

**The Influence of Risk Management on Financial Performance
(Study on Banking Companies Listed on The Indonesia Stock Exchange 2018-2022)**

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Abstract: This study seeks to examine the impact of risks on the financial performance of privately-owned banking companies that are listed on the Indonesia Stock Exchange from 2018 to 2022. The variables considered encompass Credit Risk, represented by Non-Performing Loans (NPL), Liquidity Risk, represented by Loan to Deposit Ratio (LDR), Market Risk, represented by Net Interest Margin (NIM), Operational Risk, represented by Operating Expense to Operating Income (BOPO), and Financial Performance, represented by Return on Assets (ROA). The research design utilized is explanatory research with a quantitative approach. The study population comprises all Conventional Commercial Banks within the National Private Commercial Bank sector listed on the Indonesia Stock Exchange (IDX) from 2018 to 2022, with total assets not exceeding Rp 20 trillion. Purposive sampling, involving specific criteria and objectives rather than random selection, was employed to select 11 Conventional Commercial Banks in the National Private Commercial Bank sector in Indonesia.

The analytical methods employed include descriptive analysis, multiple linear regression analysis, assessments for normality, multicollinearity, heteroscedasticity, autocorrelation, hypothesis testing, and determination of coefficients. The findings reveal that the NPL and BOPO variables individually have a significant impact on ROA, whereas LDR and NIM variables individually do not exhibit a significant effect on ROA. Collectively, NPL, LDR, NIM, and BOPO significantly influence ROA in banking companies. The coefficient of determination test result, at 93.60%, indicates that 93.60% of the dependent variable ROA is influenced by the independent variables NPL, LDR, NIM, and BOPO, leaving 6.40% influenced by other unexamined factors in this study.

Keywords: NPL, LDR, NIM, BOPO, ROA

1. Introduction

The global financial crisis originating in the United States had a discernible impact on the worldwide financial scenario. European nations like Iceland, Russia, the Netherlands, the United Kingdom, France, Germany, as well as countries in the Asia-Pacific region including China, Taiwan, Singapore, the Philippines, Japan, and Australia, all experienced the repercussions of this crisis. Common consequences included escalating inflation, devaluation of exchange rates, economic downturns, stock market collapses, and numerous banks, financial institutions, and corporations facing financial difficulties or bankruptcy. Indonesia, too, felt the direct impact through losses incurred by some Indonesian companies that had investments in U.S. financial institutions. Companies, both financial and non-bank, which had allocated funds to alternative income sources by investing in stocks or bonds of foreign financial instruments like Citigroup, UBS, Merrill Lynch, Morgan Stanley, Lehman Brothers, Fannie Mae, Freddie Mac, American International Group (AIG), and others, were adversely affected. Indirect consequences included diminished liquidity, rising interest rates, falling commodity prices, depreciation of the Indonesian rupiah exchange rate, and a decline in funding source growth. Confidence in various financial institutions from consumers, investors, and the market waned, leading to a weakened capital market.

In the early months of 2020, the world faced a severe, unknown infection that originated from Wuhan City, Hubei Province, China. Initially reported as severe pneumonia cases related to a wet market, it was later identified as a new coronavirus, leading to the declaration of a Global Emergency by the World Health Organization (WHO) on February 11, 2020, named COVID-19. As of now, there have been 168,000,175 confirmed cases, 3,487,572

deaths, and 149,342,494 recoveries worldwide. The COVID-19 pandemic has impacted the banking sector, affecting credit growth, which is crucial for bank survival. With worsening economic conditions in Indonesia, marked by widespread unemployment and disrupted business activities, there is a potential increase in non-performing loans (NPL). The extent of this impact on banks' performance after the restructuring period, as per the Financial Services Authority (OJK), depends on the buffer or reserve funds held by each bank. The pandemic is expected to trigger a rise in NPL in the financial sector, particularly in the banking industry, with Government Regulation in Lieu of Law (Perppu) No. 1/2020 also influencing the banking sector.

In line with Law Number 7 of 1992 concerning Banking, as amended by Law Number 10 of 1998, banks are obligated to maintain their health, reflecting their condition and performance. Bank health is crucial for supervisory authorities to formulate strategies and focus on supervision. It is also in the interest of relevant parties, including owners, management, and users of bank services. The evolving banking industry, with increasingly complex products and services, exposes banks to more risks. Consequently, the international assessment approach favors a risk-based supervision approach, impacting the assessment of a bank's health level. The dynamic nature of banking necessitates a methodology for assessing the Bank's Health Level that considers current and future conditions, effectively serving as a tool for evaluating performance, risk management, and compliance with applicable provisions and prudential principles. Using a risk-based approach, the assessment covers risk profiles and performance, encompassing good governance, profitability, and capitalization.

In accordance with Regulation Number 18/Pojk.03/2015 issued by the Financial Services Authority regarding the Execution of Risk Management for Commercial Banks, the operational activities of banks are consistently exposed to risks closely associated with their role as financial intermediaries. The dynamic evolution of both external and internal banking environments further complicates these risks. Consequently, to effectively navigate the evolving banking landscape, it is imperative for banks to adopt Risk Management practices. The guiding principles of Risk Management to be embraced and implemented within the Indonesian banking sector are designed to align with the recommendations of the Bank for International Settlements through the Basel Committee on Banking Supervision. These principles essentially establish a benchmark for the banking industry, ensuring prudent operations in the face of the rapidly changing landscape of banking activities.

The implementation of Risk Management is not only a measure for the benefit of the bank itself but also serves the interests of its customers. One crucial element in safeguarding customer interests and facilitating risk control is the transparency of information related to the bank's products and activities. The execution of Risk Management may vary among banks based on their individual objectives, business policies, size and complexity, financial capabilities, supporting infrastructure, and human resources. The Financial Services Authority has established this regulation as a minimum standard that the Indonesian banking sector must adhere to when implementing Risk Management. Through this regulation, banks are expected to conduct all their activities in an integrated manner, incorporating a precise and comprehensive Risk Management system.

2. Problem Formulation

The significance of the banking industry for the stability and economy of a country makes it highly regulated. The magnitude of recovery costs during a crisis in the industry, the collapse of other industries due to banking industry crises, and the damage to a country's economic stability are examples of the impacts when the banking system does not function as it should. Global financial crises in 2008 and the financial crisis in Indonesia in 1997-1998 are events that have caused a slowdown in the global and Indonesian economies, subsequently triggering a global economic slowdown. These crises originated from the collapse of credits in the property industry channeled by banks in the United States, leading to a financial crisis not only in banking but also in other industries. From this event, Lehman Brothers, one of the largest investment banks, declared bankruptcy, causing other companies to follow suit. This study aims to determine the extent to which Risk Management, represented by Credit Risk (NPL), Liquidity Risk (LDR), Market Credit Risk (NIM), Operational Risk (BOPO), influences Financial Performance (ROA) in Indonesian banking companies listed on the Indonesia Stock Exchange during the period from 2018 to 2022.

3. Literature Review

Bank

According to Law No. 10 of 1998 concerning Banking, a bank is defined as a business entity that collects funds from the public in the form of credit and/or other forms to improve the standard of living for many people. Meanwhile, Banking is defined as everything related to banks, including institutions, business activities, and methods and processes in carrying out their business activities.

Financial Statements

According to Sundjaja, Ridwan S., Inge B., and Dharma P.S., 2013:115, financial statements are a report that illustrates the results of the accounting process used as a communication tool between financial data or company activities with stakeholders interested in that data or activities. Financial statements aim to provide information regarding the financial position, performance, and changes in the financial position of a company that is useful for a large number of financial statement users in making economic decisions.

Risk Management

Financial Services Authority Regulation Number 18/Pojk.03/2016 Regarding the Implementation of Risk Management for Commercial Banks stipulates that banks are required to implement effective risk management, both for the individual bank and for the bank in consolidation with its subsidiary companies. The implementation of risk management encompasses credit risk, market risk, liquidity risk, operational risk, legal risk, reputation risk, strategic risk, and compliance risk. The risk management variables are proxied by credit risk, liquidity risk, market risk, and operational risk.

Credit Risk

Based on OJK Regulation No. 18/POJK.03/2016, credit risk refers to the risk that another party fails to meet its obligations to the bank, including credit risk caused by debtor failure, counterparty credit risk, credit concentration risk, and settlement risk. According to Andrianto et al., (2019:275), credit risk is the risk that customers, debtors, or counterparties cannot fulfill their financial obligations according to the agreements made. In conclusion, credit risk arises from the deterioration of credit quality. The decline in credit quality does not necessarily lead to failure, but the likelihood of failure is increased. Non-Performing Loan (NPL) is an indicator used for credit risk

$$\text{Formula: NPL} = \frac{\text{Total Non Performing Loans}}{\text{Total Loans}} \times 100$$

Liquidity Risk

Liquidity risk is the risk caused by a bank's inability to meet its maturing obligations. The Loan to Deposit Ratio (LDR) is an indicator used for liquidity risk. LDR illustrates the bank's ability to repay, indicating whether the bank can settle its debts, pay back to depositors, and meet the requested loan demands. Therefore, the larger the LDR, the greater the amount of credit provided, capable of increasing interest income and ultimately enhancing profitability. According to Pandia (2017:2015), liquidity risk arises from the insufficient availability of a bank's liquid assets, rendering it unable to fulfill its obligation.

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

Market Risk

Market risk is the risk of loss in the investment value resulting from continuous buying and selling transactions in accordance with financial instructions performed in the market to gain profit. It is intentionally created by the bank to engage in a risky endeavor with the expectation of profiting from the undertaken risk. Therefore, the

higher the interest income received by the bank, the more positively it will impact the increase in profits and the overall improvement in the bank's earnings (Wati & Wahidahwati, 2018). Market risk is proxied by Net Interest Margin (NIM).

$$\text{Formula : NIM} = \frac{\text{Net Interest Income}}{\text{Average Interest Earning Assets}} \times 100$$

Operational Risk

Operational risk is the risk that arises from internal factors such as human error, service procedures, administrative procedures, and other internal factors that may result from weaknesses within the company. According to (Wati & Wahidahwati, 2018), operational risk is proxied by the Operational Costs to Operational Income Ratio (BOPO). A higher BOPO ratio indicates that the bank is inefficient in managing its operational activities..

$$\text{Formula : BOPO} = \frac{\text{Total Operational Costs}}{\text{Total Operational Income}} \times 100$$

Financial Performance

According to Rudianto (2013:189), financial performance is the result or achievement attained by a company's management in effectively managing the company's assets over a specific period. Financial performance is crucial for companies to understand and evaluate the extent of the company's success based on the financial activities carried out. In this study, the researcher uses the Return on Assets (ROA) ratio as a measure that depicts the financial performance of a bank.

$$\text{Rumus : ROA} = \frac{\text{Net Income} \times 100}{\text{Average Total Assets}}$$

1. Hypotheses

- H1: Is there a significant individual impact of Credit Risk, represented by NPL, on Financial Performance, represented by ROA, in banks?
- H2: Does Liquidity Risk, proxied by LDR, individually exert a significant influence on Financial Performance, represented by ROA, in banks?
- H3: Does Market Risk, represented by NIM, individually have a significant impact on Financial Performance, represented by ROA, in banks?
- H4: Does Operational Risk, represented by BOPO, individually have a significant impact on Financial Performance, represented by ROA, in banks?
- H5: Do Credit Risk (NPL), Liquidity Risk (LDR), Market Risk (NIM), and Operational Risk (BOPO) collectively exert a significant impact on Financial Performance, represented by ROA, in banks?

5. Research Method

Research Type

The research methodology employed in this study is a quantitative research method. The analysis used in this research is multiple regression analysis.

Population and Sample Determination

According to Sugiyono (2011:80), the population refers to the generalization area consisting of objects/subjects with certain qualities and characteristics set by the researcher for study and subsequent conclusions. The population in this study comprises all Conventional Commercial Banks in the National Private Foreign Exchange Bank sector registered on the Indonesia Stock Exchange (IDX) during the period 2018-2022. The sampling

technique used is purposive sampling, where the researcher has specific criteria and goals but does not select randomly. The obtained sample consists of 11 Conventional Commercial Banks in the National Private Foreign Exchange Bank sector in Indonesia. In this study, the sample criteria are as follows:

1. Conventional Commercial Banks listed on the Indonesia Stock Exchange, operating in Indonesia from 2018-2022, with assets $\leq$ Rp 20 trillion.
2. Banks with complete annual report data, including financial ratios such as NPL, LDR, ROA, NIM, and CAR for the years 2018-2022.

Data Source

In collecting the required data, the researcher utilized secondary data, specifically the financial reports published by each bank from 2018 to 2022. The data collection technique for this research involves documentation study to obtain the necessary secondary data. The data is obtained from the official websites of each bank and the Indonesia Stock Exchange (IDX).

6. Data Analysis Technique

a. Description Analysis

Descriptive analysis furnishes an illustration or summary of the data, encompassing details such as minimum and maximum values, mean, and standard deviation (Ghozali, 2013:19). The objective of this analysis is to elucidate the data for easy comprehension.

b. Inferential Analysis

1) Multiple Linear Regression Analysis:

Multiple linear regression analysis is a statistical method that establishes connections between two or more independent variables and a dependent variable (Lupiyoadi and Ikhsan, 2015:157). The aim of multiple linear regression analysis is to gauge the relationship between multiple variables.

2) Classic Assumption Tests:

a) Normality Test:

The normality test in this study employs the Kolmogorov-Smirnov test, using a two-tailed test with a significance level (α) of 0.05. If the p-value > 0.05 , the data is deemed to be normally distributed.

b) Multicollinearity Test:

The multicollinearity test scrutinizes whether there is correlation among independent variables (Ghozali, 2009: 96). The commonly used threshold value to indicate multicollinearity is $VIF \geq 10$, with a tolerance level of 0.95.

c) Heteroskedasticity Test:

The heteroskedasticity test in this study employs the Glejser Test method. If the significance value of the independent variable > 0.05 , it is assumed that no heteroskedasticity is present.

d) Autocorrelation Test:

The autocorrelation test in this study employs the Durbin-Watson method. If the Durbin-Watson value falls within the specified upper and lower limits, it is assumed that no autocorrelation is present.

c. Hypothesis Testing

1) Simultaneous Significance Test (F-Test):

The F-statistic test is utilized to determine whether all independent variables included in the model collectively have a simultaneous effect on the dependent variable (Ghozali, 2009:88). The test is conducted with a significance level (α) of 5%.

2) Individual Parameter Significance Test (T-Test):

The T-statistic test gauges how much an independent variable individually influences the dependent variable (Ghozali, 2009:88). The test is conducted with a significance level of 0.05 ($\alpha = 5\%$). If the significance value > 0.05 , the null hypothesis is accepted (indicating the regression coefficient is not significant). If the significance value < 0.05 , the null hypothesis is rejected (indicating the regression coefficient is significant).

d. Coefficient of Determination

The coefficient of determination (R^2) is a fundamental metric that assesses how effectively the model can explicate the variation in the dependent variable.

7. Research Results And Discussion

Multiple Regression Analysis

Regression analysis is employed to measure the relationship between independent variables, namely NPL (X1), LDR (X2), NIM (X3), BOPO (X4), and the dependent variable, ROA (Y).

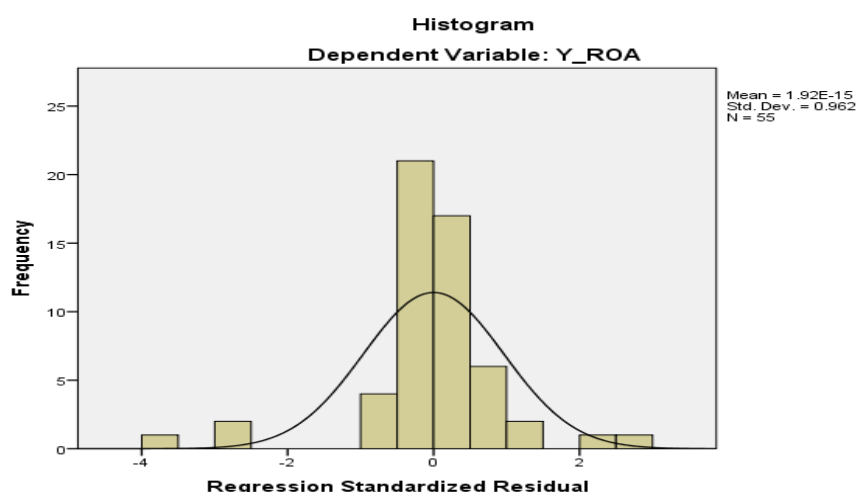
Table 1. Descriptive Statistics

Variabel	N	Minimum	Maximum	Mean	Std. Deviation
X1-NPL	55	-3.30	9.92	1.8989	1.90526
X2-LDR	55	14.71	220.31	87.4675	27.23850
X3-NIM	55	1.61	19.30	5.2382	3.90938
X4-BOPO	55	51.70	287.86	104.0133	41.22981
Y-ROA	55	-14.75	4.74	-.3160	3.64012
Valid N	55				

Source: Processed Data (2023)

The research results indicate that the data is already normally distributed, allowing for the regression analysis for hypothesis testing to be conducted as the data has a normal distribution.

Picture 1. Normality Test



Source: Processed Data (2023)

From the above histogram, it can be observed that the histogram graph shows a right-skewed distribution pattern, indicating that the data from this study is normally distributed.

Table 2. Heteroskedasticity Test

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.059	.274		-3.870	.000
	X1_NPL	-.013	.034	-.036	-.398	.692
	X2_LDR	-.001	.002	-.023	-.249	.804

	X3_NIM	.102	.018	.556	5.812	.000
	X4_BOPO	.011	.002	.620	7.164	.000

a. Dependent Variable: ABRESID

Source: Processed Data (2023)

The results of the Glejser test in Table 2 indicate that the variables NPL, LDR, NIM, and BOPO have significance values > 0.05 , which means that there is no heteroskedasticity in the research data. Therefore, the assumption of heteroskedasticity is met, and the data used is suitable for multiple linear regression analysis.

Table 3. Multicollinearity Test

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	9.281	.556		16.685	VIF		
	X1_NPL	-.162	.069	-.085	-2.355	1.088	.919	1.088
	X2_LDR	-.002	.005	-.013	-.364	1.140	.877	1.140
	X3_NIM	-.049	.036	-.052	-1.366	1.234	.810	1.234
	X4_BOPO	-.085	.003	-.967	-27.914	1.010	.990	1.010

a. Dependent Variable: Y_ROA

Source: Processed Data (2023)

Results of multicollinearity testing in Table 3 indicate that the VIF values for all predictor variables (NPL, LDR, NIM, and BOPO) are < 10 and the tolerance values for all variables (NPL, LDR, NIM, and BOPO) are > 0.1 , thus it can be concluded that there is no multicollinearity present.

Table 4. Partial T-Test Hypothesis

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.281	.556		16.685	.000
	X1_NPL	-.162	.069	-.085	-2.355	.022
	X2_LDR	-.002	.005	-.013	-.364	.717
	X3_NIM	-.049	.036	-.052	-1.366	.178
	X4_BOPO	-.085	.003	-.967	-27.914	.000

a. Dependent Variable: Y_ROA

Source: Processed Data (2023)

Referring to Table 4, it can be elucidated that Non-Performing Loans (NPL) exhibits a t-value of -2.355 with a significance of 0.022, which is below the 5% threshold. Consequently, NPL significantly affects financial performance as proxied by Return on Assets (ROA), leading to the non-acceptance of Hypothesis 1 (H1). Conversely, the impact of Loan to Deposit Ratio (LDR) on financial performance (ROA) reveals a t-value of -0.364 and a significance level of 0.717, surpassing the 5% mark. This suggests that LDR does not significantly influence financial performance and has a positive impact on ROA, resulting in the non-acceptance of Hypothesis 2 (H2). Regarding Net Interest Margin (NIM), its effect on financial performance (ROA) manifests a t-value of -1.366 with a significance level of 0.178, exceeding the 5% threshold. This implies that NIM does not significantly influence and has a positive impact on financial performance proxied by ROA, leading to the non-acceptance of Hypothesis 3 (H3). Conversely, Operating Expense to Operating Income (BOPO) significantly influences financial performance (ROA) with a t-value of -27.914 and a significance level of 0.000, below the 5% mark.

Consequently, Hypothesis 4 (H4) is not accepted, signifying the substantial impact of BOPO on financial performance as proxied by ROA.

Table 5. Simultaneous Hypothesis Test F

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	673.042	4	168.261	198.032	.000 ^b
	Residual	42.483	50	.850		
	Total	715.525	54			
a. Dependent Variable: Y_ROA						
b. Predictors: (Constant), X4_BOPO, X2_LDR, X1_NPL, X3_NIM						

Source: Processed Data (2023)

Table 5 indicates that the F value is 198.032 with a significance level of $0.000 < 0.05$, meaning that collectively, the variables NPL, LDR, NIM, and BOPO significantly influence the financial performance proxied by ROA.

Table 6. Coefficient of Determination

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.970 ^a	.941	.936	.92177	2.199
a. Predictors: (Constant), X4_BOPO, X2_LDR, X1_NPL, X3_NIM					
b. Dependent Variable: Y_ROA					

Source: Processed Data (2023)

According to Table 6, the applied regression is multiple linear regression, and the Adjusted R-squared value, which stands at 0.936, is utilized. This value signifies that 93.60% of the variation in Financial Performance, represented by ROA, can be attributed to the combined influence of NPL, LDR, NIM, and BOPO. In other words, 93.60% of the ROA variable is explained by the variables NPL, LDR, NIM, and BOPO, while the remaining 6.40% is influenced by factors not incorporated into the multiple linear regression model.

8. CONCLUSION

Drawing conclusions from the data analysis, hypothesis testing, and discussion in this study, the following key findings emerge:

1. Non-Performing Loans (NPL), representing Credit Risk, and Operating Expense to Operating Income (BOPO), representing Operational Risk, individually exhibit a significant impact on financial performance, as proxied by Return on Assets (ROA). Conversely, Loan to Deposit Ratio (LDR), representing Liquidity Risk, and Net Interest Margin (NIM), representing Market Risk, do not individually show a significant effect on financial performance proxied by ROA.
2. When considered collectively, Credit Risk (NPL), Operational Risk (BOPO), Liquidity Risk (LDR), and Market Risk (NIM) jointly exert a significant influence on financial performance, as represented by ROA.
3. The coefficient of determination test, reflected in the Adjusted R-squared value of 0.936 or 93.60%, signifies that Credit Risk (NPL), Operational Risk (BOPO), Liquidity Risk (LDR), and Market Risk (NIM) collectively contribute to influencing Financial Performance, as proxied by ROA. The remaining 6.40% is influenced by other factors not incorporated into the multiple linear regression model.

9. RECOMMENDATIONS

Based on the research conducted, the author would like to provide some recommendations to the readers as follows:

1. For Investors: Investors should be careful in choosing banks for investment. The selection of banks can be done by evaluating or interpreting the results of ratio calculations and predicates held by a bank for a ratio. Choosing the right bank will bring benefits to the investment made.
2. For Future Research: It is recommended to expand the scope of research on the influence of risk management, covering all risks inherent in banking companies, using other financial ratio indicators, and increasing the research sample.

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