

American Journal of Humanities and Social Sciences Research (AJHSSR)

e-ISSN: 2378-703X

Volume-4, Issue-7, pp-171-178

www.ajhssr.com

Research Paper

Open Access

THE EFFECT OF NPL, LDR AND OPERATIONAL COST OF OPERATIONAL INCOME ON ROA

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ABSTRACT: This study aims to determine the effect of Non-Performing Loans, Loan to Deposit Ratio and Operational Costs Operating Income on Banking Profitability which is proxied by Return On Assets. in 2014-2018. The total sample of 32 commercial banks went public listed on the Indonesia Stock Exchange in the 2014-2018 period taken by purposive sampling technique. The analysis technique used is multiple linear regression analysis. The results showed that the Non-Performing Loans (NPL) variable had a negative and significant effect on Return On Assets (ROA), Loan to Deposit Ratio (LDR) had a positive and significant effect on Return On Assets (ROA) and Operational Costs Operating Income had a negative and significant effect on Return On Assets (ROA).

Keywords: NPL, LDR, BOPO, ROA

I. INTRODUCTION

Economic development is one of the benchmarks of national development. As time has passed and the crisis period has passed, improvement in the economic sector remains a top priority. The economic sector is one of the important things and always gets the focus of the government in carrying out development both in the short and long term. Economic development cannot be separated from the development of various kinds of financial institutions. Financial institutions which are seen and considered as important institutions and have a role in the economic life of the community are bank financial institutions or commonly called banks.

The term bank in Indonesia is familiar. The public knows that so far the bank is a place to save or borrow money. According to Kasmir, (2016: 3) states a bank is a financial institution whose main activity is raising funds from the public and channeling the funds back to the community and providing other bank services. According to Bank Indonesia (1998) concerning banking, which defines banks as business entities that collect funds from the public in the form of deposits and distribute them to the public, in the form of credit and other forms in order to improve the lives of many people.

According to Kasmir, (2016: 9), the bank's function is divided into three, namely as an agent of trust, meaning that the bank is an institution whose business activities rely on public trust, the function of agent of development is an institution that mobilizes bank funds for economic development and the function of agent of services is as an institution that provides services or services for customers. Broadly speaking, the purpose of Indonesian banking is to support the implementation of national development in order to improve equity, economic growth and national stability towards improving people's welfare, therefore banks must carry out their duties and functions properly by increasing financial performance, human resources and operational activities. so that banks are able to continue to exist.

Predictions of a company's financial performance are generally carried out by internal parties (management) and external parties of the company that have a relationship with the company concerned, such as: investors, creditors, and the government. (Munawir, 2014: 7) states that the company requires financial accounting information, other than as a basis for planning, controlling, and making financial, operating and investment decisions also needed in order to determine incentives or bonuses, assess its performance or determine the company's profitability and profit distribution. (Munawir, 2014: 8) It also states that those who invest their capital need information about the extent of the company's activities and profitability, the potential for dividends, because with this information shareholders can make decisions such as retaining their shares, selling, or even adding to them.

The main factors commonly used by analysts in analyzing and assessing financial position are: (1) liquidity, which shows the ability of a company to meet its financial obligations that must be fulfilled immediately in the short term or at maturity, (2) solvency, namely the ability the company separately fulfills all obligations, both short-term or long-term, if the company is liquidated, and (3) profitability, which shows the company's ability to generate profits in a certain period (Munawir, 2014: 56). Banks with high profits indicate

that the bank is in a healthy condition. The soundness of a bank is an assessment of a condition of a bank's financial statements in a certain period and time in accordance with Bank Indonesia standards (Riyadi, 2015: 149).

One of PBI's policies No. 13/1 / PBI / 2011, which is in the form of regulatory or authority policies which are basically to see the health condition of banks and maintain them. This regulation contains a method that can be used in assessing the soundness of commercial banks, which is called the RGEC (Risk Profile, Good Corporate Governance, Earnings, Capital) method, where this regulation applies until now. The RGEC method can be assessed using financial ratios so as to assess the financial condition of banking companies. (1) Risk Profile is divided into two risks namely credit risk can be assessed through Non Performing Loans (NPL) and liquidity risk can be assessed through Loan to Deposit Ratio (LDR).

This study uses the profitability ratio as the most important indicator in measuring the performance of a bank. Profitability in this study is proxied by Return On Assets (ROA) which focuses on the company's ability to obtain earnings in the company's operations by utilizing its assets. According to Wild, John, KR Subramanyam, (2005) the greater the value of ROA, shows the company's performance is getting better because the greater the rate of return on investment. This value reflects the company's return of all assets (or funding) provided to the company. Conversely, if a bank has a lower ROA value, it indicates that the bank has poor performance and management conditions. According to Bank Indonesia regulations, banks with good performance will have a Return on Assets (ROA) value in the size of Indonesian banks of at least 1.5 percent.

II. LITERATURE AND DEVELOPMENT HYPOTHESIS

The NPL reflects credit risk, the higher the NPL results in losses to the bank because the funds disbursed by the bank have not returned and have the potential to reduce interest income and lower profits. Credit risk is the risk of customer failure in meeting obligations to the bank in accordance with the agreed agreement. Non-performing loans will result in losses due to not receiving back the funds that have been distributed along with interest income which results in a decrease in total income (Ismail, 2014: 222). The higher this ratio, the worse the quality of bank credit and causes a greater number of problem loans (Yudiartini & Dharmadiaksa, 2016). Based on PBI 2014 stipulates that a reasonable NPL level is $\leq 5\%$.

Research conducted by Kusmayadi (2018) explains that the results are in line with hypotheses and theories, where NPL has a negative and significant effect on ROA. Other research that is consistent with the theory is research conducted by Puspitasari et al., (2015), Dewi (2020) the results of the study indicate that NPL has a significant negative effect and if not managed carefully can reduce ROA. This opinion is also supported by Poerwanti & Dewi Kartika, (2018), Yudha et al., (2017) which explains the relationship of NPL to ROA shows a negative and significant direction. This means that if the NPL increases, the profitability (ROA) of the banking company will decrease. Based on the theories and opinions of supporting researchers, it can be formulated that NPL has a negative and significant effect on ROA.

H1: NPL Has A Significant Negative Effect On ROA.

According to (Cashmere, 2016: 224), states that the Loan to Deposit Ratio is the ratio used to measure the composition of the amount of credit given compared to the amount of public funds and own capital used. The large amount of credit extended will determine bank profits. So that the higher the LDR, the company profits will increase assuming the bank is able to distribute credit effectively, so the amount of bad loans will be small (Cashmere, 2016: 225). This theory is supported by research Septiani & Lestari, (2016) which said the higher the LDR with a balanced volume of lending would increase bank profitability because banks earn income through loan interest. The higher the LDR level by staying within the limits set by Bank Indonesia and supported by the quality of good lending by banks, the spread based obtained by banks will increase so that later it will increase profitability. According to BI Circular (2013) Number 15/15 / PBI / 2013, BI limits the LDR rate ranging from 78% to 92%. Research by Juwita et al. (2018), states that Non Performing Loans have a significant positive effect on Return On Assets. This opinion is also supported by Patni & Darma, (2017), Suardana & Astawa (2018), Rengasamy (2014), Almazari (2014), Gunes (2014) which states that LDR has a significant positive effect on ROA. Thus based on theories and supporting research it can be formulated that LDR has a positive and significant effect on ROA.

H2: LDR has a Significantly Positive Effect on ROA

Operating Cost Ratio Operational Income (BOPO) according to Wijaya Denda, (2009: 111) used to measure the level of efficiency and the ability of banks to carry out operational activities. According to Bank Indonesia Number 13/14 / DPNP of 2011 concerning the Commercial Bank Health Assessment System regulates BOPO ratios ranging from 94% to 97% which means banks will get increased profits when banks are able to reduce operational costs in managing their business. Vice versa, the lower the BOPO ratio, the bank's operational activities will be more efficient. In line with Hartini's (2016) mindset, the more efficient a bank carries out its activities, the smaller its BOPO will lead to increased profitability. Yusuf & Surjaatmadja (2018) the results of his research indicate that BOPO has a significant negative effect on ROA. Achieving a high level of

efficiency is the expectation of each bank, because with the achievement of efficiency, it means that management has managed to efficiently utilize its resources. The high ratio of BOPO shows that utilizing the resources owned or not able to run its operational activities efficiently, so that it will result in decreased profitability. The smaller the BOPO ratio shows the more efficient the bank in carrying out its business activities, so the opportunity to obtain more profits will be even higher. This research was supported by Khoirunisa et al. (2019), (Inggawati et al., 2018), Pinasti&Mustikawati, (2018), Pradina et al. (2018) which states that BOPO has a significant negative effect on ROA.

Based on theories and research that support, it can be concluded that the ratio of Operational Costs to Operating Income (BOPO) has a significant negative effect on Return on Assets (ROA).

H3: BOPO Has A Significant Negative Effect On ROA

III. RESEARCH METHODS

The location of this research was conducted at commercial banks listed on the Indonesia Stock Exchange (IDX) for the period 2014-2018. The object of this research is the profitability of banking companies listed on the Indonesia Stock Exchange in the period 2014-2018.

The analysis in this study was processed using the SPSS program. Multiple linear regression model (multiple linear regression method) is used to determine whether there is a significant effect of one dependent variable (dependent) and more than one independent variable (independent). The dependent variable in this study is the Bank's Profitability which is proxied by Return on Assets (ROA) and the independent variables Non-Performing Loans (NPL), Loan to Deposit Ratio (LDR) and BOPO. The ROA relationship model with NPL, LDR and BOPO can be arranged in a linear equation as follows (Sugiyono, 2018: 86):

$$\hat{Y} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon_i \dots\dots\dots (1)$$

Information :

- \hat{Y} = ROA
- α = Constant
- $\beta_1 \beta_2 \beta_3$ = regression coefficient
- X_1 = NPL
- X_2 = LDR
- X_3 = BOPO
- ϵ_i = error residue

IV. RESULTS AND DISCUSSION

The multiple linear regression analysis model is used to obtain a regression coefficient that will determine whether the hypothesis made will be accepted or rejected. The results of this analysis refer to the results of the influence of Non-Performing Loans, Loan to Deposit Ratio and Operational Costs Operating Income to Return On Assets at Go Public Banks that are listed on the Indonesia Stock Exchange Period 2014-2018. The results of the regression analysis with the StatiticalPacage of Social Science (SPSS) program version 21.0 for Windows.

Table 1. Summary of Multiple Linear Regression Analysis Results

Variable	Regression Coefficient		T	Sig
	B	Std. error		
<i>Non Performing Loans</i>	-478	.062	-7,656	.000
<i>Loan to Deposit Ratio</i>	.020	.008	2,451	.015
Operational Costs Operating Income	-,054	.005	-10,348	.000
(Constant): 5,722				
F Statistics	: 102,934			
Sig F	: 0,000			

Source: Data processed, 2020

Based on Table 1 can be written multiple linear regression equations as follows: $Y = 5,722 - 0,478 X_1 + 0.020 X_2 - 0.054 X_3$.

The multiple linear regression equation shows the direction of each independent variable to the dependent variable. The multiple linear regression equation can be described as follows:

$X_1 = - 0.478$, shows that Non Performing Loans have a negative effect on Return On Assets at Public Banks that are listed on the Indonesia Stock Exchange Period 2014-2018 in other words, if Non Performing Loans

have increased, Return On Assets at Public Banks Go Public listed on the Indonesia Stock Exchange in the 2014-2018 period decreased by 0.478.

$X_2 = + 0.020$, indicating that the Loan to Deposit Ratio has a positive effect on Return On Assets at Public Banks that are listed on the Indonesia Stock Exchange Period 2014-2018 in other words, if the Loan to Deposit Ratio has increased, the Return On Assets at Commercial Banks Go Public listed on the Indonesia Stock Exchange in the 2014-2018 period increased by 0.020.

$X_3 = -0.054$, shows that Operational Costs Operating Income has a negative effect on Return On Assets at Public Banks that are listed on the Indonesia Stock Exchange Period 2014-2018 in other words if Operational Costs Operational Revenues have increased the Return On Assets at Commercial Banks Going Public listed on the Indonesia Stock Exchange in the 2014-2018 period decreased by 0.054.

Table 2. Normality Test (One-Sample Kolmogorov-Smirnov)

	Unstandardized Residual
N	160
Kolmogorov-Smirnov Z	1,620
Asymp. Sig. (2-tailed)	.111

Source: Data processed, 2020

Based on the normality test using the Kolmogorov-Smirnov One-Sample Test shown in Table 4 shows that the Kolmogorov-Smirnov value is 0.111. The Kolmogorov-Smirnov value is greater than the Kolmogorov-Smirnov table value of 0.05 then H_0 is accepted which indicates that the data used in this study are normally distributed, so it can be concluded that the model meets the normality assumption.

Multicollinearity test was conducted to see whether there is a perfect correlation between the independent variables used in this study. Multicollinearity testing is done by analyzing the value of tolerance and VIF value. The tolerance value and VIF value are used to measure the variability of the independent variable or the relationship between the independent variables, if the tolerance value is less than 0.10 or the VIF value is more than 10 then it indicates the presence of multicollinearity. The tolerance values and VIF values are shown in Table 3 below:

Table 3. Multicollinearity Test (Tolerance and Variance Inflation Factor)

Variable	Collinearity Statistics	
	Tolerance	VIF
<i>Non Performing Loans</i>	0.809	1,236
<i>Loan to Deposit Ratio</i>	0.982	1,018
Operational Costs Operating Income	0.796	1,256

Source: Data processed, 2020

Based on Table 3 it is shown that there are no independent variables that have a tolerance value of less than 0.10 and also there are no independent variables that have a VIF value of more than 10. Therefore the regression model is free from multicollinearity symptoms.

Autocorrelation test aims to test whether in a linear regression model there is a correlation between the error of the intruder in the period t with the error of the intruder in the period $t-1$ (previous). Testing autocorrelation symptoms is done by the Durbin-Watson test, if $du < dw < (4 - du)$ then autocorrelation does not occur. The results of the autocorrelation test are presented in Table 7 as follows.

Table 4. Autocorrelation Test Results

Model	Durbin-Watson
1	1,901

Source: Data processed, 2020

Based on table 4, the moderating regression equation has a DW value of 1.901. The number of samples is 160 and there are 3 independent variables, so the du value is 1,779 and the $4-du$ value is 2,221. So the DW value is between the du value and the $4-du$ value, so that the multiple linear regression equation is free from autocorrelation.

Heteroscedasticity testing is done through the glacier method and with scatterplot charts. The Glesjer method regresses the regression model to get the residual value, then the residual value is absolute and regression is performed with all independent variables. If there are independent variables that have a significant effect on

absolute residuals, heteroscedasticity occurs in this regression model. Table 7 shows the results of statistical calculations with the Glesjer method.

Table 5. Heteroscedasticity Test (Glesjer Test) Coefficients (a)

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
<i>Non Performing Loans</i>	0.004	0.028	0.012	0.132	0895
Operational Costs Operating Income	-0.005	0.004	-0.116	-1.452	0.149
<i>Loan to Deposit Ratio</i>	0.002	0.002	0.075	0849	0.397

Source: Data processed, 2020

Based on Table 5, it is shown that each model has a significance value greater than 5%. This shows that the independent variables used in this study did not significantly influence the dependent variable, namely absolute error, therefore this study is free from the symptoms of heteroscedasticity.

The F test is used to determine whether simultaneously all the independent variables (Non-Performing Loans, Loan to Deposit Ratio and Operational Income Operational Costs) have an influence on the dependent variable (Return On Assets). Table 8 shows the results of the F test calculation using SPSS 21.

Table 6. Test Results F

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	548,468	3	182,823	102,934	0.000b
	Residual	277,073	156	1,776		
	Total	825,541	159			

Source: Data processed, 2020

The steps of testing the influence of the Non Performing Loan variable (X1), Loan to Deposit Ratio variable (X2) and variable Operational Costs Operating Income (X3) to Return On Assets (Y) simultaneously (F test). Based on table 9, the significance value of F is 0,000 < 0.05, then H0 rejected. This means that the Non Performing Loan variable (X1), the Loan to Deposit Ratio variable (X2), the Operational Cost of Operating Income (X3), simultaneously have a significant effect on Return On Assets (Y) at Go Public Commercial Banks listed on the Exchange The Indonesian Effect Period of 2014-2018, or the model used in research is feasible and can be used for subsequent analysis.

Partial test (t test) is used to test the effect of each independent variable on the dependent variable. Table 7 shows the results of t-test calculations using SPSS 21.

Table 7. Test Results t

Variable	Unstandardized Coefficients	Beta	t count	Sig.
<i>Non Performing Loans</i>	-0,478		-7,656	0,000
<i>Loan to Deposit Ratio</i>	0.020		2,451	0.015
Operational Costs Operating Income	-0,054		-10,348	0,000

Source: Data processed, 2020

Based on the results of the study note that the significance value of the t test of 0,000 < 0.05, then H0 is rejected, this means that Non-Performing Loans have a significant negative effect on Return On Assets on Go Public Banks listed on the Indonesia Stock Exchange Period 2014-2018. Regression coefficient X1 of -0.478, indicates that the increase in Non-Performing Loans will reduce Return On Assets at Public Banks that are listed on the Indonesia Stock Exchange for the 2014-2018 Period. So the first hypothesis in this study was accepted.

Based on the results of the study note that the significance value of the t test of 0.015 < 0.05 then H0 is rejected, this means that the Loan to Deposit Ratio variable has a significant positive effect on Return On Assets on Public Go Public Banks listed on the Indonesia Stock Exchange for the 2014-2018 Period . Regression coefficient X2 of +0,020, shows that increasing Loan to Deposit Ratio will increase Return On Assets at Public Banks that are listed on the Indonesia Stock Exchange for the 2014-2018 Period. So that the second hypothesis in this study was accepted.

Based on the results of the study note that the significance value of the t test of 0,000 < 0.05 then H0 is rejected, this means that the variable Operational Costs Operating Income has a significant negative effect on Return On

Assets on Public Go Public Banks listed on the Indonesia Stock Exchange Period 2014-2018 . The regression coefficient X3 of -0.054, indicates that the increase in Operational Costs Operating Income will reduce Return On Assets at Public Banks that are listed on the Indonesia Stock Exchange for the 2014-2018 Period. So the third hypothesis in this study was accepted.

Determination analysis is carried out to determine the extent of variations in the Non Performing Loan, Loan to Deposit Ratio and Operational Cost Operational Income variables affect the Return on Assets variable. Based on the SPSS results it can be seen the results of the determination test in Table 8 as follows:

Table 8. Dertermination Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.815a	0.664	0.658	1.33271

Source: Data processed, 2020

Based on Table 10 it can be seen that the adjr-square value (r^2) = 0.658. The analysis uses the following formula:

$$D = \text{adj} \times 100\%$$

$$D = 0.658 \times 100\%$$

$$D = 65.8\%$$

Based on these results it is known that the adjr2 value = 65.8 percent, which means that 65.8 percent of Return On Assets at Public Banks that are listed on the Indonesia Stock Exchange in the 2014-2018 Period are influenced by Non Performing Loans, Loans to Deposit Ratio and Operational Costs Operating Income, the remaining 34.2 percent is influenced by other variables not examined in this study.

V. CONCLUSION

Non Performing Loans Significant negative effect on Return On Assets on Go Public Commercial Banks listed on the Indonesia Stock Exchange in 2014-2018 Loan to Deposit Ratio has a significant positive effect on Return On Assets in Public Banks that are listed on the Indonesia Stock Exchange in the 2014-2018 period. Operational Costs Operational Income has a significant negative effect on Return On Assets at Go Public Commercial Banks listed on the Indonesia Stock Exchange for the 2014-2018 Period.

NPLs have a negative effect on bank profitability, so policy makers need to maintain that the number of NPLs does not swell or a maximum of 5% in accordance with Bank Indonesia regulations, therefore, in order to reduce the NPL value from year to year, banks must establish or have the principle of prudence to apply to problem loans. This can be done by way of any release of bank loans required to comply with technical bank rules regarding credit policies, for example loans must be protected with collateral that is adequate and meets legality and marketable requirements. Debtor candidates must be known by the bank and in good standing, according to the bank's assessment, the business being financed is prospective and profitable as well as monitoring of loans so that misuse of credit can be avoided.

It is recommended that banks be able to improve the performance of their companies, it is seen that there are a number of average ratios such as LDR that do not meet the standards set by Bank Indonesia, on average and it is expected that the bank can stabilize the LDR ratio in an ideal position and pay attention to the quality of loans that are distributed to avoid the occurrence of problem loans so that they can benefit from loans extended to banks.

BOPO is the most dominant factor influencing banking profitability, BOPO needs to be given special attention by policy makers. If BOPO increases, it means that operating costs will increase, so that in the end the bank's Return On Assets will decrease, therefore bank management needs to take steps to reduce operating costs on the one hand and increase operating income on the other hand, or in other words, policy makers need to increase efficiency significantly. pressing BOPO so that the profitability of commercial banks is getting better. This can be done by validating any costs to be incurred by the bank, whether it is necessary or not, for example determining the amount of promotional costs, and also avoiding the bank from fines imposed by Bank Indonesia. The operating income sector,

For further researchers, it is hoped that they can expand the scope of research, not only for publicly listed commercial banks listed on the Indonesia Stock Exchange in the 2014-2018 period. Besides that, it is suggested to the next researcher to use other variables that can affect Profitability or Return on Assets. Investors are advised to look more specifically at various aspects of the listed companies to be addressed. As for several factors that should be of particular concern include the role and factor of assets that are proxied by the NPL and LDR ratios and management factors which are proxied from the BOPO ratio.

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