

**THE EFFECT OF MODERATING CREDIT RISK ON THE INFLUENCE OF FIRM SIZE, LIQUIDITY, AND OPERATIONAL EFFICIENCY ON THE FINANCIAL PERFORMANCE OF REGIONAL DEVELOPMENT BANKS OF INDONESIA 2010-2020**

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**ABSTRACT**

This study examines the credit risk moderating effect on the effect of firm size, liquidity, and operational efficiency on the financial performance of Regional Development Banks (BPDs) in Indonesia from 2010 to 2020. The population was BPDs in Indonesia. The sample was taken using the purposive sampling method, provides 18 banks. Data were analyzed through the panel data regression using the Eviews 12 application and MRA (Moderate Regression Analysis) tests. The results of hypothesis testing show that firm Size and LDR positively impact ROA, while Operational Efficiency has a negative impact, and NPL cannot moderate the impact of company size on ROA but can moderate the effect of LDR and Operational Efficiency on ROA. From these findings, it reveals that the model of increasing ROA at BPD in Indonesia is a function of increasing firm size and LDR and decreasing Operational Efficiency whereas NPL can strengthen the role of LDR and weaken the role of Operational Efficiency.

**Keyword:** Financial Performance, Firm Size, Liquidity, Operational Efficiency, Credit Risk, Bpd.

**1. INTRODUCTION**

The Regional Development Bank (BPD), is a bank owned by the regional/provincial government in Indonesia. As a banking institution that acts as a financial intermediary, BPD must always commit to improving its role and performance in supporting the region, especially its economic development. However, the existence of BPD remains a consideration in moving the economy, especially in financing regional development. With the development of the regional economy, competition between banks has become increasingly tight and open. All banks, including BPD, must be able to compete in the financial services market. Therefore, every BPD needs to improve its business strategy to improve its financial performance (Saragih, 2017) because the bank's health influences public confidence in investing in banks.

Banking performance in Indonesia from year to year tends to fluctuate. Of the 26 BPDs in Indonesia, the following describes the performance of several BPDs during the research year. The following is a graph showing the performance of Bank NTT from 2010 to 2020, which show through the following financial ratios:

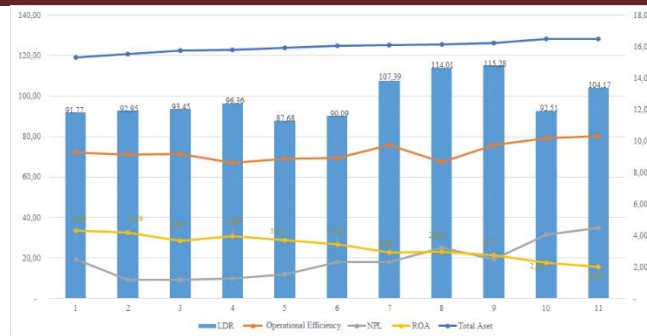


Figure 1. Bank NTT Performance in 2010-2020

Figure 1 presents the development of Bank NTT's performance in Indonesia from 2010 to 2020. The fluctuating graph of Bank NTT's Return on Assets (ROA) is getting sharper, showing a downward trend. The highest profitability occurred in 2010 when the ROA reached 4.30 %. Meanwhile, from 2011 to 2020, ROA continued to decline. The factor of company size, which is reflected in total assets, can be increased successively during the 2010-2020 period. The size of the bank reflects the level of strength and ability of the bank to solve problems. However, in reality, at Bank NTT, the increasing total assets were accompanied by an increase in NPL. Figure 2 shows the performance of Bank Papua from 2010 to 2020, which is shown through the following financial ratios:

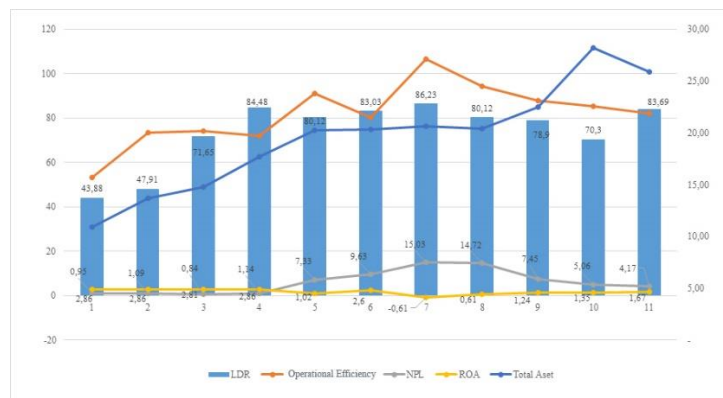


Figure 2. Performance of Bank Papua in 2010-2020

Based on the data in Figure 2 above is Bank Papua's performance for the last 11 years. From the picture, it can be seen that the total assets of Bank Papua continue to fluctuate but still show an increasing trend, even though the total assets of Bank Papua fell by 8.19% in 2020.

The LDR value in 2010-2012 increased, but this is contrary to the theory that LDR positively affects ROA. When LDR increases, ROA also increases but in fact, ROA from 2010 to 2012 decreased. In addition, Bank Papua's NPL also fluctuated. The NPL figure increases higher from 2014 to 2016 at 7.33%. This figure is the highest number that has exceeded the maximum NPL limit set by Bank Indonesia and is also the highest NPL for Bank Papua for the last 11 years. The increase in the NPL of Bank Papua in 2016 caused the banking profit to drop drastically until the bank suffered a loss (ROA value -0.61%). Supposedly with the increase in credit, banks can maximize it into profit. Given that the main activity of the bank in principle is to collect and

distribute funds, the performance of Bank Papua is not following by the theory which states that the higher the level of lending, the higher the income received from the loan in the form of interest so that the company experiences an increase in profitability (Warnayanti & Dewi, 2018).

In addition to Bank Papua, Bank Kaltimara also shows a discrepancy between theory and bank performance achievements from 2010 to 2020, which is shown through the following financial ratios:

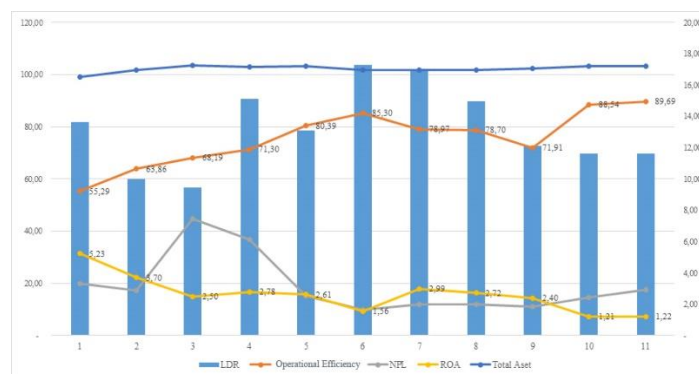


Figure 3. Performance of Bank Kaltimara in 2010-2020

Figure 3 above shows that the Bank Kaltimara's ROA decreased in 2015 compared to 2014 from 2.61% to 1.56%. On the LDR side, banks experienced an increase in 2015 compared to 2014, which was 103.54% from the previous only 78.54%. The same thing also happened in 2016 when Bank Kaltimara's LDR decreased from the previous year to 101.17%, but under these conditions, ROA in 2016 increased. It is inversely proportional to the theory, which states that the greater the amount of credit disbursed by the bank, the more interest on the loan obtained by the bank will also increase will affect the profitability obtained by the company (Kasmir, 2018). In addition, the size of the company that proxy for total assets has increased while the ROA ratio of Kaltimara bank fluctuated from 2010 to 2020 and even showed a downward trend. The development of total assets from 2010 to 2018 is not following the theory, which states that the greater the total assets, which is one of the company's size tools, the higher the ROA (Fahmi, 2013). The Bank's operational efficiency factor, as proxied by Operating Expense to Operating Income, can be shown as an increase from 2011 to 2015. Then the Operational Efficiency ratio decreased from 2016 to 2018 and rose again in 2019 and 2020. According to the theory, the ROA ratio is inversely proportional to the ROA ratio, where the more significant the Operational Efficiency is, the smaller or lower the ROA and vice versa. However, according to the data above, the Operational Efficiency level fell in 2017 and 2018, followed by a decrease in ROA in 2017 and 2018. It is contrary to the theory, which states that if the Operational Efficiency is small, the ROA will increase or improve. Some of the research results above indicate inconsistencies regarding the effect of each variable on profitability, giving rise to allegations of variables that can moderate (strengthen or weaken) the relationship between these variables. Based on this, it is necessary to re-examine by adding a moderating variable, namely credit risk, which is thought to be able to strengthen or weaken the relationship between these variables. Based on the background of the research described previously, it is necessary to conduct further research to find out and explain the effect of credit

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risk moderation on firm size, liquidity, and operational efficiency on the financial performance of BPDs throughout Indonesia from 2010 to 2020.

## **2.LITERATURE**

### **Financial performance**

Performance is an important thing that the company must achieve because it describes the good and bad conditions of a company that reflect work performance in a certain period (Lestari, 2019). In this study, profitability is proxied by ROA because ROA focuses on the company's ability to earn profits in the company's operations. Financial performance indicators can be proxied by the formula:

$$\text{ROA} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}} \times 100\%$$

Total Assets

Firm Size

Firm size is a scale to determine the size of a company that can be proxied in several ways, including total assets and total sales (Saemargani & Mustikawati, 2015). Firm size indicators can be proxied by the formula:

$$\text{Size} = \text{Ln Total Assets}$$

Liquidity

Liquidity is the ability of a company to pay off its current debt using current assets owned by the company (Utami & Putra, 2016). A bank is said to be liquid if the bank concerned can pay all its debts, especially savings deposits, current accounts, and time deposits, when billed and can also fulfill all credit applications that are eligible to be financed. Liquidity indicators can be proxied by the formula:

$$\text{LDR} = \frac{\text{Total Loans}}{\text{Total Deposits}} \times 100\%$$

Operational Efficiency

Operating expense to Operating Income, or we can say the Operational Efficiency is a measurement used to measure the bank management's ability to control the operational expenses on operating income. The smaller this ratio means the more efficient the operational costs incurred by the bank concerned so that problematic conditions are getting smaller (Harun, 2016). Operational efficiency indicators can be proxied by the formula:

$$\text{Operational Efficiency} = \frac{\text{Operating Expense}}{\text{Operating Income}} \times 100\%$$

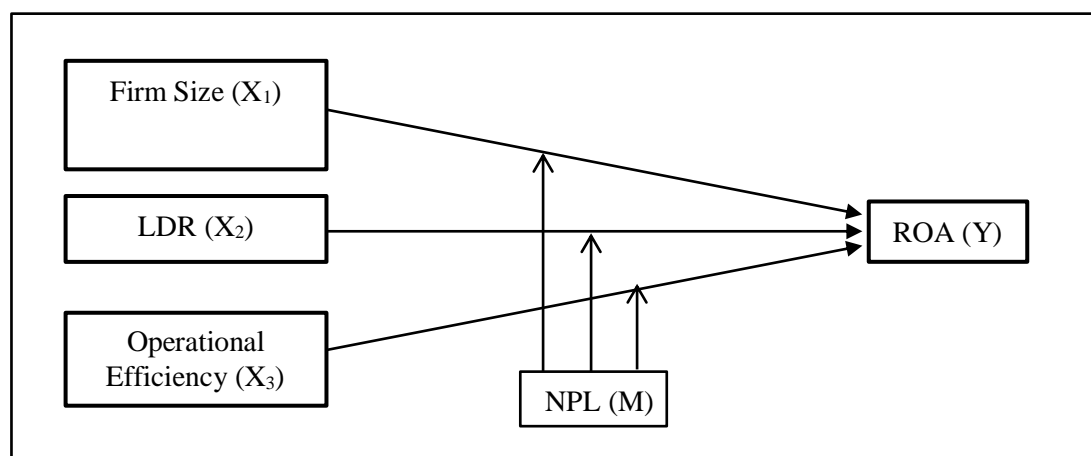
Credit Risk

Herdanto, (2006) says credit risk is the risk of loss associated with the opportunity to fail to meet obligations at maturity. Credit risk is the risk that the borrower does not pay his debts. NPL is one of the factors that reflects the health of the banking sector. Credit risk indicators can be proxied by the formula:

$$\text{NPL} = \frac{\text{Total NPL}}{\text{Total Loans}} \times 100\%$$

Conceptual Framework

Based on the discussion of the problems and research literature, the researchers formulated the conceptual framework and research hypotheses as follows:



**Figure 4.** Research Framework

#### Descriptive Hypothesis

H1: Firm Size, LDR, Operational Efficiency, and NPL have a simultaneous effect on ROA

#### Verification Hypothesis

H2: Firm Size affects ROA

H3: LDR affects ROA

H4: Operational Efficiency affects ROA

H5: NPL weakens the firm size effect on ROA

H6: NPL weakens the LDR effect on ROA

H7: NPL strengthens the Operational Efficiency effect on ROA

### 3. METHOD

The population was the BPDs in Indonesia. The sampling technique used was purposive sampling to obtain 198 observational data consisting of 18 banks with a research period of 11 years. The data was analyzed using panel data regression analysis using the Eviews 12 application and Moderated Regression Analysis (MRA). From these tests, it was obtained that the appropriate model used in this study was to use the fixed effect model.

### 4. RESULT

#### Descriptive Statistical Analysis

Based on descriptive statistical analysis (table 1) obtained the following results:

**Table 1. Descriptive Statistics**

|         | ROA   | SIZE  | LDR    | Operational Efficiency | NPL   |
|---------|-------|-------|--------|------------------------|-------|
| Mean    | 2.88  | 16.41 | 89.57  | 75.28                  | 2.52  |
| Maximum | 7.44  | 18.76 | 128.43 | 106.54                 | 15.03 |
| Minimum | -0.61 | 13.95 | 43.88  | 53.19                  | 0.13  |
| Std.Dev | 1.06  | 0.92  | 13.93  | 7.71                   | 2.28  |
| N       | 198   | 198   | 198    | 198                    | 198   |

Source: Output Eviews 12, 2022.

Table 1 shows the average ROA of BPD from 2010 to 2020 was 2.88%. The highest ROA value was 7.44, namely the ROA owned by Bank Sultra in 2011. The lowest ROA was 0.02 % which was the ROA owned by Bank Kalsel in 2020. The standard deviation value of ROA BPD during 2010 -2020 is 1.06% or less than the average value, which shows that the 2010-2022 BPD ROA data is grouped or does not vary.

It shows that the average value of BPD Company Size from 2010 to 2020 is 16.41 billion Rupiah. The largest company size's value is 18.76 trillion, namely the company size owned by Bank BJB in 2020. In comparison, the value of the smallest Company Size during the study year was 13.95 trillion, owned by Bank Sulteng in 2011. The standard deviation value of Company Size is 0.92 or less than the average value, which shows that the 2010-2022 BPD Company Size data is grouped or does not vary.

Furthermore, the average value of BPD LDR from 2010 to 2020 is 89.57%. The highest LDR value was 128.43%, namely the LDR owned by Bank Sulteng in 2013. At the same time, the lowest LDR value during the research year was 43.88%, which was owned by Papua Bank in 2010. The standard deviation value of the LDR was 13.93 or more. Smaller than the average value shows that the LDR BPD data in 2010-2022 is grouped or does not vary.

The average value of BPD Operational Efficiency from 2010 to 2020 is 75.28 %. The highest Operational Efficiency value was 106.54 %, namely the Operational Efficiency owned by Bank Papua in 2016. At the same time, the lowest Operational Efficiency value during the research year was 53.19%, owned by Bank Papua in 2010. The standard deviation value of the Operational Efficiency was 7.71 or smaller than the average value, which shows that the 2010-2022 BPD Operational Efficiency data is grouped or does not vary.

Meanwhile, the average value of BPD NPL from 2010 to 2020 is 2.25 %. The highest NPL value was 15.03 %, namely the NPL owned by Bank Papua in 2016. During the research year, the lowest NPL value was 0.13%, owned by Bank Papua in 2010. The standard deviation value of the NPL was 2.20 % or less than the average value, which shows that the 2010-2022 BPD NPL data is grouped or does not vary.

**Selection of Panel Data Regression Estimation Model**

***Fixed Effect Significance Test (Chow Test)***

The fixed effect test (Chow test) on the statistical test tool is used to choose between common and fixed effect methods. Based on the fixed effect test, the data obtained from the test results are as follows:

**Table 2. Chow Test**

| Effects Test             | Statistic  | d.f.     | Prob.  |
|--------------------------|------------|----------|--------|
| Cross-section F          | 9.872325   | (17.176) | 0.0000 |
| Cross-section Chi-square | 132.593074 | 17       | 0.0000 |

Source: Output Eviews 12, 2022.

Based on the fixed effect significance test results, the probability value (Prob.) 0.00000. It indicates that the Prob.  $< 0.05$  follows the decision that  $H_0$  is rejected or that this study uses the fixed-effect method. Furthermore, the Hausman test was carried out between the fixed effect method and the random effect method.

**Fixed Effect or Random Effect Significance Test (Hausman Test)**

Hausman Test is a basis for consideration in choosing whether to use the Fixed Effect Model or the Random Effect Model. The data obtained from the test results are as follows:

**Table 3. Hausman Test**

| Test Summary         | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob.  |
|----------------------|-------------------|--------------|--------|
| Cross-section random | 34.839651         | 4            | 0.0000 |

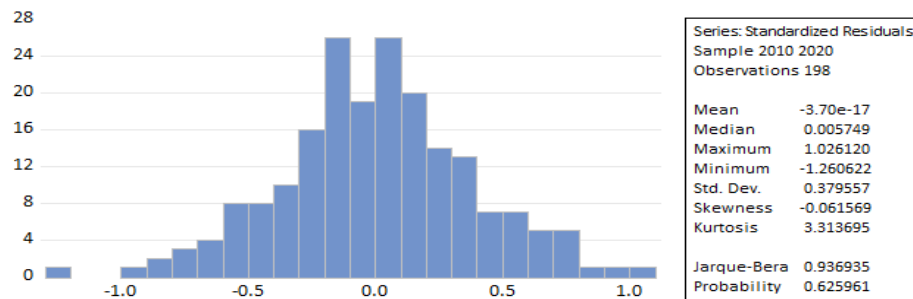
Source: Output Eviews 12, 2022.

The Hausman test result shows the probability value of a random cross-section is  $0.0247 < 0.05$ , so it follows the decision-making provisions that  $H_0$  is rejected or the suitable method used in this study is the fixed effect method.

**Classic Assumption Test****1. Normality test**

The residuals' normality test was carried out using the Jarque-Bera test. The significance level used is  $= 0,05$ . The basis for decision making is with the following conditions: If Prob.  $< 0.05$ , then the normality assumption is not met, but If the Prob.  $> 0.05$ , then the normality assumption is met.

Source: Output Eviews 12, 2022



**Figure 5.** Normality Test

Figure 5 shows that the normality test result, as seen from the probability value of JB, is 0.625961. Because of the Prob. 0.625961 is  $> 0.05$ , It means that the data is distributed normally.

**2.Multicollinearity Test**

The basis for decision making in the multicollinearity test is if there is a high enough correlation between the independent variables, which is  $> 0.9$ , which means an indication of multicollinearity. The results are shown below:

**Table 4. Multicollinearity Test with Correlation Matrix**

|                        | SIZE      | LDR       | Operational Efficiency | NPL       |
|------------------------|-----------|-----------|------------------------|-----------|
| SIZE                   | 1.000000  | -0.125967 | 0.452301               | 0.172080  |
| LDR                    | -0.125967 | 1.000000  | -0.060180              | -0.104584 |
| Operational Efficiency | 0.452301  | -0.060180 | 1.000000               | 0.459612  |
| NPL                    | 0.172080  | -0.104584 | 0.459612               | 1.000000  |

Source: Output Eviews 12, 2022.

The table of multicollinearity test results shows that there are no symptoms of multicollinearity between independent variables.

**3.Autocorrelation Test**

The test method used is the Breusch-Godfrey Serial Correlation LM Test, and the results are as follows:

**Table 5. Autocorrelation Test**

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 15.71699 | Prob. F(2,191)      | 0.9583 |
| Obs*R-squared | 27.98101 | Prob. Chi-Square(2) | 0.9544 |

Source: Output Eviews 12, 2022.

Based on the table above, the value of Prob.Chi-Square (Obs\*R-Squared) is 0.9544  $> 0.05$ , so there is no autocorrelation problem.



**4. Heteroscedasticity Test**

The Breusch-Pagan test can do detection of the presence or absence of heteroscedasticity, which is shown below.

**Table 6. Heteroscedasticity Test**

|                     |          |                     |        |
|---------------------|----------|---------------------|--------|
| F-statistic         | 4.829939 | Prob. F(4,193)      | 0.9925 |
| Obs*R-squared       | 18.01675 | Prob. Chi-Square(4) | 0.9921 |
| Scaled explained SS | 59.24877 | Prob. Chi-Square(4) | 0.9940 |

Source: Output Eviews 12, 2022.

From the table, it shows that the Prob. Obs\*R-Squared is  $0.9921 > 0.05$ , which means that there is no heteroscedasticity.

**5. Hypothesis Test**

This section contains the results of hypothesis testing, whether the hypothesis is accepted or rejected. The determination coefficient, F test, and t-test are as follows.

**Table 7. Fixed Effect Model**

| Variable               | Coefficient | Std. Error            | t-Statistic | Prob.    |
|------------------------|-------------|-----------------------|-------------|----------|
| C                      | 20.77397    | 1.179412              | 17.61383    | 0.0000   |
| SIZE                   | -0.701321   | 0.075749              | -9.258444   | 0.5551   |
| LDR                    | 0.004415    | 0.002907              | 1.518739    | 0.0375   |
| Operational Efficiency | -0.089822   | 0.005739              | -15.65134   | 0.0000   |
| NPL                    | -0.008305   | 0.018175              | -0.456956   | 0.6483   |
| R-squared              | 0.869615    | Mean dependent var    |             | 2.879436 |
| Adjusted R-squared     | 0.854057    | S.D. dependent var    |             | 1.065208 |
| S.E. of regression     | 0.406936    | Akaike info criterion |             | 1.144115 |
| Sum squared resid      | 29.14499    | Schwarz criterion     |             | 1.509478 |
| Log-likelihood         | -91.26741   | Hannan-Quinn criter.  |             | 1.292002 |
| F-statistic            | 55.89735    | Durbin-Watson stat    |             | 1.417277 |
| Prob(F-statistic)      | 0.000000    |                       |             |          |

Source: Output Eviews 12, 2022.

Table 7 above figures the panel data regression equation is obtained as follows:  
 $ROA = 20.77397 - 0.701321SIZE + 0.004415LDR - 0.089822 \text{ Operational Efficiency} - 0.008305NPL + \epsilon$

**Moderated Regression Analysis (MRA) Test**

The MRA regression analysis result is as follows:

**Table 8. NPL interaction test Moderates SIZE on ROA**

| Variable | Coefficien |            | t-Statistic | Prob.  |
|----------|------------|------------|-------------|--------|
|          | t          | Std. Error |             |        |
| C        | 17.21526   | 2.330459   | 7.387070    | 0.0000 |
| SIZE     | -0.856261  | 0.142611   | -6.004157   | 0.6521 |
| NPL      | 0.720855   | 0.434955   | 1.657312    | 0.0992 |
| M1       | -0.050416  | 0.026531   | -1.900253   | 0.0590 |

Source: Output Eviews 12, 2022

Table 8 reveals the Prob. NPL moderates SIZE on ROA (M1) from the interaction test, which is  $0,0590 > 0,05$ , so NPL cannot moderate the SIZE effect on ROA.

**Table 9. NPL interaction test Moderates LDR on ROA**

| Variable | Coefficien |            | t-Statistic | Prob.  |
|----------|------------|------------|-------------|--------|
|          | t          | Std. Error |             |        |
| C        | 3.803074   | 0.717355   | 5.301525    | 0.0000 |
| LDR      | -0.007257  | 0.008305   | -0.873824   | 0.3834 |
| NPL      | -0.160882  | 0.233591   | -0.688734   | 0.4919 |
| M2       | 0.000593   | 0.002752   | 0.215572    | 0.0296 |

Source: Output Eviews 12, 2022

Table 9 figures the Prob. From the interaction test of NPL moderating LDR on ROA (M2), which is  $0.0296 < 0.05$ , then NPL can strengthen the LDR effect on ROA.

**Table 10. NPL interaction test Moderates Operational Efficiency on ROA**

| Variable               | Coefficien |            | t-Statistic | Prob.  |
|------------------------|------------|------------|-------------|--------|
|                        | t          | Std. Error |             |        |
| C                      | 10.56062   | 0.658332   | 16.04150    | 0.0000 |
| Operational Efficiency | -0.102273  | 0.008766   | -11.66721   | 0.0000 |
| NPL                    | 0.049578   | 0.120502   | 0.411429    | 0.6813 |
| M3                     | -0.000541  | 0.001432   | -0.377779   | 0.0047 |

Source: Output Eviews 12, 2022

Table 10 above shows that the Prob. NPL's interaction test moderating LDR on ROA (M3), which is  $0.0047 < 0.05$ , can moderate the Operational Efficiency effect on ROA.

**5.DISCUSSION**

Table 7 above shows company size has a coefficient -0.701321 and Prob.  $0.5551 > 0.05$ . So it concludes that the firm size variable does not affect ROA so that the firm size does not affect the variation in the ROA value at BPD in 2010-2020. According to (Fachrudin, 2011), company size is not a guarantee that the company can generate good profits. This insignificant effect is caused by the larger firm size, the company will require higher costs to carry out its operational activities, such as labor costs, administrative and general costs, as well as building, machinery, vehicle, and equipment maintenance costs so that it will be able to reduce the profitability of the company (Putra & Badjra, 2015). These results support research from (Abeyrathna & Priyadarshana, 2019; Topak & Talu, 2017; and Almazari, 2014).

Table 7 above also shows the LDR has a coefficient 0.004415 and Prob.  $0.0375 < 0.05$ . So It concludes that the LDR variable affects ROA so that high or low LDR can change the variation in ROA values at BPDs in 2010-2020. The results of this test follow the hypothesis and theory that states that liquidity affects profitability, where the more significant the liquidity indicated by the LDR, the greater the profitability. LDR is used to measure how far the bank can pay all public funds and own capital by relying on credit distributed to the public. The greater the amount of credit disbursed by banks to the public will automatically increase the interest on loans obtained by banks because bank interest will also increase, which will affect the increase in profitability obtained by banks (Kasmir, 2018). These results support research from (Madushanka & Mathyinparasan, 2018; Ibrahim, 2017; Khidmat & Rehman, 2014 and Lestari, 2019).

Table 7 above reveals that Operational Efficiency has a coefficient -0.089822 and Prob.  $0.0000 < 0.05$ . So It concludes that the Operational Efficiency variable affects ROA so that high or low Operational Efficiency can change the variation in ROA value at BPDs in 2010-2020. If the Operational Efficiency ratio in a bank is high, it means that the costs incurred by the bank for operations are more significant than the operating income that goes to the bank. If the bank's

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operating income is small, bank profitability will decrease. It shows an opposite relationship between Operational Efficiency and the level of profitability of a bank. The results support Yameen & Pervez, (2016), Yusuf & Surjaatmadja, (2018), and Akbar & Lanjarsih, (2019), which state that Operational Efficiency negatively affects ROA.

Table 8 figures the interaction effect of NPL on SIZE on ROA shows a moderating coefficient of -0.050416 with Prob. 0.0590, which is greater than 0.05. The SIZE significance (Prob.) shows the type of moderation generated in this hypothesis in Table 8, which is 0.6521. The significance (Prob.) of the moderating variable is 0.0992, and the significant value of the interaction variable between SIZE and NPL is 0.0590. Because  $\beta_2$  and  $\beta_3$  are not significant, the type of moderation in this hypothesis is the type of potential moderation. Potential moderation is a variable that has no interaction with the dependent variable, or the SIZE variable is not a moderating variable, only an ordinary independent variable. So the result of this research is that the NPL does not moderate the SIZE effect on ROA. These results support Anggawulan & Suardikha, (2021) and Niresh & Velnampy, (2014), which state that NPL cannot moderate the firm size effect on profitability.

Table 9 explains the moderating effect of NPL on LDR on ROA shows an interaction coefficient 0.000593 and Prob. 0.0296 ( $<0.05$ ). The type of moderation generated in this hypothesis can be seen by looking at the significance (Prob.) of the LDR in Table 9, which is 0.3834. The significance (Prob.) of the moderating variable is 0.4919, and the significant value of the interaction variable between LDR and NPL is 0.0296. Because  $\beta_2$  is not significant, but  $\beta_3$  is significant, the type of moderation in this hypothesis is Pure moderation. Pure moderation means that NPL is a variable that moderates the independent variable effect on the dependent variable, where the pure moderating variable interacts with the independent variable without being an independent variable. Based on these results, It concludes that NPL can strengthen the LDR effect on ROA. The greater the credit disbursed by the bank, the greater the profit to be obtained, and the credit risk that the bank will face will also be more significant. These results support Niresh & Velnampy, (2014), which state that NPL can strengthen the LDR effect on ROA.

Table 10 reveals the moderation of NPL on the Operational Efficiency effect on ROA shows an interaction coefficient of -0.000541 with Prob. 0.0047, which is smaller than 0.05. The type of moderation generated in this hypothesis can be seen by looking at the significance (Prob.) of Operational Efficiency in Table 10, which is 0.0000. The significance (Prob.) of the moderating variable is 0.6813, and the significant value of the interaction variable between Operational Efficiency and NPL is 0.0047. Because  $\beta_2$  is not significant, and  $\beta_3$  is significant, the type of moderation in this hypothesis is pure moderation. Based on these data, It concludes that NPL can weaken the Operational Efficiency effect on ROA. Any increase in operating costs will result in reduced pre-tax profit, which will ultimately lower the bank's profit or profitability.

## **6.CONCLUSION**

The result shows that firm size and LDR positively impact ROA, while Operational Efficiency has a negative impact. NPL cannot moderate the Firm Size effect on ROA, but NPL can strengthen LDR and weaken Operational Efficiency on ROA. From these findings, it reveals that the model of increasing ROA at BPD in Indonesia is a function of increasing firm size and LDR and decreasing Operational Efficiency whereas NPL can strengthen the role of LDR and weaken the role of Operational Efficiency. The results of this verification become an academic contribution to

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strengthening the theory of the role of several variables in a ROA model that can be the basis for increasing BPD in the future. Given the influence of other factors on ROA, there is a need for other studies that analyze the variables that affect ROA other than company size, LDR, and Operational Efficiency. For BPD, it is recommended to pay attention to bank management because this impacts the soundness of the bank. Improvements in credit quality must also be more selective in lending and carry out good risk management.

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