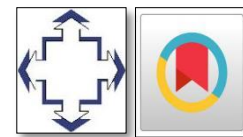


# Banking Profitability Analysis: Company Cases on the Stock Exchange Indonesian Securities (BEI)



Prince Charles Heston Runtuuwu <sup>a,1,\*</sup>, Hanafi Hussin <sup>b,2</sup>

<sup>a</sup> Khairun University, Yusuf Abdulrahman Street, Ternate 97117, Indonesia

<sup>b</sup> Malaya University, Wilayah Persekutuan Kuala Lumpur, Kuala Lumpur 50603, Malaysia

<sup>1</sup> princecharles@unkhair.ac.id\*; <sup>2</sup> hanafih@um.edu.my

\* corresponding author

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## ABSTRACT

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This study aims to investigate the impact of Loans to Deposit Ratio (LDR) on Return On Assets (ROA) in the context of banking institutions. LDR is used as an indicator of a bank's ability to meet obligations and credit demands, while ROA reflects the level of bank profitability. The signal theory is also adopted to explain the asymmetry of information between company management and other stakeholders. The data used in this study was obtained from banking institutions with sample consists of 25 banking companies listed on BEI during the 2016-2019 period. The results indicate that LDR has a significant impact on ROA. Higher LDR values indicate a larger amount of third-party funds channeled into credit, which in turn increases profitability through higher interest income. These findings are consistent with previous research indicating a positive relationship between LDR and ROA. The results of this study contribute to the understanding of factors influencing the financial performance of banking institutions. Banking practitioners and investors can use these findings as a basis for making better decisions in managing risks and enhancing profitability.

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## 1. Introduction

Banks play a significant role in the economic development of a country. They function as financial intermediaries that gather funds from surplus entities in society and channel them to those in need. A robust banking sector can aid a country in facing negative shocks and contribute to the stability of the financial system (Pratiwi and Suryantini, 2018). Apart from accumulating funds from the public, banks also acquire capital by issuing shares traded on the Indonesia Stock Exchange. The Indonesia Stock Exchange is an institution that facilitates securities trading, bringing together buying and selling offers of securities and enabling their trade among parties. Banks engage in stock trading on this exchange besides their fund accumulation and allocation activities (Syafi'i, 2016).

As profit-oriented service companies, banks need to maintain strong financial performance, particularly in terms of profitability. Bank profitability denotes the bank's ability to generate profits. According to Sudyatno (2013), profitability serves as a gauge of a bank's success in its operations. One of the goals of a bank is to attain maximum profitability by optimizing operational activities (Annisa, 2018). As cited by Wiagustini (2010), return on assets (ROA) is used to measure a bank's ability to generate profits. The higher a bank's profitability, the better its position in asset utilization (Almilia and Anton, 2006). This study covers the period from 2016 to 2019, during which the global economic conditions were fraught with uncertainty, while the domestic economy was recovering from the impacts of the 2008 global economic crisis.

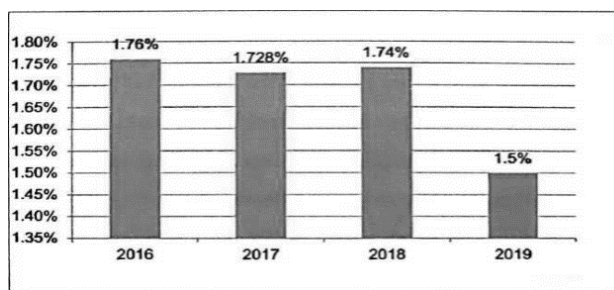


Figure 1. Average Return On Asset (ROA)

Source: PT. Indonesia Stock Exchange ([www.idx.co.id](http://www.idx.co.id)), 2021

Based on the graph, the return on assets (ROA) ratio in the banking industry experienced fluctuations. In 2016, there was an increase in ROA by 1.76%, followed by a decrease in 2017 to 1.728%. In 2018, there was a rise in ROA by 1.74%, but it decreased again in 2019 to 1.5%. According to Martono (2002) and Rivai, et al. (2007) in the financial stability study of 2017, the decline in banking performance was also evident in reduced efficiency and ROA. The decline in banking performance was accompanied by increased risks, particularly credit and market risks (Dendawijaya, 2009). In connection with this, Oktaviantari and Wiagustini (2013), Utami (2014), Dewi et al. (2015), Dendawijaya (2009), Putra (2013), Haneef et al. (2012), and Puspitasari (2009), Kolapo et al. (2012), Irmawati (2015), in their research, indicate that banking institutions can take certain risks for potential gains, but these risks need to be well managed to avoid diminishing desired outcomes (Mosey, et al., 2018, Annisa, 2018, Ramadhan, 2018, Cahyani, 2013, Martono, 2002, Fatmawati, 2015, Arini, 2017, Damayanti, 2015, Budisantoso, 2009, Arthesa and Handiman, 2009, Akthar et al., 2010, Novian, 2013, Pratiwi and Suryantini, 2018). Some of the aforementioned studies exhibit inconsistent results regarding the influence of these variables on banking profitability.

In line with the aforementioned background, this study focuses on examining and analyzing the impact of Loan To Deposit Ratio (LDR), Non-Performing Loan (NPL), Interest Rate Risk (IRR), Net Foreign Exchange Position (PDN), Operational Costs and Operating

Income (BOPO) on the profitability of banking companies listed on the Indonesia Stock Exchange (BEI).

## **2. Literature Review**

### **Signaling Theory**

Quoted from Brigham and Houston (2013) in Ramadhan (2018), interpreting signals in the context of a company's finances involves actions taken to provide guidance to investors and creditors regarding management's outlook on the company's prospects. These signals comprise crucial information that influences the investment decisions of external parties. This information is highly significant for investors and business actors as it provides an overview of the company's past, present, and future conditions. Information asymmetry between company management and other stakeholders occurs due to differing access to information. Profits reported by the company can serve as either positive or negative signals depending on the increase or decrease in those profits. Signaling theory enables investors and creditors to assess a company's profitability based on the signals given, especially through profit changes.

### **Capital Structure Theory**

The capital structure theory, including the Pecking Order Theory, explains the influence of changes in the capital structure on a company's value (Nurrohim, 2008). The Pecking Order Theory introduced by Myers and Majluf (1984) states that companies prioritize using internal funds over external funds for financing (Priyo, 2013). The sufficiency of internal funds can be seen from retained earnings or cash flow. If external funds are necessary, companies prefer debt over issuing stocks (Puspita, 2009). Information asymmetry also affects a company's financing decisions, where companies tend to opt for internal funds to maximize the wealth of existing shareholders. Companies with higher asset structures also tend to rely on internal funds rather than external debt for financing. The company's asset structure plays a crucial role in determining financing and company value (Amelia, 2010).

Profitability According to Dendawijaya (2009), Return on Assets (ROA) is a ratio used to measure management's ability to generate profits by utilizing the company's assets. Based on Bank Indonesia Circular Letter No. 6/23/DPNP dated May 31, 2004, ROA is an important financial performance indicator as it demonstrates how much profit a company can generate from its total assets (Tandelilin, 2010, and Kasmir, 2014). Fahmi (2012) states that a high ROA indicates good growth and the effective use of company assets, while a negative ROA indicates that overall investments have not been profitable (Home and Wachowicz, 2009). In connection with this, Riyanto (2010) states that ROA is also used to measure banking performance and can aid in formulating company strategies (Sawir, 2005). The advantage of ROA is its ease of calculation, its function as a measure of management performance, and providing comprehensive information about a company's financial performance. However, its drawback is the potential to discourage asset addition and focus on short-term goals, which could have negative long-term effects.

Bank Business Risk According to Martono (2002), banking businesses face high risks regarding both fund withdrawals and disbursements. Based on the citation from POJK Number 18/POJK.03/2016, a bank's business risk constitutes the level of uncertainty concerning the expected profits by the bank or investors. The greater the risk faced by the bank, the higher the uncertainty level regarding attainable profits. Bank business risk relates to situations where losses can occur and the level of certainty regarding these losses can be predicted. Bank business risks encompass liquidity risk, credit risk, market risk, and operational risk.

### **Liquidity Risk**

According to Rustam (2017), liquidity risk arises when a bank fails to meet its short-term obligations, disrupting company operations. Liquidity risk may stem from a bank's inability to obtain cash flow funding sources or generate cash flow from productive assets, asset sales, fund accumulation, inter-company transactions, and received loans. Bank liquidity indicates the ability to adequately provide cash to meet obligations at reasonable costs (Rivai, 2013). Referencing Dendawijaya (2009), the Loan to Deposit Ratio (LDR) is a ratio used to measure liquidity risk, indicating the amount of credit provided by a bank compared to the funds received by the bank (Prasetiono, 2015). In connection with this, Riyadi (2015) and Kasmir (2014) state that a high LDR demonstrates efficient fund allocation and can yield high profits for the bank. Meanwhile, Dendawijaya (2009) states that the Loan to Asset Ratio (LAR) is used to measure a bank's ability to meet credit demand using owned assets (Kasmir, 2014). Referring to Abdullah (2013), this ratio indicates the comparison between the amount of credit provided by the bank and the total assets held by the bank. A higher LAR indicates lower bank liquidity as the assets needed to cover problematic credit become larger. This ratio can provide an indication of the credit risk the bank might face, as credit is funded using the bank's assets.

### **Credit Risk**

According to Rivai, et al. (2007), credit risk occurs when a debtor fails to repay a loan upon maturity, which can cause issues with cash flow and bank liquidity (Greuning and Bratanovic, 2011). Citing Mahmoedin (2010), the Non-Performing Loan (NPL) is used as a ratio to measure credit risk, indicating the percentage of problematic loans from the total loans given by the bank. Darmawi (2011) demonstrates that the higher the NPL, the lower the quality of the bank's productive assets, potentially reducing the bank's income and profit. If the NPL percentage exceeds 5%, the bank faces management issues with its loans. The magnitude of NPL can be calculated using an appropriate formula (Taswan, 2010).

### **Market Risk**

Market conditions and situations can affect a company's continuity and profitability. According to Ali (2009), market risk occurs when overall market condition changes, including the risk of option price changes, affecting the company's balance position and administrative accounts. The Interest Rate Risk (IRR) ratio is used to measure interest rate risk, indicating the bank's sensitivity to interest rate changes (Prastowo, 2013). Managing interest rate risk is typically done through Asset and Liability Management (ALM), aiming to maintain consistent income over time (Brigham, 2010). The interest rate ratio can be calculated by dividing assets and liabilities into two types: interest-sensitive assets and interest-sensitive liabilities (Antonio, 2001). Interest rate risk can cause losses and a decrease in the market value of securities.

### **Net Foreign Exchange Position (NFE)**

According to Chapra (2000), the Net Foreign Exchange Position (NFE) is the ratio comparing the net difference between assets and liabilities in foreign currency after accounting for administrative accounts against the bank's capital (Pandia, 2012). NFE reflects the absolute value of the net difference between assets and liabilities in foreign currency, as well as the net difference between contingent commitments and liabilities in administrative accounts measured in Indonesian Rupiah (Umam, 2013). NFE illustrates the comparison between foreign currency assets and liabilities, plus the net off-balance sheet difference, divided by the bank's capital.

### Operational Risk

According to IBI (2016), operational risk in banking arises from inadequacies and/or malfunctions in internal processes, human errors, system failures, and/or external events affecting bank operations. One of the ratios used to measure operational risk is the Operational Expenses to Operational Income (OEOI), which compares operational costs to operational income (Rivai, 2013). OEOI is used to gauge cost efficiency and the bank's ability to carry out its operational activities (Dewi, et al., 2015). In connection with this, (Syafuruddin, 2013) indicates that a high OEOI suggests a decline in bank profitability, while a low OEOI indicates increased bank profitability (Murhadi, 2013). Efficient operational cost control can enhance a company's financial performance (Maria, 2015) and (Ambo, 2013).

### Previous Research

Based on previous research conducted by Cahyani (2013), Pratiwi and Suryantini (2018), Oktaviantari and Wiagustini (2013), Utami (2014), Anissa (2018), Mosey, et al. (2018), Arini (2017), Ramadhan (2018), and Fatmawati (2015), it is concluded that business risk, liquidity risk, credit risk, operational risk, and market risk significantly influence the Return On Asset (ROA) or profitability of banking companies. Several factors such as Loan To Deposit Ratio (LDR), Interest Rate Risk (IRR), Non Performing Loan (NPL), Operational Expenses to Operational Income (OEOI), FBIR, IPR, IRR, and NFE collectively have a significant impact on ROA. However, on a partial basis, there are differences in the influence of these factors. For example, LDR, IPR, and FBIR have a significantly positive influence on ROA, whereas NPL, OEOI, IRR, and NFE have a significantly negative influence on ROA. This conclusion highlights the importance of effective risk management in achieving good levels of profitability in the banking industry.

### Framework of Thought

Based on the preceding explanation and theories, the framework of thought in this research can provide benefits in formulating research hypotheses. The hypotheses in this study are suspected Loan To Deposit Ratio, Loan to Asset Ratio, Non Performing Loan, Interest Rate Risk, Net Foreign Exchange Position and Operating Expenses Operating Income has a significant effect on return on assets. The framework is as follows:

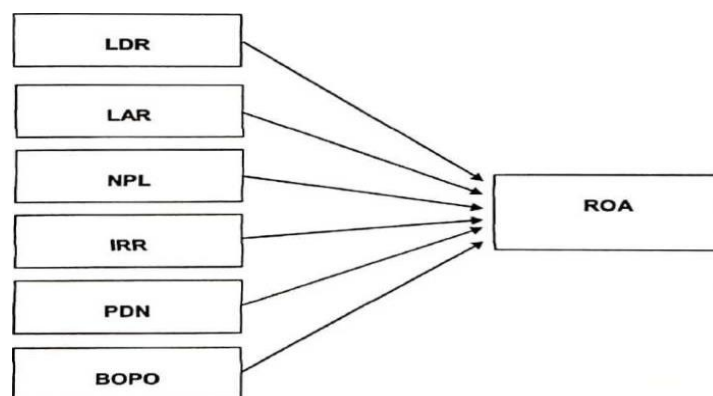


Figure 2. Framework of Thought

Source: Runtunuwu, 2024

### 3. Research Method

The object of this research is banking companies listed on the Indonesia Stock Exchange (BEI) from 2016 to 2019. According to Sugiyono (2015), the population refers to the total number of objects with characteristics and qualities specified by researchers for

examination and conclusion. In this research, the population comprises 43 banking companies listed on the Indonesia Stock Exchange (BEI) during the period 2016 to 2019.

Purposive sampling was utilized to select a representative sample aligned with the research objectives. The research sample consists of 25 banking companies listed on BEI during the 2016-2019 period. Selection criteria encompassed companies publishing comprehensive financial reports, no incurred losses, and complete data on variables during the research period, totaling 25 banking companies.

This research adopts quantitative research methods utilizing quantitative data—numeric or numerical data. The methodology aligns with a positive philosophy and is applied to study specific populations or samples. Secondary data obtained from documentation sources and literature relevant to the research object are used. The secondary data source includes annual reports of banking companies during the 2016-2019 period obtained from the official Indonesia Stock Exchange website ([www.idx.co.id](http://www.idx.co.id)). Documentation serves as the data collection technique comprising literature such as books, previous research journals, and selected annual reports acting as guides to address research issues concerning the influence of business risk on Return On Asset (ROA).

Multiple linear regression analysis is employed to examine the influence of business risk on Return On Asset (ROA). Before regression analysis, classical assumption tests are conducted to ensure the regression model used does not face issues like normality, multicollinearity, heteroskedasticity, and autocorrelation. If all assumptions are met, the analysis model can be applied. Descriptive statistics are used to analyze data to describe the collected data without drawing general conclusions or generalizations. Descriptive statistics offer insights into data through mean values, standard deviations, maximum, and minimum values of the variables used in the research.

Multiple linear regression is a model where the dependent variable is a linear function of several independent variables. This model is useful for studying the influence of several correlated variables on the tested variable. It is employed in decision-making and scientific research. In this research, only multiple linear regression analysis is used to evaluate the relationship between business risk and return on assets.

$$Y = \alpha + \beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6 + e \dots \dots \dots (1)$$

Note :

- Y = Return On Asset
- $\alpha$  = Konstanta
- $\beta$  = Regression coefficient
- $\beta_1$  = Loan To Deposit Ratio
- $\beta_2$  = Loan to Asset Ratio
- $\beta_3$  = Non Performing Loan
- $\beta_4$  = Interest Rate Risk
- $\beta_5$  = Net Foreign Exchange Position
- $\beta_6$  = Operating Expenses Operating Income
- e = Error term

**Operational Definition of Variables:**

- a. Dependent variable (Y) is the Return On Asset (ROA), which is a ratio measuring management's ability to obtain profits.
- b. Independent variables (X) consist of Loan to Deposit Ratio (LDR), Loan to Asset Ratio (LAR), Non-Performing Loan (NPL), Interest Rate Risk (IRR), Net Foreign Exchange Position (PDN), and Operating Expenses to Operating Income (BOPO).
- c. Each independent variable has an operational definition describing its measurement and interpretation.

In this study, F and t-tests are used to examine the simultaneous and partial effects of independent variables on the dependent variable. Additionally, the coefficient of determination R<sup>2</sup> is used to measure how well the model can explain the variation in the dependent variable. The independent variables used in this study are LDR, LAR, NPL, IRR, PDN, and BOPO, each with their operational definitions as previously explained.

#### 4. Results and Discussion

##### Research Findings

This research utilized variables such as Loan to Deposit Ratio (LDR), Loan to Asset Ratio (LAR), Non-Performing Loan (NPL), Interest Rate Risk (IRR), Net Foreign Exchange Position (PDN), Operational Expenses to Operational Income Ratio (BOPO), and Return on Assets (ROA) within the banking sector in the Indonesian Stock Exchange during the period 2016-2019. Hypothesis testing was conducted using the SPSS program, involving steps like calculating multiple regression coefficients, Determination Coefficients, simultaneous testing, individual testing, and interpretation. The data used originated from 43 banks listed on the Indonesian Stock Exchange. The research sample consisted of 100 observations.

Table 1. Sample Determination Results

Criteria	Quantity
Banking companies listed on the IDX during 2016-2019 research period	43
Banking companies that published complete financial reports during the 2016-2019 research period	(38)
Banking companies that did not experience losses during 2016-2019	(25)
Banking companies with complete data on variables sequentially during the 2016-2019 research period	(38)
Total Sample	25
Total Observations (25 x 4 years)	100

Source: Processed data, 2024

The table indicates the presence of 43 banking companies on the Indonesian Stock Exchange. However, this research utilized a sample of 25 companies, amounting to 100 observations, based on the aforementioned sample selection criteria.

##### Description of Research Variables

Below is the overall descriptive analysis:

Table 2. Descriptive Variable Statistics

	LDR	LAR	NPL	IRR	PDN	BOPO	ROA
Valid	100	100	100	100	100	100	100
Missing	0	0	0	0	0	0	0
Mean	76.5800	56.0660	2.6770	283.3260	4.9770	569.6840	1.6820
Median	85.4500	63.6500	2.2000	139.8500	0.2500	354.8000	1.6000
Mode	81.20 <sup>7</sup>	67.30	0.00	0.00	0.00	0.00	1.20
Std. Deviation	29.13011	20.52931	2.48307	442.37149	80.43627	699.68837	1.00246
Variance	848.563	421.453	6.166	195692.535	6469.994	489563.817	1.005
Minimum	4.60	1.90	0.00	0.00	-665.50	0.00	0.10
Maximum	182.10	84.30	13.60	2642.10	279.10	3693.60	4.00
Sum	7658.00	5606.60	267.70	28332.60	497.70	56968.40	168.20

Note: Multiple modes exist. The smallest value is shown.

Source: Processed data, 2024

The Loan to Deposit Ratio (LDR) demonstrates the highest average among all variables, with a value of 76.58. The average values for other variables are Loan to Asset Ratio (56.06), Non-Performing Loan (2.67), Interest Rate Risk (283.32), Net Foreign Exchange Position

(4.9770), Operational Expenses to Operational Income Ratio (569), and Return on Assets (1.68).

Loan To Deposit Ratio (LDR) Below is the graphical representation of the Loan to Deposit Ratio (LDR) trend over four years in banking companies listed on the Indonesian Stock Exchange during the 2016-2019 period.

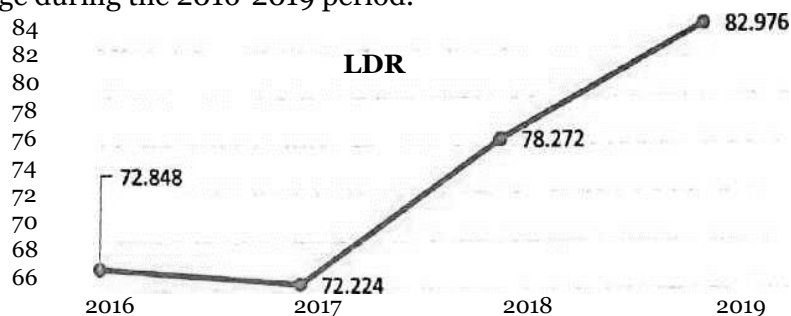


Figure 3. Loan to deposit ratio (LDR) Growth

Source: Source: Processed data, 2024

### Loan to Deposit Ratio (LDR)

The graph illustrates a significant increase in the Loan to Deposit Ratio (LDR) over two years, especially from 2017 to 2019, with a spike from 72.224% to 82.976% during the three-year research period. This indicates an assessment of credit management by the banking sector.

### Loan To Asset Ratio (LAR)

Below is a chart depicting the development of the Loan to Asset Ratio over four years within banking companies on the Indonesia Stock Exchange during the period 2016-2019.

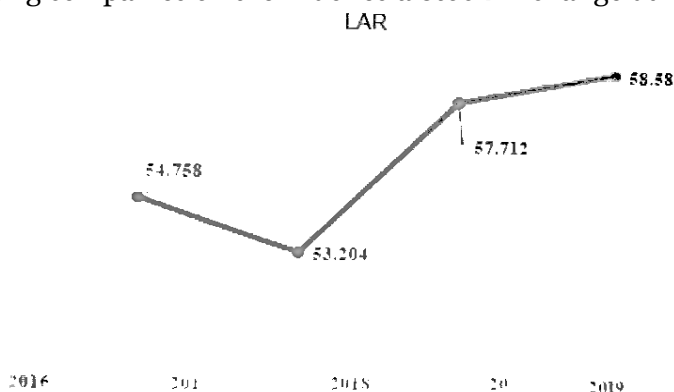


Figure 4. Loan To Asset Ratio Growth

Source: Source: Processed data, 2024

The image reveals a notable increase in the Loan to Asset Ratio (LAR) over two years, particularly from 2017 to 2019, surging from 53.204% to 58.58% in the study year. This reflects an evaluation in the management of the amount of credit disbursed by the banking sector.



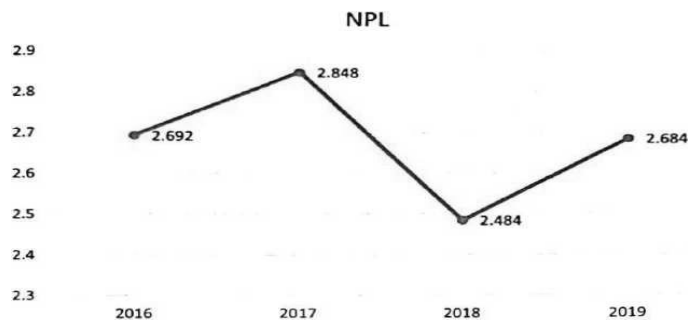


Figure 5. Loan To Asset Ratio Growth  
Source: Processed data, 2024

### Non Performing Loan (NPL)

The above graph displays a significant increase in Non-Performing Loans over two years, notably from 2016 to 2017 (from 2,692 to 2,848) and from 2018 to 2019 (from 2,484 to 2,684). This increase remains below the 5% threshold, indicating that 25 banks are considered capable of managing their credits.

### Interest Rate Risk (IRR)

The graph above illustrates a significant decrease in Interest Rate Risk (IRR) over two years, especially from 2018 to 2019 (from 260,712 to 244,372). This decline indicates an increase in market value.

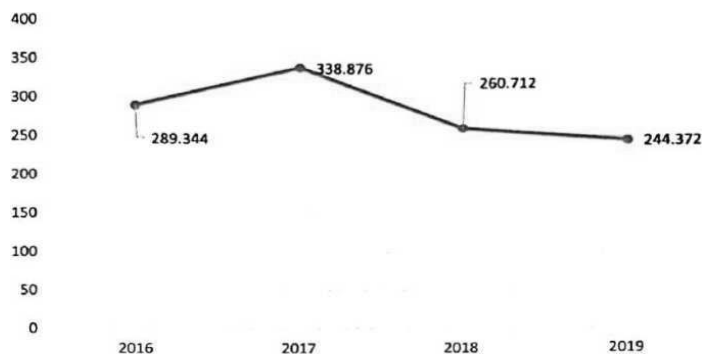


Figure 6. Interest Rate Risk (IRR) Growth  
Source: Processed data, 2024

### Net Foreign Exchange Position (NFEP)

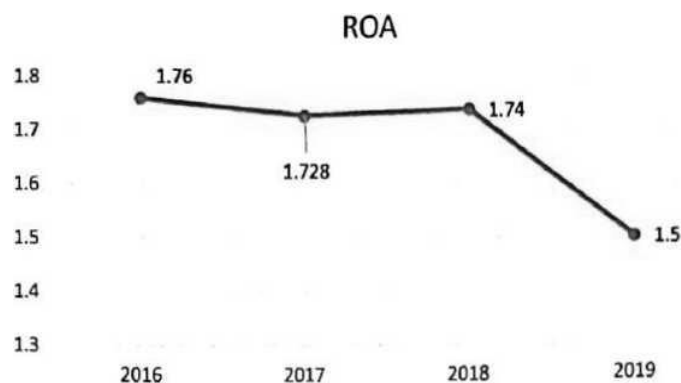


Figure 7. Return On Assets Growth  
Source: Processed data, 2024

The diagram above depicts fluctuations in Return on Assets (ROA), influenced by total assets owned and profits generated. In 2016, ROA reached its highest value at 1.76%, while in 2019, it hit its lowest point at 1.5%. The trend line indicates both an increase and a decrease. Nonetheless, ROA remains above 1.22%. High ROA represents the company's investment strategy to gain future profits. The fluctuations in ROA are influenced by the company's financial conditions, especially in its ability to generate net profits. Decreases in net profits can be caused by factors such as reduced production volume, declining sales, and intense market competition.

### Classical Assumption Test

Before using multiple linear regression models, classical assumption tests were conducted to ensure that the data were normally distributed, free from heteroskedasticity, and without multicollinearity. These classical assumption criteria were examined using SPSS 26.0.

#### Normality Test

The normality test was performed to determine whether the residual values in the regression model have a normal distribution or not, using the Kolmogorov-Smirnov test.

Table 3 . One-Sample Kolmogorov-Smimov Test Normality Test (Jstandardized)

N		100
Normal Parametere <sup>a, b</sup>	Mean	.0000000
	Std. Deviation	.93346490
Most Extreme Differences	Absolute	.053
	Positive	.053
	Negative	-.032
Test Statistic		.053
Asymp. Sig. (2-tailed) <sup>j</sup>		.200 <sup>4</sup>

Source: Source: Processed data, 2024

The SPSS output indicated an asymptotic significance (2-tailed) value of  $0.200 > 0.05$  ( $\alpha = 5\%$ ), concluding that the data are normally distributed.

### Autocorrelation Test

The autocorrelation test aims to determine whether there is a correlation between there is a correlation between disturbance errors in linear regression models between periods 't' and 't-1' (previous). In this research, the Durbin-Watson test was used.

Table 4. Autocorrelation Test

Model R	Adjusted R	Error of the	Sttistics				
Square	Square	Change	Durbin				
	Estimate	R Squareo	F	df1	df2	Sig. F	Wateon
~1.646*	.417	,174	96311	133	2.376	6.93	0,35 858

T<sup>a</sup>predictors: (Constant). BOPO, PDN. LDR, IRR, NPL. LAR

b. Dependent Variable: ROA

Source: Source: Processed data, 2024

Yielding a value of  $DW = 0.858 < 2$ , indicating no autocorrelation. Hence, this regression model can be used for research and hypothesis testing, demonstrating its appropriateness.

### Multicollinearity Test

The multicollinearity test was conducted to ascertain the presence or absence of correlations between independent variables within the regression model. The table presented VIF values for each variable, all less than 10, indicating no multicollinearity issues.

Table 5. Multicollinearity Test

VIF LDR	= 1,321 < 10
VIF LAR	= 1,321 < 10
VIF NPL	= 1,321 < 10
VIF IRR	= 1,321 < 10
VIF PDN	= 1,321 < 10
VIF BOPO	= 1,321 < 10

Source: Source: Processed data, 2024

**Heteroskedasticity Test**

Heteroskedasticity testing was performed to identify variance inequality in residuals in the regression model. Spearman Rho was used in this study, revealing no heteroskedasticity symptoms in all variables used within the research model, as the significance values for all variables were greater than 0.05.

Tabel 6. Heteroskedasticity Test

Heteroscedastic t test		LDR	LAR	NPL	IRR	PDN	BOPO	ROA
LDR	Corretabon Coefficient	1.000	.911 <sup>ac</sup>	-.159	.061	-.223 <sup>f</sup>	.019	.102
	Sig. (2-tailed)		.000	.114	.547	.026	.851	.314
	N	100	100	100	100	100	100	100
LAR	Correlation Coefficient	.911 <sup>n</sup>	1.000	-.186	.026	-.177	.116	-.026
	Sig. (2-tailed)	.000		.063	.799	.078	.251	.797
	N	100	100	100	100	100	100	100
NPL	Correlation Coefficient	-.159	-.186	1.000	-.105	.147	-.234 <sup>g</sup>	-.067
	Sig. (2-tailed)	.114	.063		.297	.144	.019	.509
	N	100	100	100	100	100	100	100
Soear <sup>IRR</sup> bpear	Correlation Coefficient	.061	.026	-.105	1.000	.046	-.041	.075
	Sig. (2-tailed)	.547	.799	.297		.649	.687	.461
	N	100	100	100	100	100	100	100
rho	Correlation Coefficient	-.223 <sup>f</sup>	-.177	.147	.046	1.000	-.009	.067
	Sig. (2-tailed)	.026	.078	.144	.649		.929	.508
	N	100	100	100	100	100	100	100
BOPO	Correlation Coefficient	.019	.116	-.234 <sup>g</sup>	-.041	-.009	1.000	-.520 <sup>ac</sup>
	Sig. (2-tailed)	.851	.251	.019	.687	.929		.000
	N	100	100	100	100	100	100	100
ROA	Correlation Coefficient	.102	-.026	-.067	.075	.007	-.520 <sup>ac</sup>	1.000
	Sig. (2-tailed)	.314	.797	.509	.461	.508	.000	—
	N	100	100	100	100	100	100	100
Coefficient	UnstandardizedCorrelation	.046	-.035	-.077	.152	.131	-.308 <sup>bn</sup>	.919 <sup>n</sup>
	Sig. (2-tailed)	.647	.729	.446	.132	.194	.181	.568
	Residual N	100	100	100	100	100	100	100

Source: Processed data, 2024

**Partial Effects of LDR, LAR, NPL, IRR, PDN, BOPO on Return On Assets in Banking Companies on the Indonesian Stock Exchange for the Period 2016-2019**

This research aims to test several statistical analyses, including partial correlation testing, determination coefficients, and partial hypothesis testing using the t-test.

**Partial Output**

Tabel 7. T-Test

Odel	Unstandardized		t	Sig.	Correlations		
	Coefficients B	Std. Error			Zero-order	Partial	Part
(Constant)	1.934	.381	5.078	.000			
LDR	.883	.011	3.817	.004	.074	.737	.079
LAR	.094	.015	2.614	.001	.040	.401	-.059
NPL	-.453	.045	-3.010	.003	-.064	-.641	-.098
IRR	.043	.000	.186	.853	-.067	.067	.018
PDN	-.032	.001	-1.250	.803	-.083	-.083	-.024
BOPO	-.001	.000	-3.410	.001	-.323	-.323	-.329

a. Dependent Variable: ROA

Source: Processed data, 2024

**The Influence of Loan Deposit Ratio on Return On Assets**

The correlation coefficient between Loan Deposit Ratio and Return On Assets is 0.737 or 73.7%, indicating a strong relationship between the two. The positive correlation coefficient signifies that the Loan Deposit Ratio increases Return On Assets. Partially, the impact of Loan Deposit Ratio on Return On Assets is also significant, with a significance value of  $0.004 < 0.05$  and a calculated T value of  $3.817 > T$  Table 1.660. Hence, it can be concluded that the Loan Deposit Ratio has a significant partial effect on Return On Assets.

The Influence of Loan to Assets Ratio on Return On Assets The correlation coefficient between Loan to Assets Ratio and Return On Assets is 0.401 or 40.1%, showing a strong relationship between them. The positive correlation coefficient indicates that the Loan to Assets Ratio increases Return On Assets. Partially, the impact of Loan to Assets Ratio on Return On Assets is significant, with a significance value of  $0.001 < 0.05$  and a calculated T value of  $2.614 > T$  Table 1.660. Thus, it can be concluded that the Loan to Assets Ratio has a significant partial effect on Return On Assets.

The Influence of Non-Performing Loan on Return On Assets The correlation coefficient between Non-Performing Loan and Return On Assets is 0.641 or 64.1%, indicating a strong relationship between them. The negative correlation coefficient signifies that Non-Performing Loan decreases Return On Assets. Partially, the impact of Non-Performing Loan on Return On Assets is significant, with a significance value of  $0.003 < 0.05$  and a calculated T value of  $3.010 > T$  Table 1.660. Therefore, it can be concluded that Non-Performing Loan has a significant partial effect on Return On Assets.

The Influence of Interest Rate Risk on Return On Assets The correlation coefficient between Interest Rate Risk and Return On Assets is 0.067 or 6.7%, indicating a strong relationship between them. The positive correlation coefficient suggests that Interest Rate Risk increases Return On Assets. However, the partial impact of Interest Rate Risk on Return On Assets is not significant, with a significance value of  $0.853 > 0.05$  and a calculated T value of  $0.186 > T$  Table 1.660. Thus, it can be concluded that Interest Rate Risk does not have a significant partial effect on Return On Assets.

The Influence of Operational Expenses on Operational Income on Return On Assets The correlation coefficient between Operational Expenses to Operational Income and Return On Assets is -0.323 or 32.2%, indicating a weak relationship between these variables. The negative correlation coefficient suggests that Operational Expenses to Operational Income decreases Return On Assets. Partially, the impact of Operational Expenses to Operational Income on Return On Assets is significant, with a significance value of  $0.001 < 0.05$  and a calculated T value of  $3.410 > T$  Table 1.660. Therefore, it can be concluded that Operational Expenses to Operational Income has a significant partial effect on Return On Assets.

Simultaneous Effects of Loan Deposit Ratio, Loan to Assets Ratio, Non-Performing Loan, Interest Rate Risk, Net Foreign Exchange Position, and Operational Expenses to

Operational Income on Return On Assets Research was conducted to determine the simultaneous effects of Loan Deposit Ratio, Loan to Assets Ratio, Non-Performing Loan, Interest Rate Risk, Net Foreign Exchange Position, and Operational Expenses to Operational Income on Return On Assets in banking companies listed on the Indonesia Stock Exchange during the period 2016-2019. The testing was conducted using multiple regressions, determination coefficients, and an F-test. The results are shown in an unexplained Multiple Linear Regression equation.

Table 8. Multiple Regression Equation

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.934	.381		5.078	.000
LDR	.883	.011	.256	3.817	.004
LAR	.094	.015	-.193	2.614	.001
1 NPL	-.453	.045	-.112	-3.010"	.003
IRR	.043	.000	.019	.186	.853
PDN	-.032	.001	-.026	-1.250	.803
BOPO	-.001	.000	-.352	-3.410	.001

a. Dependent Variable: ROA

Source: Processed data, 2024

$$Y = 1,934 + 0,883 X_1 + 0,094 X_2 - 0,453 X_3 + 0,043 X_4 - 0,032 X_5 - 0,001 X_6 + e$$

Interpretation:

1. The Constant (1.934) indicates the Return On Assets value if there are no changes in Loan Deposit Ratio, Loan to Assets Ratio, Non-Performing Loan, Interest Rate Risk, Net Foreign Exchange Position, and Operational Expenses to Operational Income, which is 1.934.
2. The regression coefficient of Loan Deposit Ratio (X<sub>1</sub>) at 0.883 indicates that every increase of 1 unit in Loan Deposit Ratio will increase Return On Assets by 0.883 units.
3. The regression coefficient of Loan to Assets Ratio (X<sub>2</sub>) at 0.094 indicates that every increase of 1 unit in Loan to Assets Ratio will increase Return On Assets by 0.094 units.
4. The regression coefficient of Non-Performing Loan (X<sub>3</sub>) at -0.453 indicates that every decrease of 1 unit in Non-Performing Loan will decrease Return On Assets by 0.453 units.
5. The regression coefficient of Interest Rate Risk (X<sub>4</sub>) at 0.043 indicates that every increase of 1 unit in Interest Rate Risk will increase Return On Assets by 0.043 units.
6. The regression coefficient of Net Foreign Exchange Position (X<sub>5</sub>) at -0.032 indicates that every decrease of 1 unit in Net Foreign Exchange Position will decrease Return On Assets by 0.032 units.

The regression coefficient of Operational Expenses to Operational Income (X<sub>6</sub>) at -0.001 indicates that every decrease of 1 unit in Operational Expenses to Operational Income will decrease Return On Assets by 0.001 unit. Additionally, the SPSS output presents the Determination Coefficient, not mentioned in the previous text. The Determination Coefficient measures how well the independent variables (Loan Deposit Ratio, Loan to Assets Ratio, Non-Performing Loan, Interest Rate Risk, Net Foreign Exchange Position, and Operational Expenses to Operational Income) can explain variations in Return On Assets. However, the text doesn't provide information on the specific Determination Coefficient value.

Table 9. Coefficient of Determination

Model	R	R Square Adjusted	R Square	Std. Error of the Estimate
	,646 <sup>a</sup>	.417	.174	.96311

a. Predictors: (Constant), BOPO, PDN, LDR, IRR, NPL, LAR

b. Dependent Variable: ROA

Source: Processed data, 2024

Based on the SPSS output, it is known that the simultaneous correlation value is Loan Deposit Ratio, Loan to Assets Ratio, Non Performing Loan, Interest Rate Risk. Analysis Results:

The correlation value between Net Foreign Exchange Position and Operational Expenses to Operational Income with Return On Assets is 0.646, categorized as very strong. This indicates a strong relationship between these variables and Return On Assets.

The correlation value between Loan Deposit Ratio, Loan to Assets Ratio, Non-Performing Loan, Interest Rate Risk, Net Foreign Exchange Position, and Operational Expenses to Operational Income with Return On Assets is positive, meaning an increase in these variables can increase Return On Assets, and vice versa.

Based on the SPSS output, the R-Square value is 0.417 or 41.7%. This means that Loan Deposit Ratio, Loan to Assets Ratio, Non-Performing Loan, Interest Rate Risk, Net Foreign Exchange Position, and Operational Expenses to Operational Income collectively explain 41.7% of the variation in Return On Assets. The remaining 58.3% is explained by other factors not included in the model.s of Determination

Tabel 10. R-Square

Model	R	R Square Adjusted	R Square	Std. Error of the Estimate
	,646 <sup>a</sup>	.417	.174	.96311

a. Predictors: (Constant), BOPO, PDN, LDR, IRR, NPL, LAR

b. Dependent Variable: ROA

Source: Processed data, 2024

Based on the SPSS output, it is known that the simultaneous correlation value is Loan Deposit Ratio, Loan to Assets Ratio, Non Performing Loan, Interest Rate Risk.

Therefore, the analyzed variables have a significant impact on Return On Assets, although there are other influencing factors. Based on the SPSS output, the F sig value is  $0.035 < 0.05$ .

## Discussion

### The Influence of Loan to Deposit Ratio on Return On Asset (ROA)

The Loans to Deposit Ratio has a significant influence on Return On Assets. This is supported by a theory stating that liquidity risk is caused by a bank's inability to meet its obligations that have matured. The Loans to Deposit Ratio is a measure of a bank's ability to pay its debts and return deposits to its customers (Damayanti and Savitri, 2012). The research results refer to the signal theory. According to Brigham and Houston (2013) cited in Ramadhan (2018), a signal is an action taken by a company to provide guidance to investors or creditors regarding the management's view of the company's prospects.

The Loan to Deposit Ratio (LDR) is an independent variable that affects ROA based on its relationship with a bank's risk level leading to bank profitability (ROA). A higher LDR indicates a greater amount of third-party funds channeled into credit, resulting in increased interest income and enhanced profitability.

The Loan to Deposit Ratio indicates the effectiveness of deposits as a funding source for credits, influencing returns and profits. A higher LDR signifies increased credits disbursed, elevating the bank's profitability through these loans. This demonstrates that the Loan to Deposit Ratio significantly impacts Return On Assets, in line with studies by Rengasamy (2014) and Dewi et al. (2015), concluding that LDR significantly affects profitability.

### **The Influence of Loan To Assets Ratio on Return On Asset (ROA)**

Loan to assets ratio has a significant impact on Return On Assets. According to Kasmir (2010), this ratio measures the amount of credit disbursed concerning a bank's assets. A higher credit amount typically leads to increased interest income, elevating returns on these assets. Similarly, studies by Dewi et al. (2015), Julita (2011), and Anggraini (2014) indicate a significant influence of Loan to assets ratio on Return On Assets.

### **The Influence of Non-Performing Loan on Return On Asset (ROA)**

Non-Performing Loans significantly affect Return On Assets. Credit risk arises when a debtor fails to repay their debt. Lower-risk credits lead to higher profitability. Non-Performing Loans indicate a bank's ability to manage problematic loans, affecting its operational efficiency and profitability. Studies by Mushtaq et al. (2015), Ndoka and Islami (2016), and Anshika (2016) confirm the correlation between Non-Performing Loans and Return On Assets.

### **The Influence of Interest Rate Risk on Return on Asset (ROA)**

Interest Rate Risk doesn't significantly affect Return On Assets. Interest Rate Risk's impact on the market risk is positive or negative, affecting a bank's income based on interest rate sensitivity. The theory of signaling suggests this reflects a bank's revenue generation and possible risk levels due to credit disbursement. The relationship between Interest Rate Risk and ROA can be positive or negative, contingent on the interest rate fluctuations.

### **The Influence of Net Foreign Exchange Position on Return On Asset (ROA)**

Net Foreign Exchange Position doesn't significantly impact Return On Assets. It relates to a bank's efficiency in managing foreign exchange, affecting income and risk levels. Studies by Romadloni and Herizon (2015) and Rindiwati (2018) support this, indicating a negative significant influence on ROA.

### **The Influence of Operational Costs to Operating Income (BOPO) on Return On Asset (ROA)**

Operational costs to operating income significantly affect Return On Assets. Operational risks involve fund collection and use issues. A higher ratio of operational costs to operating income implies lower operational efficiency, impacting bank profitability negatively. Studies by Dedi (2018), Nenda (2016), Fiola et al. (2016), among others, support this negative influence on ROA.

Theoretically, if the operational expenses to operational income ratio increases, it means there has been an escalation in operational costs by a percentage greater than the increase in operational income. Consequently, the bank's efficiency level in cost containment to generate operational income decreases, thereby increasing its operational risk (Utami, 2014). The author's research findings are supported by studies conducted by Dewi et al. (2015), Manikam and Syafruddin (2013), as well as Arindi (2016), which conclude that the ratio of operational expenses to operational income influences the Return On Assets.

## **5. Conclusion**

The Loan Deposit Ratio with Return On Assets has an influence of 0.737 or 73.7%, indicating a strong relationship between the Loan Deposit Ratio and Return On Assets. The Loan Deposit Ratio has a significant value of  $0.004 < \text{sig at } 0.05$ , and the calculated T-value is  $3.817 > T \text{ Table } 1.660$ . Therefore,  $H_a$  is accepted and  $H_o$  is rejected, implying that the Loan Deposit Ratio significantly affects Return On Assets. The Loan to Assets Ratio with Return On Assets has an influence of 0.401 or 40.1%, indicating a strong relationship between the Loan to Assets Ratio and Return On Assets. The Loan to Assets Ratio has a significant value of  $0.001 < \text{sig at } 0.05$ , and the calculated T-value is  $2.614 > T \text{ Table } 1.660$ . Consequently,  $H_a$  is accepted

and  $H_0$  is rejected, implying that the Loan to Assets Ratio significantly affects Return On Assets.

The Non-Performing Loan with Return On Assets has an influence of 0.641 or 64.1%, indicating a strong relationship between Non-Performing Loan and Return On Assets. The Non-Performing Loan has a significant value of  $0.003 < \text{sig at } 0.05$ , and the calculated T-value is  $3.010 > T \text{ Table } 1.660$ . Thus,  $H_a$  is accepted and  $H_0$  is rejected, indicating that Non-Performing Loan significantly affects Return On Assets. Interest Rate Risk with Return On Assets has an influence of 0.067 or 6.7%, indicating a strong relationship between Interest Rate Risk and Return On Assets. However, Interest Rate Risk has an insignificant value of  $0.853 > \text{sig at } 0.05$ , and the calculated T-value is  $0.186 > T \text{ Table } 1.660$ . Hence, both  $H_a$  and  $H_0$  are rejected, suggesting that Interest Rate Risk does not significantly affect Return On Assets.

Net Foreign Exchange Position with Return On Assets has an influence of -0.083 or 8.3%, indicating a very weak relationship between Net Foreign Exchange Position and Return On Assets. Net Foreign Exchange Position has a significant value of  $0.803 > \text{sig at } 0.05$ . Also, the calculated T-value is  $1.250 < T \text{ Table } 1.660$ . Therefore,  $H_a$  is rejected and  $H_0$  is accepted, implying that Net Foreign Exchange Position does not significantly affect Return On Assets. Operational Expenses to Operating Income with Return On Assets has an influence of -0.323 or 32.2%, indicating a weak relationship between Operational Expenses to Operating Income and Return On Assets. Operational Expenses to Operating Income has a significant value of  $0.001 < \text{sig at } 0.05$ . Additionally, the calculated T-value is  $3.410 > T \text{ Table } 1.660$ . Thus,  $H_a$  is accepted, and  $H_0$  is rejected, suggesting that Operational Expenses to Operating Income significantly affects Return On Assets. Loan Deposit Ratio, Loan to Assets Ratio, Non-Performing Loan, Interest Rate Risk, Net Foreign Exchange Position, and Operational Expenses to Operating Income with Return On Assets have a collective influence of 0.417 or 41.7%. The F-significance value is  $0.035 < 0.05$ , and the calculated F-value is  $2.376 > F \text{ Table } 2.19$ , meaning that  $H_a$  is accepted and  $H_0$  is rejected. Therefore, collectively, Loan Deposit Ratio, Loan to Assets Ratio, Non-Performing Loan, Interest Rate Risk, Net Foreign Exchange Position, and Operational Expenses to Operating Income have a significant influence on Return On Assets.

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