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# Analyzing the Impact of Non-Performing Loans and Loan-to-Deposit Ratios on Return on Assets: A Study of Conventional Commercial Banks in Indonesia

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KEYWORDS	ABSTRACT
<p><b>Keywords:</b> Non-Performing Loan; Loan to Deposit Ratio; Return on Assets; NPL; LDR; ROA</p> <p><b>Conflict of Interest Statement:</b> The author(s) declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.</p> <p>Copyright © 2023 AMFR. All rights reserved.</p>	<p>The objective of this study is to examine the impact of non-performing loans (NPL) and loan-to-deposit ratios (LDR) on return on assets (ROA) within the time frame of 2015 to 2019, specifically focusing on conventional commercial banks that are publicly listed on the Indonesia Stock Exchange. The research conducted in this study is categorized as explanatory. The data utilized for analysis is quantitative and is derived from secondary sources, specifically the financial reports of conventional banks that are publicly listed on the Indonesia Stock Exchange. The present study used a data analysis technique known as multiple linear regression and partial and simultaneous tests, utilizing the statistical software SPSS version 22. The findings of the research indicate that there is a substantial negative relationship between non-performing loans (NPL) and return on assets (ROA), while the relationship between loan-to-deposit ratio (LDR) and return on assets (ROA) is negative but not statistically significant. Concurrently, the non-performing loan (NPL) and loan-to-deposit ratio (LDR) exert a substantial influence on the return on assets (ROA).</p>

## Introduction

The survival of companies is contingent upon effective management, the implementation of internal control measures, and the presence of internal audit processes. Internal audit is crucial in ensuring trust and providing advisory services that enhance the value and instill confidence inside an organization (Yulistiawan, 2016). The banking industry is a highly competitive sector that strives to acquire public economic funds effectively and efficiently. The banking industry offers a diverse range of products and services to facilitate corporate growth, streamline operations, and facilitate payment transactions within the community. As per the provisions outlined in Law No.10/1998, the primary objective of national banks is to aid and facilitate the execution of national development initiatives to foster equity, bolster economic growth, ensure national stability, and enhance the overall well-being of the populace. The primary functions of national banking encompass the collection of public funds, the facilitation of fund allocation, and the provision of banking services. The process of directing financial resources towards the community involves the provision of credit facilities. A bank is a type of financial institution with the legal authority to gather funds from the public through savings and deposits. These funds are subsequently allocated to individuals or entities in need of

working capital loans, with the goal of enhancing the overall living standards of the general population. It is worth noting that banks operate to generate profits for themselves (Wijaya & Hadiwigeno, 2013).

Banks function as financial intermediaries, facilitating transactions between individuals or entities with surplus funds and those needing funds. These financial institutions provide services by gaining the community's trust in managing their funds (Kasmir, 2018). Additionally, banks engage in other broad operations, one of which entails facilitating cash allocation through the provision of loans, also known as credit, which is well-known to the public. Before engaging in lending activities with consumers, banks must carefully assess and consider their financial circumstances. Examining financial accounts about liquidity, solvency, and profitability reveals noteworthy insights.

Corporate executives use the liquidity ratio, a financial metric, to assess a company's capacity to meet its immediate financial obligations. On the other hand, the solvency ratio is a financial indicator utilized to ascertain a company's ability to effectively handle its debt to generate profits and meet its debt obligations. The solvency financial ratio is utilized to assess the long-term capacity of a corporation to fulfill its financial obligations. The profitability ratio serves as a valuable metric for assessing the efficacy of a company's endeavors in generating profits (Fahmi, 2015).

Financial reports play a crucial role in a firm's operations, with banking being a significant component therein. Bank financial statements can serve to evaluate the level of risk present inside a bank. The financial accounts provide an opportunity to assess the actual situation of the bank, encompassing its inherent strengths and shortcomings. This report also analyzes bank management's performance within a specific accounting period. By utilizing the financial statements, several financial ratios may be computed, thereby serving as a standard for evaluating the bank's overall financial well-being. The financial ratios employed by banks exhibit similarities to those utilized by non-banking entities, with the primary distinction lying in the greater variety of financial ratios employed to evaluate a given ratio (Kasmir, 2014). Hence, the ratio can be comprehended as the outcome derived from dividing one quantity by another. According to Siegel and Shim (2015), the ratio is the correlation between two quantities. Sawir (2016) further explains that this comparison allows for a relative assessment of a company's financial status and performance. The assessment of a bank's financial state and performance can be ascertained by examining its financial position, which is influenced by economic resources, liquidity, and profitability. The data acquired can serve as a means of forecasting the bank's prospective capacity to generate cash, enabling predictions regarding the trajectory of cash flow and the bank's capability to fulfill financial obligations upon maturity (Munawir, 2012).

Banks utilize various financial ratios to assess their performance and ability to meet their obligations. These ratios include the Non-Performing Loan (NPL) ratio, Loan to Deposit Ratio (LDR), and Return on Assets (ROA). These metrics indicate a bank's capacity to fulfill its commitments to other financial institutions. The Non-Performing Loan (NPL) ratio is a metric employed by financial institutions to assess and evaluate the efficacy of bank management in handling loans that are either in default or facing difficulties in repayment, particularly those extended to consumers. According to Suciatty (2019), a credit category is considered delinquent once it surpasses 90 days. A Non-Performing Loan (NPL) refers to a credit that has remained in arrears for 90 days. Non-performing credit is a significant risk for banks as they might fail to recover monies allocated to debtors. This risk is inherent in the process of channeling funds to borrowers. The risk encountered is the potential non-repayment of loan monies disbursed. Before extending credit to the borrower, the bank must undertake a credit assessment. According to Bank Indonesia Regulation Number 6/73/2004 about credit, it is mandated that banks exhibiting poor or troublesome loans must maintain a gross non-performing loan (NPL) ratio above 5% (five percent) of their whole credit portfolio. The commercial bank health level evaluation system mandates that the non-performing loans (NPL) ratio be maintained at 5%. If a bank's non-performing loan (NPL) ratio exceeds 5%, it indicates the bank's poor health and subsequently leads to a decline in its profitability. According to Ismail (2015), an increase in the value of this ratio is associated with a deterioration in the bank's credit quality, leading to a higher incidence of non-performing loans and potential losses for the bank. Conversely, an increase

in the bank's profit or profitability is expected to correspond with a decrease in non-performing loans at the bank.

The Loan Deposit Ratio (LDR) that banks use is a liquidity metric that shows how much credit they give out compared to how much they use in public funds and their own capital. As per governmental laws, the LDR's upper limit is 110%. Bank Indonesia (BI) establishes certain thresholds for the optimal loan-to-deposit ratio (LDR) ranging from 75% to 105% in banking operations. A minimum LDR range of 70% to 80% is also mandated. It is worth noting that the LDR ratio, particularly for large and small banks, directly impacts the overall profitability of these financial institutions. According to Budisantoso and Triandani (2014), allocating substantial money to customers can effectively diminish the presence of idle funds within the bank, hence augmenting the bank's interest earnings. Consequently, this can increase the Loan to Deposit Ratio and ultimately enhance the bank's profitability.

The Return on Assets (ROA) is a financial statistic commonly employed by banks to assess their profitability. It quantifies the bank's capacity to generate earnings from its total assets by comparing net income with its resources or assets. This metric's primary purpose is to assess a bank's efficiency in utilizing its assets to create income. A higher return on assets (ROA) number indicates an improved ability of the bank to make profits. The assessment of a bank's financial performance often includes an examination of its profitability (Akbar et al. 2018). Among the various profitability measures used as benchmarks for banking performance, Return on Assets (ROA) stands out. Bank Indonesia has established standard rules for the optimal Return on Assets (ROA) ratio within the Indonesian banking sector, which is set at a minimum of 1.22%. If a bank exhibits a high Return on Assets (ROA), it indicates a heightened level of growth and improved utilization of its assets.

BRI's loan-to-deposit ratio (LDR) financial ratio data has exhibited a consistent upward trend over the years, except for a decline observed in 2019. In the interim, it has been observed that the financial metric known as Return on Assets (ROA) has exhibited a consistent decline on an annual basis. This finding contradicts the prevailing hypothesis, positing a positive relationship between the loan-to-deposit ratio (LDR) size and bank profitability. According to this theory, an increase in the LDR is expected to correspond with an increase in bank profitability, while a decrease in the LDR is expected to correspond with a decrease in profitability. A high loan-to-deposit ratio (LDR) is indicative of a favorable signal as it signifies a healthy degree of liquidity, hence potentially enhancing return on assets (ROA) (Ningrum & Rasmini, 2022). In the interim, the LDR (Loan to Deposit Ratio) of Bank MANDIRI has exhibited a downward trend annually, while the ROA (Return on Assets) has displayed fluctuations. The declining loan-to-deposit ratio (LDR) will have adverse consequences for the bank, reducing money allocated towards third-party funds. The bank's Return on Assets (ROA) will be poor due to the limited distribution of third-party funds. However, it is necessary to conduct further research due to the fluctuating nature of bank revenue on return on assets (ROA). The financial ratios of Loan to Deposit Ratio (LDR) and Return on Assets (ROA) exhibit changes between BNI, BCA, CIMB NIAGA, and SINARMAS banks. The fluctuation of metrics evaluating financial performance indicates that the stability of banking performance is variable. The presence of unstable development has a detrimental effect on the performance of the banking sector. One factor contributing to the variability in financial ratios such as Loan-to-Deposit Ratio (LDR) and Return on Assets (ROA) is the competitive landscape within the Indonesian banking industry. Specifically, this pertains to the competition in lending activities to the public and the insufficient promotional efforts undertaken by banks. These factors are indicative of the potential decline in banks' LDR.

Previous research conducted by Hartanti (2017) and Putrianingsih & Yulianto (2016) has examined the impact of Non-Performing Loan (NPL) variables on Return on Assets (ROA) variables. Their findings indicate a negative relationship between NPL and ROA. In a study conducted by Yonira (2014), it was found that non-performing loans (NPL) do not have a significant impact on return on assets (ROA). In contrast, prior research has examined the relationship between the LDR and ROA variables. For instance, Bernardin (2016) conducted a study and concluded that the LDR variable has no statistically significant impact on the ROA variable. According to the findings of Pinasti's (2018) research, it has been shown that there exists a negative and statistically insignificant relationship between long-distance relationships (LDR) and profitability. The findings of the investigation into the impact of the

NPL, LDR, and ROA variables exhibit incongruous outcomes compared to prior research, thereby highlighting a research void that necessitates a reassessment of the relationship pattern through the application of pertinent metrics on the research subject, namely Conventional Commercial Banks listed on the Indonesia Stock Exchange. Despite the extensive research conducted on the relationship between bad debts and banking performance, it is evident that further investigation is warranted considering ongoing economic trends.

The findings of Hartanti's (2017) study investigating the impact of non-performing loans (NPL) on return on assets (ROA) indicate a statistically significant association between NPL and ROA. However, this link is characterized as weak and negative. According to the findings of Putrianingsih's (2016) study, which investigated the impact of non-performing loans (NPL) on return on assets (ROA), it was determined that NPL has a detrimental influence on profitability. Mismiwati's (2016) study investigated the effects of non-performing loans (NPL) and return on assets (ROA). It found that both had statistically significant negative effects. According to the findings of multiple studies, an inverse correlation exists between the non-performing loans (NPL) variable and the return on assets (ROA) variable. A decrease in the Non-Performing Loan (NPL) level suggests a reduced risk associated with bank lending, enabling the bank to generate profits. A low non-performing loan (NPL) ratio signifies improving the bank's financial performance.

A Non-Performing Loan (NPL) is a banking loan classified as a non-performing loan, indicating that it does not generate the expected returns. This classification is based on the proportion of total non-performing loans, including loans categorized as substandard, dubious, and loss credit criteria, concerning the total credit extended to customers by debtors. If a bank's non-performing loan (NPL) ratio exceeds 5% of the total credit, the bank is in an unhealthy state. A higher Non-Performing Loan (NPL) value indicates poorer credit quality for a bank, resulting in an increased quantity of non-performing loans. This, in turn, can lead to financial losses for the bank and a subsequent reduction in its level of profitability or Return on Assets (ROA). Consequently, Non-Performing Loans (NPLs) in the banking sector have a noteworthy adverse impact on Return on Assets (ROA).

*H<sub>1</sub>: Non-Performing Loan (NPL) has a negative and significant effect on Return on Assets (ROA)*

The Loan to Deposit Ratio (LDR) is a metric utilized to assess the proportion of credit extended relative to the sum of public money and internal capital employed. Financial institutions' optimal loan-to-deposit ratio typically ranges between 80% and 110%. A more significant ratio number indicates a lower liquidity capability level for the bank in question. As the demand for credit financing develops and a more substantial portion of funds is allocated towards lending to clients, the quantity of idle funds within the bank diminishes, leading to an increase in interest earnings. This study examines the impact of the Loan Deposit Ratio (LDR) on the Return on Assets (ROA) within the banking sector. The findings of Hartanti's (2017) study investigating the impact of long-distance relationships (LDR) on return on assets (ROA) indicate a statistically significant association between the non-performing loan (NPL) variable and ROA. However, it is essential to note that the observed link is weak and positive. The findings of Alifah's (2014) study, which investigates the impact of the loan-to-deposit ratio (LDR) on return on assets (ROA), indicate a favorable relationship between LDR and ROA. According to the findings of a study conducted by Setyarini (2020), the research results suggest that there is a good relationship between Loan-Deposit Ratio (LDR) and Return on Assets (ROA). According to the findings of a previous study, there is a positive relationship between the influence of the LDR variable on ROA. This is attributed to increased funds collected from the community, leading to a more excellent distribution of bank loan funds to the community, resulting in higher profits.

*H<sub>2</sub>: Loan to Deposit Ratio (LDR) has a positive and significant effect on Return on Assets (ROA)*

Non-performing loans, called Non-Performing Loan (NPL), can adversely impact banks' profitability. A higher volume of uncollectible loans inside a bank directly correlates with reduced income and deteriorated credit quality of the bank. The Loan to Deposit Ratio (LDR) is a metric that evaluates the relationship between the aggregate amount of loans extended by banks to their customers and the combined sum of public money and banks' capital utilized by them. A more significant LDR ratio number indicates the bank in question's poorer liquidity capability. This phenomenon can be attributed to the increasing financial resources required to support credit activities. Hence, the extension of credit to consumers is a significant contributor to the liquidity of banking institutions. The findings of Hartanti's (2017) study demonstrate a substantial relationship between non-performing loans (NPL) and loan-to-deposit ratio (LDR) when considered together and their combined impact on return on assets (ROA). The findings of Putra's (2015) study indicate that the variables of non-performing loans (NPL) and loan-to-deposit ratio (LDR) have a simultaneous and considerable impact on return on assets (ROA). Both independent variables demonstrate a strong influence on ROA. The findings of this study suggest that both the non-performing loans (NPL) and loan-to-deposit ratio (LDR) variables have a simultaneous impact on the return on assets (ROA). This implies that management can monitor financial ratios to enhance the bank's financial performance, ensuring consistent inclusion in the cohort of financially sound banks. Consequently, this would generate interest among individuals and investors to engage in transactions and allocate investments within the bank.

*H<sub>3</sub>: Non-Performing Loan (NPL) and Loan to Deposit Ratio (LDR) simultaneously have a significant effect on Return on Assets (ROA).*

## Research Design and Methodology

This study is characterized as an explanatory research endeavor that prioritizes the examination of established theories. It achieves this objective by employing numerical variables specific to this study and statistical processes to analyze the collected data. This study aims to examine the relationship between two variables and investigate the impact of one variable on the other. The present study was conducted utilizing the financial statements of Conventional Commercial Banks that are publicly listed on the Indonesia Stock Exchange from 2015 to 2019. The study population consisted of economic reports from Conventional Banks listed on the Indonesia stock exchange between 2015 and 2019. A total of 30 samples were gathered, representing five years and 6 Conventional Banks. The analysis methodology employed in this study involves using validity and reliability tests to assess the quality of the data. Subsequently, hypothesis testing is conducted using multiple linear regression to examine the relationships between non-performing loans (NPL), loan-to-deposit ratio (LDR), and return on assets (ROA) (Arsan, 2016).

## Findings and Discussion

### Findings

Descriptive analysis describes the data of each variable, including the number of samples (N), sample average (mean), minimum and maximum, and standard deviation (6) for each variable.

**Table 1.** Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
NPL	30	.20	4.33	1.2523	.92548
LDR	30	77.10	98.38	87.5830	6.31680
ROA	30	.23	4.19	2.5503	1.19423
Valid N (listwise)	30				

*Source: SPSS Output*

The lowest (minimum) NPL was 0.2% in the 2015 period at BCA Bank, while the highest (maximum) NPL was 4.33% in the 2019 period at Bank SINARMAS. As for the average (mean) NPL value of 1.2523%, it can be concluded that statistically, the NPL level at the research banks listed on the IDX in the period 2015 to 2019 is within safe limits, namely not exceeding the standard set by Bank Indonesia



of 5%. The magnitude of the NPL ratio data deviation seen from the standard deviation of 0.92548% shows that the NPL variable data can be good because the normal deviation value is smaller than the average value (mean).

The lowest (minimum) LDR was 77.1% in the 2016 period at BCA Bank, while the highest (maximum) LDR ratio of 98.38% came from the 2016 period at Bank CIMB NIAGA. By looking at the average value (mean) of LDR of 87.5830%, it can be concluded that statistically, the level of LDR at the Bank that became this research listed on the IDX in the period 2015 to 2019 was below the standard set by Bank Indonesia, namely, 80-110%, it means that the credit disbursed is still below the amount of third-party funds collected. This shows that banks are influential in channeling glory to customers. Meanwhile, the significant deviation of the LDR ratio data can be seen from the standard deviation, which is 6.31680%. This shows that the LDR variable data is good because the normal deviation value is smaller than the mean value.

The lowest (minimum) ROA was 0.23% in the 2019 period at Bank SINARMAS; this shows the ability of PT. Bank SINARMAS.Tbk, in increasing its profitability, was the worst in that period. Meanwhile, the highest (maximum) ROA of 4.19% for the 2015 period at BRI Bank means that the ability of PT Bank Rakyat Indonesia Tbk to increase its profitability is the best among other banks and periods. As for the average value (mean) of ROA of 2.5503%, it can be concluded that statistically, the level of ROA at the Banks in this study listed on the IDX in the period 2015 to 2019 is above the standards set by Bank Indonesia, it is said to be good because seen from the amount of deviation of the ROA ratio data, the standard deviation value is 1.19423%, this shows that the ROA variable ratio data is said to be good because the standard deviation value is smaller than the average value (mean).

This study's normality test used Kolmogorov's Smirnov analysis and normal probability plots. Normality can be detected by looking at the distribution of data (points) on the diagonal axis of the graph.

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

		UnstandardizedResidual
N		30
Normal Parameters <sup>a, b</sup>	Mean	.0000000
	Std. Deviation	.65756700
Most Extreme Differences	Absolute	.156
	Positive	.156
	Negative	-.084
Test Statistic		.156
Asymp. Sig. (2-tailed)		.062 <sup>c</sup>

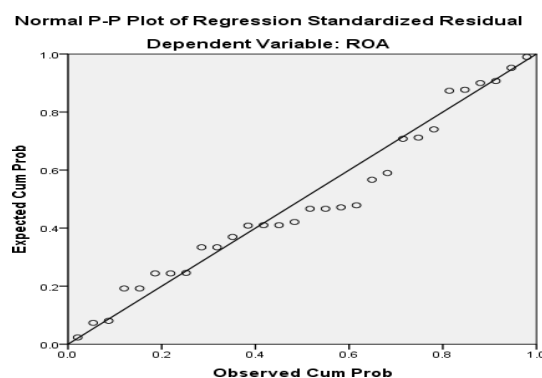
a. Normal test distribution.

b. Calculated from data.

c. Lilliefors Significance Correction.

Source: SPSS Output

Based on the normality test with the Kolmogorov-Smirnov Test, the Asymp.sig. value of 0.062 is greater than 0.05, it can be concluded that the data is normally distributed.



**Figure 1.** Normal Probability Plot

Source: SPSS Output

We can see the results of the SPSS output from the plot graph, which shows the points following and approaching the diagonal line, so it can be concluded that the regression model fulfills the normality assumption—the multicollinearity test tests whether the independent variables have a perfect relationship. Accepting a multiple regression model is required if the independent variables do not contain a perfect correlation. If the VIF value is < 10 and close to 1, it can be concluded that the multicollinearity assumption is rejected.

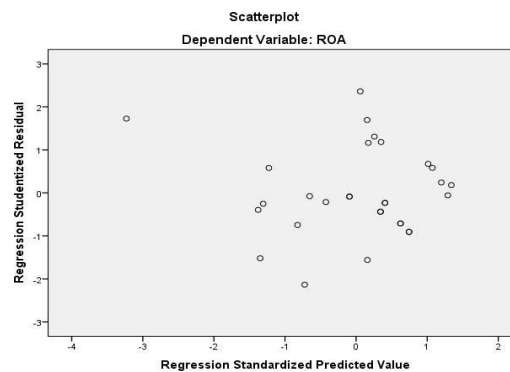
**Table 3.** Multicollinearity Test Results (Coefficients<sup>a</sup>)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	7.042	1.772		3.975	.000		
NPL	-.994	.140	-.770	-7.099	.000	.954	1.048
LDR	-.037	.021	-.196	-1.807	.082	.954	1.048

a. Dependent Variable: ROA (Y)

Source: SPSS Output

Based on the findings presented in Table 3, it can be inferred that the tolerance value exceeds 0.10, while the VIF value remains below 10.00. Consequently, the dataset does not exhibit any indications of multicollinearity issues. In addition, the heteroscedasticity test is conducted to examine whether a disparity exists in the variance of residuals across different observations inside the regression model. Homoscedasticity refers to the condition where the variance of the residuals between two statements remains constant, while heteroscedasticity refers to the state where the variance of the residuals differs.



**Figure 2.** Heteroscedasticity Test Results

Source: SPSS Output

Based on the results of observations using the scatterplot graph, there is a pattern that spreads below and above the zero number of the Y axis; this indicates that there is no heteroscedacity. The autocorrelation test aims to determine whether there is a correlation between a linear regression model's confounding error in period t and errors in period t-1 (previous). If there is a correlation, it is called an autocorrelation problem. The occurrence of autocorrelation will cause the partial effect to be less accurate, and to determine the presence or absence of autocorrelation symptoms in the model; testing will be carried out using the Durbin-Watson test, which can be seen in Table 4.

**Table 4.** Autocorrelation Test Results (Model Summary<sup>b</sup>)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.835 <sup>a</sup>	.697	.674	.68149	.936

a. Predictors: (Constant), LDR, NPL

b. Dependent Variable: ROA

Source: SPSS Output

Based on Table 4, it can be concluded that the DW value is 0.936. The DW number is between -2 and 2, meaning no autocorrelation symptoms exist. Thus, the correlation between variables in a model is not influenced by previous-period data. Furthermore, the regression analysis test aims to determine the relationship between the independent and dependent variables. The basis for decision-making in the regression test is: 1. If the significance value  $< 0.05$ , then the hypothesis is accepted, which means that the independent variable affects the dependent variable; 2. If the significance value  $> 0.05$ , the idea is rejected, meaning that the independent variable does not affect the dependent variable.

**Table 5.** Multiple Linear Regression Analysis Results (Coefficients<sup>a</sup>)

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	7.042	1.772			3.975	.000
	NPL	-.994	.140	-.770		-7.099	.000
	LDR	-.037	.021	-.196		-1.807	.082

a. Dependent Variable: ROA (Y)

Source: SPSS Output

The Coefficient of Determination (R<sup>2</sup>) test is used to find how much influence the independent variable has on the dependent variable, with the coefficient of determination ranging from  $0 \leq R^2 \leq 1$ .

**Table 6.** Determination Coefficient Test Results (Model Summary<sup>b</sup>)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.835 <sup>a</sup>	.697	.674	.68149	.936

a. Predictors: (Constant), LDR, NPL

b. Dependent Variabel: ROA

Source: SPSS Output

Based on data analysis using the SPSS program tool, the coefficient of determination (R<sup>2</sup>/Adjusted R Square) is 0.674. The meaning of this coefficient is that the relative contribution given by the combination of Non-Performing Loan (NPL) (X1) and Loan to Deposit Ratio (LDR) (X2) variables to Return on Assets (ROA) (Y) is 67.4% while the remaining 32.6% is influenced by other variables not studied.

The t-test aims to determine whether there is a partial influence between the independent variables, namely bad credit (NPL) and Liquidity (LDR), on the dependent variable, namely profitability (ROA). Testing the partial effect can be done based on the probability value. If the significant matter is less than 0.05 or 5%, the proposed hypothesis is accepted or said to be substantial. The proposed idea is rejected or declared insignificant if the significance value is more critical than 0.05 or 5%.

**Table 7.** Partial Test Results (Uji-t) Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Tolerance VIF
1	(Constant)	7.042	1.772		3.975	.000	
	NPL	-.994	.140	-.770	-7.099	.000	.954 1.048
	LDR	-.037	.021	-.196	-1.807	.082	.954 1.048

a. Dependent Variable: ROA

Source: SPSS Output

Based on the results of data processing, it shows that Non-Performing Loan (NPL) has a negative effect on Return on Assets (ROA) with a t-count of -7.099 and t table obtained from t table = t ( $\alpha/2$ : n-k-1) = t (0.025: 2) = 2.051 then  $-7.099 < 2.051$  and the sig value is smaller than 0.05, namely 0.000  $< 0.05$ . So, the first hypothesis (H1) states that a Non-Performing Loan (NPL) has a negative and significant effect on Return on Assets (ROA). So H1 is accepted; this is in line with research conducted by Hartanti (2017), Putrianingsih and Yulianto (2016), Dewi et al. (2015), Nurfadillah (2015), and



Putra, Rustamto Rizal (2015) whose results Non-Performing Loan (NPL) has a negative and significant effect on Return on Assets (ROA).

Based on the results of data processing, it shows that the Loan to Deposit Ratio (LDR) has a negative effect on Return on Assets (ROA) with a t-count value of -1.807 and t table obtained from t table = t ( $\alpha/2$ : n-k-1) = t (0.025: 2) = 2.051 and the sig value is more significant than 0.05, namely  $0.05 < 0.082$ , so the second hypothesis (H2) states that the Loan to Deposit Ratio (LDR) has a negative and insignificant effect on Return On Assets (ROA), then H2 is rejected, this is supported by research conducted by Pinasti and Mustikawati (2018), Fajri and Sunarto (2017) and Bernardin, Yokeu Edwar Deden (2016) whose results show that the Loan to Deposit Ratio (LDR) has a negative and insignificant effect on Return On Assets (ROA).

Based on Table 8, the results obtained a Fcount value of 31.028 and a significant value of 0.000. The F-count value is greater than the Ftabel value = F (k: n-k) = F (2: 3) = 3.34 ( $31.028 > 3.34$ ), and the significant value is less than 0.05 ( $0.000 < 0.05$ ). So, Non-Performing Loan (NPL) and Loan to Deposit Ratio (LDR) simultaneously have a significant effect on Return on Assets (ROA). The results of this study are in line with the research of Hartanti (2017) and Putra, Rustamto Rizal (2015), whose results Non-Performing Loan (NPL) and Loan to Deposit Ratio (LDR) simultaneously have a significant effect on Return on Assets (ROA).

**Table 8.** Simultaneous Test Results (ANOVA<sup>a</sup>)

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.820	2	14.410	31.028	.000 <sup>b</sup>
	Residual	12.539	27	.464		
	Total	41.360	29			

a. Dependent Variable: ROA (Y)

b. Predictors: (Constant), LDR, NPL

Source: SPSS Output

## Discussion

This research study comprehensively analyzes the impact of non-performing loans (NPL) on return on assets (ROA) within conventional commercial banks listed on the Indonesia Stock Exchange. The findings derived from hypothesis testing indicate a statistically significant and negative relationship between non-performing loans (NPL) and return on assets (ROA). This observation aligns with prior research undertaken by Hartanti (2017) and Putrianingsih & Yulianto (2016), which also demonstrate a negative and statistically significant relationship between non-performing loans (NPL) and return on assets (ROA). NPLs, in essence, exert an adverse influence on bank profitability, as quantified by the return on assets (ROA) metric. The findings obtained from the examination of the data indicate variations in the non-performing loans (NPLs) within the traditional commercial banks listed on the Indonesia Stock Exchange. The rise in non-performing loans (NPLs) is commonly perceived as a signal of heightened credit risk, potentially leading to a decrease in public trust in the credit offerings of financial institutions. The empirical evidence indicates that it is imperative for banks to consistently uphold public confidence in the credit extended, as a substantial proportion of non-performing loans can have detrimental effects on the overall soundness of the banking sector. The study's results can also be associated with signal theory, wherein elevated non-performing loans (NPLs) are regarded as an unfavorable signal that detrimentally affects the market. This phenomenon may reduce interest rates and the bank's profitability, as measured by return on assets (ROA). Credit management plays a crucial role in maintaining low levels of non-performing loans (NPLs), as these delinquent loans can substantially burden the return on assets (ROA). Based on the data above, it can be deduced that non-performing loans (NPL) exert a detrimental and statistically significant impact on return on assets (ROA) within the context of conventional commercial banks. Hence, maintaining low levels of non-performing loans (NPLs) through efficient credit management is crucial for enhancing the financial well-being of banks. The conclusion above offers a more comprehensive comprehension of the ramifications and significance of the study about the correlation between non-performing loans (NPL) and return on assets (ROA) within the banking sector of the Indonesia Stock Exchange. The findings of this study are consistent with other research undertaken by Hartanti (2017) and Putrianingsih and

Yulianto (2016), which demonstrate that non-performing loans (NPL) exert a detrimental and statistically significant impact on return on assets (ROA).

The results of the regression analysis indicate that there is a negative relationship between LDR and ROA. However, this relationship is found to be statistically insignificant. This observation is corroborated by the findings of prior research undertaken by Bernardin (2016), Fajari & Sunarto (2017), and Pinasti & Mustikawati (2018), which also indicate that long-distance relationships (LDR) do not have a statistically significant impact on return on assets (ROA). The Loan-to-Deposit Ratio (LDR) effect on the Return on Assets (ROA) is modest, approximately 3.7%. This finding suggests that the level of liquidity, as gauged by the LDR, does not possess substantial potential to enhance bank profitability, as assessed by the ROA significantly. While the Loan-to-Deposit Ratio (LDR) falls within the healthy range as defined by Bank Indonesia's limit of 80%-110%, it is worth noting that a rise in LDR does not yield a substantial enhancement in profitability. There exists a lack of complete public trust in banks, resulting in suboptimal returns on invested money and a need to enhance profitability through return on assets (ROA). To uphold the loan-to-deposit ratio (LDR), financial institutions must prioritize customer lending activities and acquire money from the public. The enhancement of profitability is contingent upon the quality of credit provision. Banks' profitability can be influenced by circumstances in which they have challenges extending loans. The implementation of efficient lending practices can enhance financial gains.

Nonetheless, if left unregulated, it might be a significant hazard. According to the perspective of signaling theory, a high loan-deposit ratio (LDR) is regarded as a favorable signal due to its indication of a strong liquidity position, which has the potential to enhance return on assets (ROA). Nevertheless, the findings indicate that a substantial loan-to-deposit ratio (LDR) can pose concerns, particularly in cases where lending practices lack prudence. Hence, long-distance relationships (LDR) do not considerably impact profitability, as the return on assets (ROA) metric indicates. Furthermore, according to Commercial Loan Theory, banks' liquidity can be maintained by ensuring that a significant portion of their loan portfolio consists of short-term trade loans that can be disbursed under typical business conditions. While there has been a rise in long-distance relationships (LDR), there has been a corresponding fall in return on assets (ROA), suggesting that LDR does not substantially impact ROA. In the context of the liquidity ratio as assessed by the Loan-to-Deposit Ratio (LDR), conventional commercial banks listed on the Indonesia Stock Exchange face challenges in effectively influencing lending activities and profitability. Hence, it is imperative to acknowledge that the loan-deposit ratio (LDR) may only sometimes serve as a robust metric for assessing liquidity's impact on banks' financial performance.

## Conclusion

This research paper offers a comprehensive analysis of the correlation between non-performing loan (NPL) and loan deposit ratio (LDR) variables and return on assets (ROA) in traditional commercial banks listed on the Indonesia Stock Exchange. The empirical evidence suggests that non-performing loans (NPL) have a statistically significant adverse effect on return on assets (ROA). In contrast, the loan-to-deposit ratio (LDR) has a negative influence on ROA, although it is not statistically significant. The findings of this study validate the significance of credit risk management in upholding the financial well-being of banks. Efficient non-performing loan (NPL) management is necessary to achieve maximum profitability. While the impact of long-distance relationships (LDR) on return on assets (ROA) is not shown to be statistically significant, this discovery implies that maintaining a proper equilibrium between lending and fundraising activities continues to hold significance. The study highlights the importance of public trust in banking organizations. Elevated non-performing loans (NPLs) can adversely impact a bank's standing in the financial industry and indicate inadequately managed credit risk. Hence, it is imperative to advocate for promoting openness and prudent banking practices to uphold public trust.

Recommendations for future research encompass broadening the scope of investigated variables by incorporating macroeconomic considerations and monetary policy into the analysis. Further examination of the industry and including detailed case studies focusing on specific banks may yield

a more thorough understanding of the subject matter. The utilization of predictive models and the broadening of the geographical scope of the research have the potential to assist banks in projecting credit and liquidity risk, as well as foster a comprehensive comprehension of the various aspects that exert influence in different locations inside Indonesia.

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