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Effect of non-performing loan and loan to deposit ratio on return on assets

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ABSTRACT

This study aims to determine the effect of Non-Performing Loans and Loan to Deposit Ratio on Return on Assets in commercial banks listed on the Indonesia Stock Exchange for the period 2014 - 2020. The research population was 44 banks, using purposive sampling, the research sample was obtained as many as 6 public banks listed on the Indonesia Stock Exchange for the period 2014 - 2020. This research method uses multiple linear regression analysis techniques. The results showed that the variables of Non-Performing Loan and Loan to Deposit Ratio had an effect on Return on Assets. This means that the bank has optimized the existing capital to be channeled through credit so that the bank's profit is maximized.



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Introduction

The banking industry has a significant role in supporting monetary growth and developing equity. The authorities together with applicable stakeholders ought to coordinate with each other to ensure that the policy path taken is right on track (Permatasari et al., 2017). Indonesia's banking industry is seen as the best in the world so far. Many elements are the basis for this recognition. That the domestic banking industry is now remarkable. One of them excels in the *Capital Adequacy Ratio* (MISMIWATI, 2016). In addition, the banking industry plays an important role in playing an important role in economic development as a financial intermediary or intermediary between parties who are surplus and those who need funds (Wulandari & Purbawangsa, 2019). According to the Banking Law Number 10 of 1998, a bank is a business entity that collects funds from the public in the form of savings and distributes them to the public in the form of credit with the aim of improving people's living standards. Banks have commenced to follow the government's call to grow better (Khotimah et al., 2020). The best condition of the national banking industry is indicated via several indicator (Dewi, 2018). Banking performance can be measured using the average loan interest rate, the average deposit interest rate, and banking profitability. The massive number of banks creates an increasing number of fierce competition and lower financial institution performance due to the incapability to compete within the market, so that many banks are in reality unhealthy or even financially dangerous (Peling & Sedana, 2018). Whether a business enterprise or financial institution is healthy, it can be seen from the banking system, banks are required to always maintain finest performance so that the organization remains optimum and keeps the stability of the banking system in a very good circumstance primarily based at the strengths set by Bank Indonesia (Rahmi, 2014). According to (Bernardin, 2016), return on assets as part of the profitability ratio measures the level of

return on investment in assets. The return on assets is influenced by various factors, including capital adequacy ratio, non-performing loans, loan to deposit ratio, and others. Where the capital adequacy ratio is the ability to maintain sufficient capital and the ability of bank management to identify, measure, monitor, and control the risks that arise and affect the amount of capital. A Non-Performing Loan is a comparison between the amount of credit given and the collectibility level between 3 and 5, compared to the total credit provided by the bank (Hartanti, 2017), while the A Loan to Deposit Ratio (LDR) is a ratio that states how far the bank has used the depositors' money (deposits) to provide loans to its customers. In other words, the amount of money used to provide loans is money that comes from the deposits of the depositors. LDR can be used as a benchmark for banking performance as an intermediary institution, namely an institution that connects parties who have excess funds with those who need funds (Ali, 2017).

The Financial Services Authority of Indonesia Financial Services Authority noted an increase on the gross-Non Performing Loan ratio in February 2019 to 2.59 percent, on recent value 2.56 percent within the previous month. The net Non Performing Loan ratio also improved from 1.13 percent to 1.17 percent on the same period. Some analysts accept as true with this growth is due to the treatment of restructured loans. Non Performing Loan or bad loans are nonetheless a major problem for Indonesian banking sector in the previous few decades. The most common cause of high NPLs is the failure of banks to identify and make decisions about which debtors are suitable and capable of obligated loans (Fajari & Sunarto, 2017).

Other reasons include global economic uncertainty and volatile exchange rates which have also affected the Indonesian economic system. One of the possible support could comes from new creditors who're ready to take over the NPLs from a financial institution. By doing this, creditors will assist banks to enhance their balance sheets so that they can maintain to provide credit to companies which might be well managed and eligible for loans (Hariemuftri et al., 2016). The liquidity of the Indonesian banking industry is getting tighter with the Loan to Deposit Ratio indicator at 94.3%. This level is a stage that needs to be watched out for due to the fact that it's far above the safe limit set by Bank Indonesia and the Indonesia Financial Services Authority (OJK) of 92%. The tightening of liquidity was caused by better credit growth than the growth of Third-Parties Fund (Deasy Damayanti, 2018). In this observation, the object of research is the banking companies that have been listed at the Indonesia Stock Exchange. Currently, there are 44 companies in the banking industry listed but however, to maximize the result, the researcher only examined 6 most volatile banks in this observation.

Table 1. NPL and LDR Growth Affected to ROA's Conventional Banks Period Year 2014-2020

Ratio	2014	2015	2016	2017	2018	2019	2020
NPL	2.31%	2.48%	2.84%	2.63%	2.36%	2.68%	3.34%
LDR	89.44%	91.60%	90.36%	89.74%	92.64%	93.61%	82.16%
ROA	3.03%	2.64%	2.56%	2.74%	2.81%	2.41%	1.55%

Source : OJK Journal – Summary of Financial Institution Performances

Table 1 states that the LDR ratio for the 2014-2015 period has increased by 2.16 percent, while the ROA ratio for the 2014-2015 period has decreased by 0.39 percent, also it can be seen that the ROA indicator in 2014 was 3.03 percent and in 2015 it was 2.64 percent. This shows us that the condition isn't always according with the theory that stated by (Lubis et al., 2017) which stated that if the LDR increases, the ROA will also growth and so on.

Method

Quantitative research is used in this observation. This approach converts data into numbers in order to observe the effects. This examine utilises a causality study design. "Causal research is observation whose primary purpose isto prove a cause-and-effect connection or a relation that affects and is impacted by the elements investigated," said Istijanto (2005). As a result, the writer will strive to discover the variables that have an effect on how other variables change. The following is a systematic explanation of the relation between Non Performing Loan, Loan to Deposit Ratio and Return On Assets.

Hypothetical Development

H1 : Non Performing Loans and Loan to Deposit Ratio have an effect on Return On Assets

H2 : Non Performing Loan have an effect on Return On Asset

H3 : Loan to Deposit Ratio have an effect on Return On Asset.

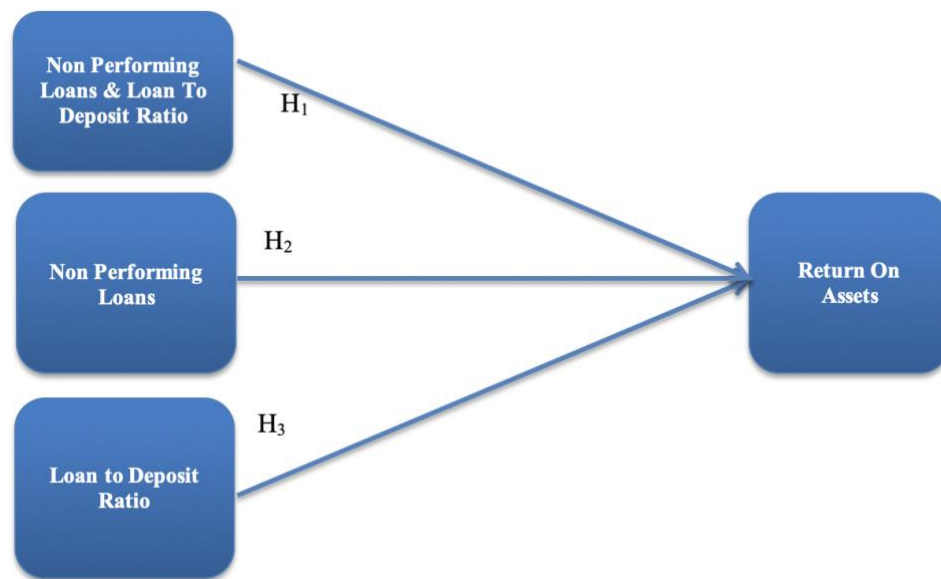


Figure 1. Conceptual Framework

Results and Discussions

Descriptive Analysis

Return On Assets (ROA)

Return on Assets take samples on general banks that have been listed on the Indonesia Stock Exchange (IDX) for the 2014-2020 period taken from 30 fluctuating samples.

Table 2. Descriptive Statistics Test Result for Return On Assets (ROA)

	N	Descriptive Statistics			
		Minimum	Maximum	Mean	Std. Deviation
ROA	30	.47	4.73	2.7530	1.14273
Valid N (listwise)	30				

Source : Data Processing Result (2020)

The results of the Descriptive Statistical Test of Return On Assets, show that the average Return On Assets (ROA) in commercial banks listed on the IDX for the 2014-2020 period, was at 2.7530. The lowest average Return On Assets was in 2015 and it was 0.47, led by PT. Bank CIMB Niaga Tbk and the highest average Return On Assets was in 2014 at 4.73 and led by PT. Bank Rakyat Indonesia (Persero) Tbk.

Non-Performing Loan (NPL)

Non-Performing Loan take samples on general banks that have been listed on the Indonesia Stock Exchange for the 2014-2020 period and taken from 30 fluctuating samples.

Table 3. Descriptive Statistics Test Result for Non Performing Loan

	N	Descriptive Statistics			
		Minimum	Maximum	Mean	Std. Deviation
NPL	30	.60	4.01	2.5223	.97245
Valid N (listwise)	30				

Source: Data Processing Result (2020)

The results of the Descriptive Statistical Test of Non-Performing Loan, show that the average Non-Performing Loan (NPL) in commercial banks listed on the IDX for the 2014-2020 period, was at 2.5223. The lowest average Non-Performing Loan was in 2014 and it was 0.6, led by PT. Bank Central Asia Tbk and the highest average Non Performing Loan (NPL) was in 2014 at 4.01 and led by PT. Bank Tabungan Negara (Persero) Tbk.

Loan to Debt Ratio (LDR)

Loan To Deposit Ratio take samples on general banks that have been listed on the Indonesia Stock Exchange for the 2014-2020 period and taken from 30 fluctuating samples.

Table 4. Descriptive Statistics Test Result for Loan to Deposit Ratio

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
LDR	30	76.80	108.86	90.7567	9.07563
Valid N (listwise)	30				

Source: Data Processing Result (2020)

The results of the Descriptive Statistical Test of Loan To Deposit Ratio, show that the average Loan To Deposit Ratio in commercial banks listed on the IDX for the 2014-2020 period, was at 90.7567. The lowest average Loan to Deposit Ratio was in 2014 and it was 76.80, led by PT. Bank Central Asia, Tbk and the highest average Loan To Deposit Ratio was in 2014 at 108.86 and led by PT. Bank Tabungan Negara (Persero) Tbk.

Normality Test

According to Ghozali (2018:161), the normality test objectives to check whether or not in the regression model the confounding or residual variables have a normal distribution. Proper statistics may be used in a study if the data is normally distributed. The normality test became completed by observing and conducting the Kolmogorov-Smirnov test, with the following test criteria: 1) Significance number (Sig) > 0.05 then the data is normally distributed; 2) Significance number (Sig) < 0.05 then the data is not normally distributed. Based on result of data processing using SPSS 20.0 software for windows, we can get this following informations :

Table 5. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		
	Unstandardized Residual	
N		30
Normal Parameters ^{a,b}	Mean	0E-7
	Std. Deviation	.51047398
Most Extreme Differences	Absolute	.115
	Positive	.115
	Negative	-.057
Kolmogorov-Smirnov Z		.628
Asymp. Sig. (2-tailed)		.825

Source: Data Processing Result (2020)

From the normality test results, we can see that the significance value of Asymp > Sig (2-tailed) is 0.825, which is greater than 0.05. So according to the basis for making decisions for the Kolmogorov-Smirnov normality test, it can be concluded that the data has a normal Distribution. For this reason, the assumptions or requirements for normality in the regression test are met.

Multicollinearity Test

In this study, the technique for detecting the presence or absence of multicollinearity in the regression model is to look at the Variance Inflation Factor (VIF) value, and also the tolerance value

Table 6. Multicollinearity Test Results

Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.	Collinearity Statistics	
		B	Std. Error				Tolerance	VIF
1	(Constant)	9.255	1.236		7.491	.000		
	NPL	-.612	.154	-.520	-3.968	.000	.430	2.327
	LDR	-.055	.017	-.434	-3.309	.003	.430	2.327

Source: Data Processing Result (2020)

The basis for decision making in multicollinearity test is by looking at the Tolerance and VIF values. Based on the table, it can be seen that the Tolerance value for the Non-Performing Loan and Loan to Deposit Ratio variables is 0.430, which is greater than 0.10. Meanwhile, the VIF value for the Non-Performing Loan and Loan to Deposit Ratio variables is 2.327, which is smaller than 10.00. So, referring to the basis of decision making in the multicollinearity test, it can be concluded that there are no symptoms of multicollinearity in the regression model.

Autocorrelation Test

The autocorrelation test aims to test whether in the linear regression model, are there any correlation between the confounding error in period t and the previous $t-1$ period. Autocorrelation arises because of other observations. In this study using the Durbin-Watson test (dW test)

Table 7. Autocorrelation Test Results

Model	Change Statistics					Durbin-Watson
	R Square Change	F Change	df1	df2	Sig. F Change	
1	.800	54.151	2	27	.000	.957

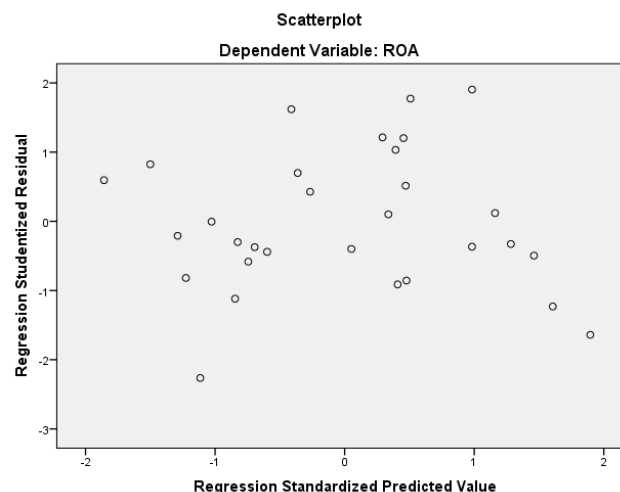
Source: Data Processing Result (2020)

From the Autocorrelation Test Results, it shows that the results carried out by the Durbin-Watson method produced a dW of 0.957. From the Durbin-Watson table with 30 samples ($n=30$), 2 independent variables ($k=2$), and alpha ($\alpha=5\%$). The results obtained are dU values of 1.5666 and dL of 1.2837. Then the 4-dU value is 2.4334 and the 4-dL value is 2.7163. According from table 6 before, the results obtained are $dW < dL$, namely $0.957 < 1.2837$, meaning that there is a positive autocorrelation.

Heteroscedasticity Test

The occurrence of heteroscedasticity symptoms using the Scatterplots test is based on the following provisions: If the residual pattern is spread and scattered, it does not form a certain pattern, then there is no homoscedasticity or the data meets the assumption of heteroscedasticity.

Figure 2. Scatterplot Graph of Heteroscedasticity Test Results



Source: Data Processing Result (2020)

From the Scatterplot Graph above, we can see that the scattered and scattered residual image does not form a certain pattern, which means that there are no symptoms of homoscedasticity, so it meets the requirements of the heteroscedasticity assumption.

Multiple Regression Analysis

From the results of the Multiple Regression Analysis, the multiple linear equations obtained are as follows :

$$Y = 9,255 + (-0,612)X_1 + (-0,055)X_2 + e$$

Interpretation of the multiple linear regression equation states that there is a Non-Performing Loan and a Loan to Deposit Ratio, so the Return On Assets is positive, which is 9.255.

Table 8. Multiple Regression Analysis Result

Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	9.255	1.236
	NPL	-.612	.154
	LDR	-.055	.017

Source : Data Processing Result (2020)

Hypothetical Test***Simultaneous Test (F-Test)***

To test the effect of the independent variable on the dependent variable simultaneously can be tested using the F-test. Simultaneous test is intended to see the effect of the independent variable Non-Performing Loan as X1 and Loan to Deposit Ratio as X2 together on the dependent variable Return On Assets.

Table 9. Simultaneous Test Results (F-Test)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.313	2	15.156	54.151	.000 ^b
	Residual	7.557	27	.280		
	Total	37.869	29			

Source : Data Processing Result (2020)

Based on the results of the Simultaneous Test (F-Test), it can be seen that the Fcount value is 54.151 > Ftable is 3.35 and the Sig. 0.000 < 0.05. If Fcount is greater than Ftable then Ha is accepted and H0 is rejected. In other words, reject the null hypothesis (H0) and accept the alternative hypothesis (Ha) for testing the two variables. So it can be concluded that the variables X1 and X2 simultaneously have a significant effect on variable Y. From the results of testing the hypothesis, it is proven that "There is an influence between Non-Performing Loans and Loan to Deposit Ratio on Return On Assets at Commercial Banks listed on the Indonesia Stock Exchange".

Partial Test (t-Test)

Comparative analysis of independent variables is known as t-test or partial test. The purpose of the t-test is to determine the differences in the hypothesized variables. To see the effect of partial independent changes can be tested using the t-test.

Table 10. Parsial Test Results (t-Test)

	Model	t	Sig.
1	(Constant)	7.491	.000
	NPL	-3.968	.000
	LDR	-3.309	.003

Source : Data Processing Result (2020)

From the results of the partial test (t-test) above, it can be explained that: Partially, the Non-Performing Loan explains that the tcount is -3.968 < ttable of 2.04841 and the value of Sig. of 0.000 < 0.05 so that H0 is accepted and Ha is rejected. So the conclusion is that partially Non-Performing Loans have an insignificant effect on Return On Assets in general banks listed on the IDX for the 2014-2020 period. This study is in line with (Ali, 2017), who showed that there was an insignificant and insignificant effect between NPL and ROA. However, the results of this study were not in line with the results of (Kunarsih et al., 2018) research, which showed that non-performing loans (NPL) had no effect on return on assets (ROA).

In other hand, partially the Loan to Deposit Ratio explains that the tcount is -3.309 < ttable of 2.04841 and the value of Sig. of 0.003 > 0.05 so that H0 is accepted and Ha is rejected. So the conclusion is that partially Loan to Deposit Ratio has an insignificant effect on Return On Assets (ROA) in general banks listed on the IDX for the 2014-2020 period. The results of this study are in line with (Khotimah et al., 2020) which shows that the Loan to Deposit Ratio (LDR) has a positive and insignificant effect on the Return on Assets (ROA). However, the results of this study are not in line with research by (Ambarawati & Abundanti, 2018), which shows that the Loan to Deposit Ratio (LDR) has a positive and significant effect on Return on Assets (ROA).

Coefficient of Determination (R2)

The coefficient of determination essentially measures how far the model's ability to explain the variation of the independent variable is. The coefficient of determination is used because it can explain the goodness of the

regression model in predicting the dependent variable, the value of the coefficient of determination lies between zero and one.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.895 ^a	.800	.786	.52904

Source: Data Processing Result (2020)

Based on Table 11, the results of the Adjusted R Square (R²) value is 0.786 or 78.6%. So it can be concluded that the relationship between the independent variables Non-Performing Loan and Loan to Deposit Ratio to Return On Assets simultaneously is 78.6%. While the remaining 0.214 or 21.4% is influenced by other variables not examined in this study.

Conclusions

Non-Performing Loans and Loan to Deposit Ratio have a significant effect simultaneously on Return On Assets in general Banking companies listed on the IDX for the 2014-2020 period, non-Performing Loans (NPL) have a positive and partially insignificant effect on Return On Assets (ROA) in general Banking companies listed on the IDX for the 2014-2020 period, loan to Deposit Ratio has a positive and partially significant effect on Return On Assets in General Banking companies listed on the Indonesia Stock Exchange for the 2014-2020 period.

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