parameters <sup>a,b</sup> | Mean           | .0000000                   |
|                                  | Std. Deviation | 1.80378130                 |
| Most Extreme Differences         | Absolute       | .065                       |
|                                  | Positive       | .065                       |
|                                  | Negative       | -.036                      |
| Test Statistic                   |                | .065                       |
| Asymp. Sig. (2-tailed)           |                | .200 <sup>c,d</sup>        |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Normality test using One-Sample-Kolmogorov-Smirnov test. To get an overview model data is normally distributed if prob. asymp.sig (2-tailed) is greater than 0.05. Based on the calculation results Kolmogorov-Smirnov 0.200 > 0.05 then it can be concluded that the data distribution has been normally distributed.

**Table 3.** Multicollinearity Test

| Variabel               | Colinearity Statistics |       |
|------------------------|------------------------|-------|
|                        | Tol.                   | VIF   |
| BOPO (X <sub>1</sub> ) | 0.774                  | 1.412 |
| NIM (X <sub>2</sub> )  | 0.824                  | 1.589 |
| CAR (X <sub>3</sub> )  | 0.761                  | 1.405 |
| LDR (X <sub>4</sub> )  | 0.727                  | 1.392 |

Table 3 can be concluded that tolerance value < 0.10 and the VIF value > 10. Prove this research doesn't experience multicollinearity.

**Table 4.** Heteroscedasticity Test Rank Spearman

|      |                 | BOPO  | NIM   | CAR  | LDR  | Unstandarized<br>Residual |
|------|-----------------|-------|-------|------|------|---------------------------|
| BOPO | Correlations    | 1.000 | .564  | .640 | .775 | .231                      |
|      | Coefficient     |       |       |      |      |                           |
|      | Sig. (2 tailed) |       |       |      |      | .775                      |
|      | N               |       |       |      |      |                           |
| NIM  | Correlations    | .564  | 1.000 | .775 | .640 | .254                      |
|      | Coefficient     |       |       |      |      |                           |
|      | Sig. (2 tailed) |       |       |      |      | .765                      |
|      | N               |       |       |      |      |                           |

|     |   |      |      |       |       |      |
|-----|---|------|------|-------|-------|------|
| CAR | <i>Correlations Coefficient Sig. (2 tailed)</i> | 450  | 450  | 450   | 450   | 450  |
|     |   | .640 | .775 | 1.000 | .675  | .252 |
|     |   |      |      |       |       | .759 |
|     |   | N    |      |       |       |      |
| LDR | <i>Correlations Coefficient Sig. (2 tailed)</i> | 450  | 450  | 450   | 450   | 450  |
|     |   | .775 | .640 | .675  | 1.000 | .232 |
|     |   |      |      |       |       | .729 |
|     |   | N    |      |       |       |      |
|     |   | 450  | 450  | 450   | 450   | 450  |

Table 4 can be concluded that sig. value of BOPO 0.775 is greater than sig. value of NIM 0,765 and is greater than sig. value of CAR also LDR, so it can be said that there is no heteroscedasticity between variables.

**Table 5. Autocorrelation Test Model Summary<sup>b</sup>**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     | Sig. F Change | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|---------------|
|       |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 |               |               |
| 1     | .740 <sup>a</sup> | .735     | .768              | 1.833252                   | .768              | 16.540   | 3   | 446 | .002          | 1.416         |

a. Predictors: (Constant), X<sub>2</sub>, X<sub>1</sub>, X<sub>3</sub>, X<sub>4</sub>  
 b. Dependent Variable: Y

In accordance table 5 shows Durbin-Watson value is 1.416 there isn't problem autocorrelation.

**Table 6. Multiple Linear Regression Test**

| Model                  | Unstandardized Coefficients |              |
|------------------------|-----------------------------|--------------|
|                        | B                           | Stand. Error |
| (Constant)             | 15.389                      | 2.566        |
| BOPO (X <sub>1</sub> ) | .570                        | .180         |
| NIM (X <sub>2</sub> )  | .376                        | .103         |
| CAR (X <sub>3</sub> )  | .275                        | .078         |
| LDR (X <sub>4</sub> )  | .245                        | .065         |

Based on table 6, results of this research regression model are:

$$Y = 15.389 + 0.570 \text{ BOPO} + 0.376 \text{ NIM} + 0.275 \text{ CAR} + 0.245 \text{ LDR} + e$$

The result of the representation of the linear equation is as follows:

1. The constant value is 15.389, meaning that if the dependent variable is equal to 0, so the average BOPO, NIM, CAR and LDR variables have a fixed value, so able to increase ROA by 15.389%.
2. The coefficient value of BOPO is 0.570. BOPO is increasing, so it will reduce the ROA by 5.70%.
3. The coefficient value of NIM is 0.376. NIM is increasing, so it will reduce the ROA by 3.76%.
4. The coefficient value of CAR is 0.275. CAR is increasing, so it will reduce the ROA by 2.75%.
5. The coefficient value of LDR is 0.245. Increasing LDR, so it will reduce the ROA by 2.45%.

**Table 7. t Test Coefficients<sup>a</sup>**

| Model |                        | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. | Collinearity Statistics |       |
|-------|------------------------|-----------------------------|------------|---------------------------|-------|------|-------------------------|-------|
|       |                        | B                           | Std. Error | Beta                      |       |      | Tolerance               | VIF   |
| 1     | (Constant)             | 15.389                      | 2.566      |                           | 4.827 | .476 |                         |       |
|       | BOPO (X <sub>1</sub> ) | .570                        | .180       | .373                      | 6.245 | .002 | 0,754                   | 1,412 |

|          |      |      |      |       |      |       |       |
|----------|------|------|------|-------|------|-------|-------|
| NIM (X2) | .376 | .103 | .255 | 4.734 | .004 | 0,824 | 1,589 |
| CAR (X3) | .275 | .078 | .347 | 3.801 | .000 | 0,761 | 1,405 |
| LDR (X4) | .245 | .065 | .252 | 2.567 | .001 | 0,727 | 1,392 |

a. Dependent Variable: Y

From t test table, so then it can be concluded the calculated t-value for BOPO is 6.245, which is greater than the t-table value of 1.652. From the calculation results the BOPO variable partially has a positive and significant effect on the ROA of State-Owned Banks in 2012 to 2021. This thing shown obtains result 6.245 and significant value 0.002. Operational costs that can be reduced efficiently will benefit the bank to obtain higher profits (Yusriani, 2018). The test results of this research support by (Liniarti & Nasution, 2022), (Liniarti, 2021) and (Bernardin, 2016).

The t-count value for NIM is 4.734 and which is greater than the t-table value of 1.652 so partially, NIM has a positive and significant effect on ROA. This thing shown obtains result 4,734 and significant value 0.004. The bigger the NIM, the better the bank's management ability to manage productive assets, and it increases or increases profit (Hutabarat, 2021). The test results of this research in line with previous research by (Rusiyati, 2018), (Saputra et al., 2018).

The t-count value for CAR is 3.801 and which is greater than the t-table value of 1.652 so partially, CAR has a positive and significant effect on ROA state-owned banks in 2012 to 2021. This thing shown obtains result 3.801 and significant value 0.000. A larger CAR is considered to be able to finance all bank operational activities and increase the amount of profitability obtained (Yusriani, 2018). The test results of this research in line with previous research by (Putri, Wiagustini, & Abundanti, 2018), (Putri et al., 2018), (Astutiningsih & Baskara, 2019), (Vernanda & Widarti, 2016).

From the calculation results, it is stated that so partially, LDR has a positive and significant effect on ROA state-owned banks in 2012 to 2021. This is shown by table 7 which results in 2.567 and a significant value of 0.001. The test results of this research support (Rifansa & Pulungan, 2022), (Korri & Baskara, 2019), (Pandoyo, 2019), (Yusriani, 2018), (Rusiyati, 2018).

**Table 8. F Test ANOVA<sup>a</sup>**

| Model |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1     | Regression | 322.124        | 4   | 127.305     | 16.540 | .002 <sup>b</sup> |
|       | Residual   | 259.256        | 446 | 23.702      |        |                   |
|       | Total      | 581.380        | 450 |             |        |                   |

a. Dependent Variable: Y

b. Predictors: (Constant), X<sub>3</sub>, X<sub>2</sub>, X<sub>1</sub>, X<sub>4</sub>

Table 8 can be concluded that the calculated F value of 16.540 is greater than the F table value of 2.41. Simultaneously, the BOPO (X<sub>1</sub>), NIM (X<sub>2</sub>), CAR (X<sub>3</sub>) and LDR (X<sub>4</sub>) variables have positive and significant effect on the ROA (Y) variable in state-owned banks (BUMN) period 2012 to 2021.

**Table 9. Coefficient of Determination Test Model Summary<sup>b</sup>**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |          |     |     | Durbin-Watson |       |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|-------|
|       |                   |          |                   |                            | R Square Change   | F Change | df1 | df2 |               |       |
| 1     | .740 <sub>a</sub> | .735     | .768              | 1.833252                   | .768              | 16.540   | 3   | 446 | .002          | 1.416 |

a. Predictors: (Constant), X<sub>3</sub>, X<sub>2</sub>, X<sub>1</sub>, X<sub>4</sub>

b. Dependent Variable: Y

Based on the table 9 Adjusted R Square value is 0.768. BOPO variables ( $X_1$ ), NIM ( $X_2$ ), CAR ( $X_3$ ) and LDR ( $X_4$ ) can explain the ROA ( $Y$ ) variable at state-owned banks in 2012 to 2021 by 76.8% while the remaining 23,2% is explained by other variables not explained in this study.

## CONCLUSION

This research has shown the results of several factors that can affect profitability. From the four variables researched among others BOPO, NIM, CAR and LDR partially proven to have a positive and significant effect on ROA. The results of the study simultaneously BOPO, NIM, CAR and LDR affect ROA by 76.8%.

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