



Impact of Financial Risks on the Performance of Regional Development Banks in Indonesian: A Comprehensive Analysis of ROA and ROE

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ABSTRACT: This research analyzes the simultaneous, partial and dominant influence on financial risk factors on the performance of regional development banks in Indonesia. The population and sample of this study is a panel data set of 27 Regional Development Banks (RDB) in Indonesia from 2019 to 2023 from the annual financial reports. The results show that financial risk has a significant influence on ROA (74.5%) and ROE (61.3%). Also Liquidity Risks, Market Risks, Operational Risk and Leverage Risk significantly affect Return on Assets. Return on Equity is only affected by Liquidity Risks and Market Risks.

Keywords: Financial Risk, Financial Performance.



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INTRODUCTION

The banking sector plays an important role in the Indonesian economy providing various financial services that support national economic activities. Besides, Regional Development Banks (BPDs) as part of the national banking system also perform a strategic function in encouraging regional development. However, in carrying out these functions, BPD face various financial risks that affect their financial performance. In this regard financial performance is measured through Return on Assets (ROA) and Return on Equity (ROE) that are the main indicators to assess the effectiveness of bank management in managing assets and equity.

A bank is a financial institution that collects funds from customers and disburses them as loans or financing for business or personal purposes. The banking sector in Indonesia is strictly regulated by three main institutions viz., Bank Indonesia (BI), the Financial Services Authority (OJK), and the Deposit Insurance Corporation (LPS), each ensuring various aspects of financial stability and customer protection (Sinaga, 2022). Over the decades, the method for assessing bank health has evolved from the CAMEL model, which focused on credit and liquidity risks in 1990s, to the CAMELS model that included market risk in the 2000s, and finally to the RGEC model introduced in the 2010s. This model incorporates the Capital Adequacy Ratio (CAR), factoring in both credit and market risks for a comprehensive assessment of bank soundness. The OJK continues to update and tighten regulations, emphasizing risk management, governance, and compliance to ensure the stability and safety of the banking sector. While the RGEC model remains relevant,

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banks must continually adapt to OJK's latest regulations to maintain compliance and financial health.

Bank risk management is a critical process to maintain stability and sound financial performance, in accordance with the rules of the Financial Services Authority of the Republic of Indonesia (OJK). According to OJK regulation No. 18/2016 on the Implementation of Risk Management for Commercial Banks, risk management is defined as a set of methodologies and procedures used to identify, measure, monitor, and manage risks arising from all business activities of a bank ([Financial Services Authority, 2016](#)). It covers various types of risks that can affect the bank's operations and finances.

Table 1. Financial Risk and Performance of Regional Development Banks in Indonesia

Year	ROA	ROE	LDR	NPL	NIM	CIR	CAR
2019	2,18	12,54	87,48	2,58	6,37	38,52	21,84
2020	2,03	12,58	89,65	3,22	6,11	54,07	23,32
2021	1,91	12,39	76,51	2,61	5,77	55,47	23,61
2022	1,99	13,08	78,72	2,41	6,16	58,19	25,18
2023	2,05	12,35	83,98	2,40	6,09	56,62	27,50

Noted. Ratio in Percent

Based on table 1 above, data analysis of financial risk and performance of Regional Development Banks in Indonesia from 2019 to 2023 shows a mixed trend. ROA declined from 2.18% in 2019 to 1.91% in 2021, then rose to 2.05% in 2023. ROE peaked at 13.08% in 2022 before dropping to 12.35% in 2023. LDR experienced a significant decline in 2021 at 76.51% and rose again to 83.98% in 2023. NPL increased in 2020 to 3.22%, but declined steadily to 2.40% in 2023. NIM decreased from 6.37% in 2019 to 5.77% in 2021, then rose back to 6.09% in 2023. CIR increased sharply in 2020 to 54.07%, reached 58.19% in 2022, and fell slightly to 56.62% in 2023. CAR continued to increase from 21.84% in 2019 to 27.50% in 2023, indicating an increase in the bank's resilience to financial risks. Despite improvements in some indicators, significant fluctuations in LDR, NPL, and CIR indicate the need for further research to understand the factors affecting financial performance and develop more effective risk management strategi ([Casado-Aranda et al., 2018](#); [Nguyen et al., 2021](#); [Seraj et al., 2022](#)) es.

Liquidity risk (Loan to Deposit Ratio) indicates that the bank has a low level of liquidity, therefore it has the potential to face difficulties in meeting short-term obligations. According to research by Pranowo et al. (2020), poor liquidity management can lead to a financial crisis, which has a negative impact on banking stability and the economy as a whole. High credit risk (Non-Performing Loans) can reduce bank profitability and increase operating costs due to non-performing loans. In line with the research of ([Tamakloe et al., 2023](#)), the high level of NPLs is related to the poor quality credit risk management and unfavorable macroeconomic conditions, which ultimately suppresses the financial performance of banks.

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In addition to liquidity and credit risk, banks are also faced with market risk (Net Interest Margin) where a high NIM indicates the bank's ability to generate net interest income greater than interest costs, but also reflects the risk of exposure to fluctuations in market interest rates. According to research by (Nisar et al., 2018), high interest margins can reflect a less competitive market structure, but also illustrate good interest rate risk management by banks. Operational risk (Cost to Income Ratio) shows the bank's operational efficiency in managing costs relative to the revenue generated. A high CIR indicates that the bank has large operating costs compared to the income generated, which can reduce profitability. According to research by [Moussa and Chedia \(2021\)](#), banks with a high level of operational efficiency tend to have better financial performance, which is reflected in higher ROA and ROE ([Juma et al., 2018](#); [Khan et al., 2015](#); [Pantea et al., 2014](#)).

Leverage risk, as measured by the Capital Adequacy Ratio (CAR), shows the bank's ability to cover potential losses with its capital. A high CAR indicates that the bank has sufficient capital to cover the risks faced, but it can also indicate a non-optimal use of capital in generating income. Effective management of leverage risk is important to ensure the stability and sustainability of bank operations. As explained by ([Dao & Nguyen, 2020](#)), an adequate capital adequacy ratio is key to ensuring the resilience and stability of the banking system. Research by ([Tamakloe et al., 2023](#)) also showed that operational risk management has a significant influence on bank performance, with operational risk explaining 99.24% of the variability in bank performance in Ghana. This indicates that effective operational risk management is critical for maintaining the stability and financial performance of banks. On the other hand, the study also finds that credit risk, liquidity risk, and market risk had no significant influence on bank performance, suggesting that the main focus should be on operational risk management.

Furthermore, research by ([Tamakloe et al., 2023](#)) stated that overall risk management has a significant influence on bank performance, explaining 74.74% of the variability in bank performance. This suggests that overall risk management, including liquidity, credit, market, and operational risks, is critical to ensure stable and sustainable financial performance. For example, research by ([Vinh & Dung, 2020](#)) found that liquidity and credit risks have a significant influence on the financial performance of banks in Vietnam, demonstrating the importance of managing these risks in different contexts.

In this context, this study aims to analyze the simultaneous, partial and dominant influence of financial risk factors on the performance of regional development banks in Indonesia. By using panel data from 2019 to 2023, this study is expected to provide a comprehensive understanding of how various types of financial risks affect ROA and ROE. In this way this study also provides strategic recommendations to BPD in managing these risks to improve the financial performance of banks in Indonesia ([Agnese & Capuano, 2020](#); [Du & Palia, 2018](#); [Toth et al., 2022](#)).

Agency Theory

Agency Theory explains the relationship between principals (owners) and agents (managers), where conflicts of interest can arise if agents make decisions that benefit themselves rather than the owners. ([Jensen & Meckling, 1976](#)) state that good contracts and incentives are needed to align

the interests between principals and agents. In the context of banking, this theory is particularly relevant as banks often have owners (shareholders) who entrust management to executives. When management does not have appropriate incentives, they may take unnecessary risks or fail to manage risks effectively. [\(Fama & Jensen, 1983\)](#) add that a strong governance structure, including oversight by the board of directors, can help reduce this conflict of interest and ensure that decisions are aligned with shareholders' interests.

Risk Management and Bank Performance

Risk management plays a crucial role in bank performance as it involves identifying, assessing, and controlling risks. [\(Fraser & Simkins, 2016\)](#) emphasize that effective risk management can improve the financial stability of banks and reduce the likelihood of a financial crisis. Banks that are better able to identify and manage operational, credit, market, and liquidity risks will tend to be more stable and more profitable [\(Gadzo et al., 2019\)](#). found that banks that implement good operational risk management tend to have better financial performance. This suggests that effective risk management is a key element in bank success and stability.

GRC (Governance, Risk Management, and Compliance)

GRC (Governance, Risk Management, and Compliance) is a framework that ensures that organizations operate ethically and in accordance with regulations. According to [\(Racz et al., 2010\)](#), GRC helps organizations manage risk, comply with regulations, and improve corporate governance. Effective GRC implementation can increase transparency and accountability in decision making and reduce operational and reputational risks. [\(Saeidi et al., 2015\)](#) added that good GRC can also improve corporate reputation and customer satisfaction, which ultimately improves financial performance.

Financial Performance

Bank financial performance is a key indicator to assessing the efficiency and effectiveness of bank operations. According to [\(Ross et al., 2013\)](#), financial performance is measured through various financial ratios such as ROA (Return on Assets) and ROE (Return on Equity). These ratios provide an overview of how well the bank uses its assets to generate profits. [\(Dietrich & Wanzenried, 2014\)](#) showed that factors such as bank size, liquidity, and asset quality have a significant effect on bank financial performance. Good financial performance is a sign that the bank can manage its assets and liabilities effectively and efficiently.

Liquidity Risks

Liquidity risk reflects a bank's ability to meet its short-term obligations. [\(Cornett et al., 2011\)](#) state that poorly managed liquidity risk can lead to a financial crisis, which negatively affects the stability and performance of the bank. [\(Vinh & Dung, 2020\)](#) found that liquidity risk has a significant influence on the financial performance of banks in Vietnam. Effective liquidity management is key

to ensuring that banks can meet their obligations on time without having to sell assets at unfavorable prices.

Credit Risk

Credit risk is related to the possibility of default by the borrower. ([Altman et al., 2014](#)) state that high credit risk can reduce bank profitability and increase operating costs due to handling non-performing loans. [Von Tamakloe et al. \(2023\)](#) added that effective credit risk management is important to maintain the health of a bank's loan portfolio. The inability to manage credit risk properly can lead to an increase in NPLs (Non-Performing Loans) which negatively affects the bank's financial performance.

Market Risks

Market risk measures a bank's exposure to fluctuations in interest rates and exchange rates. According to ([Saunders & Cornett, 2018](#)), high market risk can affect a bank's net interest income. Good market risk management helps banks optimize income and minimize losses due to market changes. [Nisar et al. \(2018\)](#) found that high interest margins may reflect good interest rate risk management but also indicate high exposure to market fluctuations.

Operational Risk

Operational risk includes losses arising from the failure of internal processes, people, and systems or from external events. Operational efficiency is measured through the Cost to Income Ratio (CIR). [Gadzo \(2019\)](#) show that banks with high operational efficiency tend to have better financial performance. [Fraser and Simkins \(2016\)](#) added that good operational risk management can reduce losses and improve the financial stability of banks.

Leverage Risk

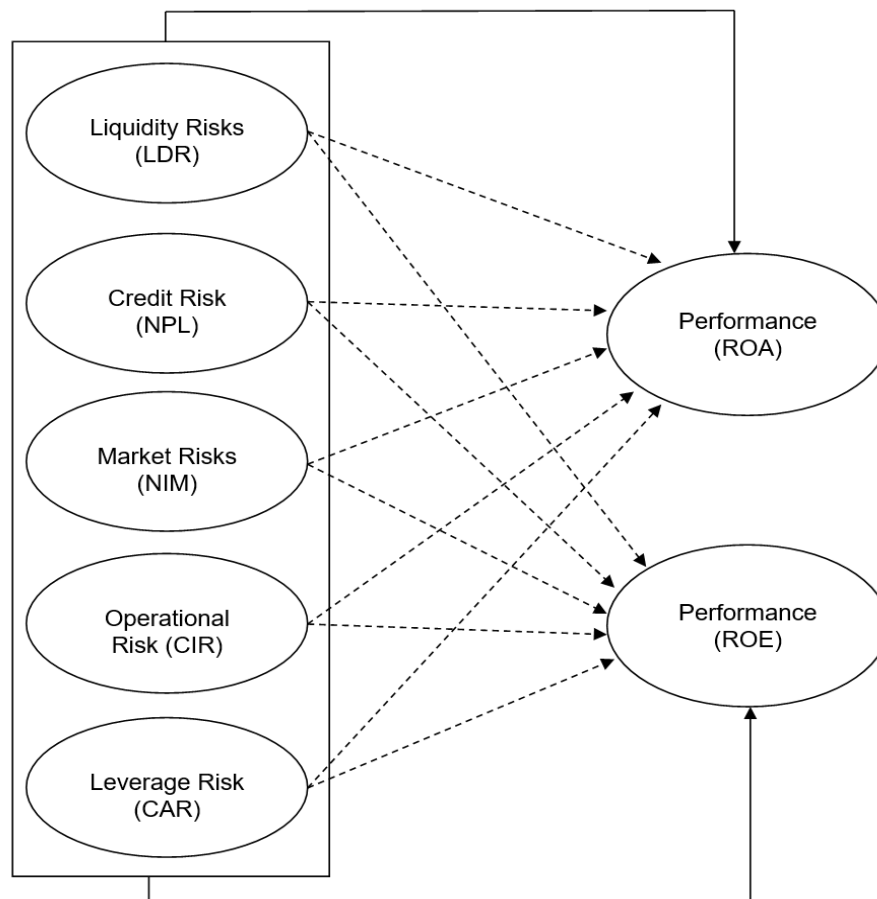
Leverage risk is measured through Capital Adequacy Ratio (CAR), which shows the bank's ability to cover potential losses with its capital. A high CAR indicates sufficient capital resilience to deal with various risks, but can also indicate suboptimal use of capital. According to [Dao et al. \(2019\)](#), adequate CAR is key to ensuring the resilience and stability of the banking system. [Furthermore, Von Tamakloe et al. \(2023\)](#) added that effective leverage risk management can reduce the likelihood of bankruptcy and improve the financial performance of banks by maintaining a balance between risk and return.

Research by [Saunders and Cornett \(2020\)](#) highlighted that liquidity risk is one of the key risks that banks must manage to maintain financial stability. They argued that a bank's ability to manage liquidity risk through diversifying sources of funds and maintaining adequate liquidity reserves is crucial to ensure the continuity of bank operations. On the other hand, ([Hull, 2018](#)) pointed out that market risk, specifically related to net interest margin, plays a key role in determining bank profitability. According to him, banks that are able to manage their net interest margins well can increase their net interest income, which in turn increases ROA and ROE.

Empirical research by [Juma et al. \(2018\)](#) in Kenya also found that liquidity risk and interest rate risk have a significant influence on ROA, supporting the finding that liquidity management and net interest margin are key to improving banks' financial performance. These results are consistent with existing literature, reinforcing the relevance of the importance of liquidity and market risk management in achieving optimal financial performance. Furthermore, [\(Mudanya et al., 2022\)](#) confirmed that effective risk management practices can significantly improve bank profitability. Based on the review of literature, the conceptual framework of the study has been drawn hereunder:

Conceptual Framework

Figure 1. Conceptual Framework



Notes.

- ▶ : H1
- ▶ : H2

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Hypothesis:

H1: Financial risks (Liquidity Risk, Credit Risk, Market Risk, Operational Risk, and Leverage Risk) simultaneously influence the performance (Return on Assets and Return on Equity) of regional development banks in Indonesia.

H2: Financial risks (Liquidity Risk, Credit Risk, Market Risk, Operational Risk, and Leverage Risk) have a significant individual influence on the performance (Return on Assets and Return on Equity) of regional development banks in Indonesia.

H3: Liquidity Risk (LDR) and Market Risk (NIM) are the most dominant financial risk factors on the performance of regional development banks in Indonesia.

METHOD

This research is a quantitative study with descriptive and causal approaches. The descriptive approach is used to provide an overview of financial risk and bank performance in Indonesia, while the causal approach is used to examine the effect of financial risk (LDR, NPL, NIM, CIR, CAR) on bank performance (ROA and ROE). The unit of analysis of this research is 27 Regional Development Banks (BPD) in Indonesia. Each bank has been analysed based on financial data from 2019 to 2023. This data will be collected from the official website of the Financial Services Authority (OJK). Because the population is not too large and all banks in the population will be analyzed, this study uses the census method, so the research sample is the entire population, namely the 27 BPDs.

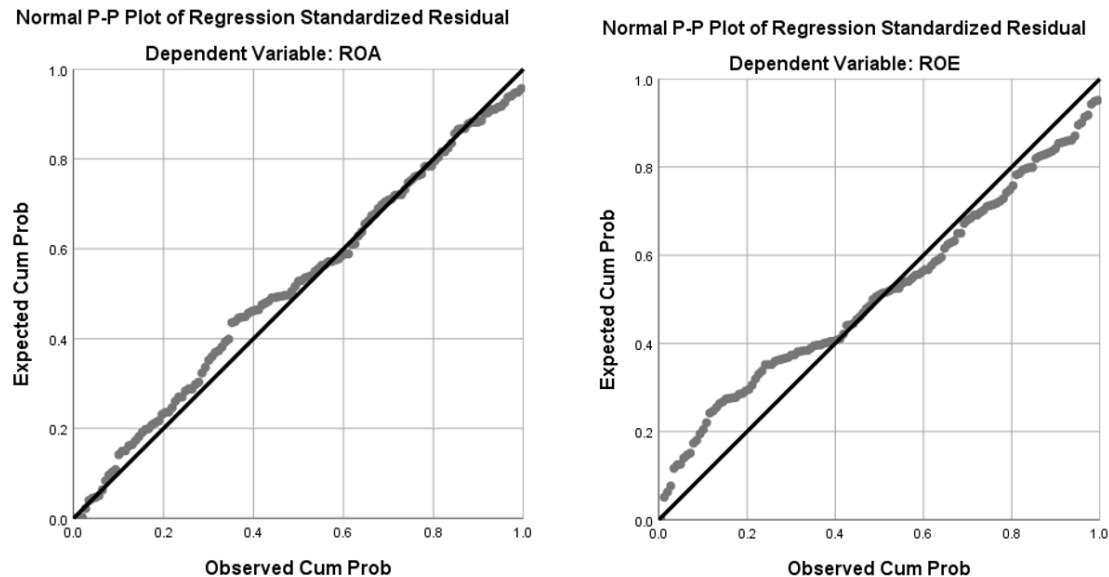
Variables in this study consist of dependent variables Return on Assets (ROA), which measures the efficiency of banks in generating profits from total assets owned; and Return on Equity (ROE), which measures the bank's ability to generate profits from equity owned by shareholders. Independent variables consist of Liquidity Risk (LDR - Loan to Deposit Ratio), which measures the bank's ability to meet short-term liquidity obligations using its deposits; Credit Risk (NPL - Non-Performing Loans), which measures the proportion of non-performing or unproductive loans to total loans granted; Market Risk (NIM - Net Interest Margin), which measures the difference between interest income received and interest expense paid relative to productive assets; Operational risk (CIR - Cost to Income Ratio), which measures the efficiency of bank operations by comparing operating costs with operating income; and Leverage Risk (CAR - Capital Adequacy Ratio), which measures the adequacy of bank capital in covering the risks faced. All variables are measured in ratios with units of percent. The data analysis method uses panel data regression analysis with classical assumption tests and hypothesis testing using the Statistical Package for the Social Sciences.

RESULT AND DISCUSSION

Residual Normality Test

To ensure that the residuals or errors from the regression model follow a normal distribution.

Figure 2. Normality Test Results



The figure shows that the points spread around the diagonal line and follow the direction of the diagonal line, thus fulfilling the assumption of normality.

Multicollinearity Test

To detect the presence of high correlation between independent variables in the regression model.

Table 2. Multicollinearity Test Results

Model	Collinearity Statistics	
	Tolerance	VIF
LDR	.653	1.532
NPL	.674	1.484
NIM	.607	1.647
CIR	.882	1.133
CAR	.750	1.334

Note. Dependent Variable ROA and ROE

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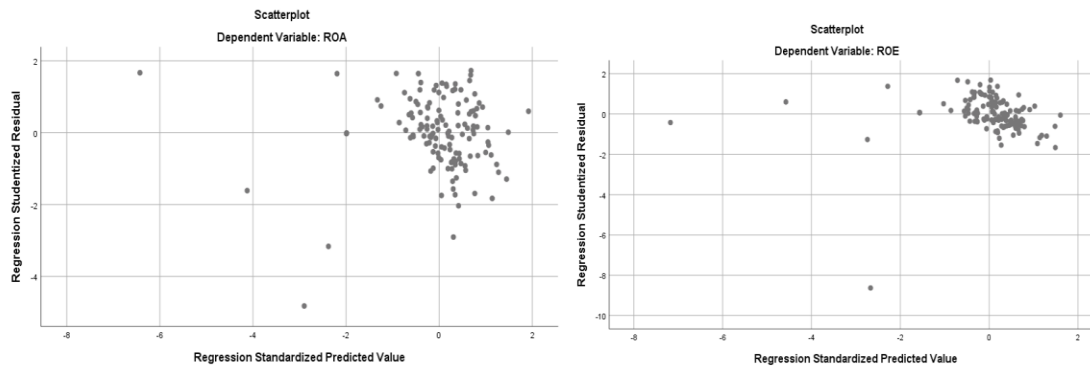
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The table shows that there is no correlation between the independent variables because they have a VIF value < 10 and Tolerance > 0.1, thus fulfilling the multicollinearity assumption.

Homoscedasticity Test

Ensures that the residual variance is constant across the range of predicted values.

Figure 3. Homoscedasticity Test Results



The figure shows that the points spread randomly and do not form a certain clear pattern, this indicates that there is no heteroscedasticity problem.

Linearity Test

These ensure that the relationship between the dependent and independent variables is linear.

Table 3. Linearity Test Results

Dependent	Independent	Sig.
ROA	LDR	0.000*
	NPL	0.028*
	NIM	0.000*
	CIR	1.000**
	CAR	0.000*
ROE	LDR	0.000*
	NPL	0.062**
	NIM	0.000*
	CIR	1.000**
	CAR	0.001*

Note. * Linearity ($p < 0.05$), ** Deviation from Linearity ($p > 0.05$)

The table shows the linearity significance value has $p < 0.05$ and with the Deviation from Linearity method ($p > 0.05$). This means that each variable has a linear or unidirectional relationship from the independent variable to the dependent variable.

The following table summarizes the results of the regression analysis showing the effect of various financial risks on bank performance in Indonesia, measured through Return on Assets (ROA) and

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Return on Equity (ROE). These results provide an overview of how much influence each financial risk has on ROA and ROE.

Table 4. Results of the Regression Analysis

Model Summary		ROA			ROE		
Adjusted R Square			.745			.613	
F			79.313			43.498	
Sig.			.000			.000	
Regression Coefficients		β	T	Sig.	β	t	Sig.
(Constant)		.003	.011	.991	-.376	-.119	.905
LDR		-.280	-10.962	.000	-1.946	-6.960	.000
NPL		.005	1.422	.158	-.036	-.960	.339
NIM		.349	8.570	.000	3.148	7.066	.000
CIR		-.007	-2.911	.004	.023	.887	.377
CAR		.025	2.810	.006	.031	.313	.755

Adjusted R Square

ROA: 0.745 indicates that 74.5% of ROA variation can be explained by five independent variables.

ROE: 0.613 indicates that 61.3% of ROE variation can be explained by the five independent variables.

Model Significance

ROA: The regression model is highly significant ($F = 79.313$, $p < 0.000$), indicating that the independent variables simultaneously affect ROA.

ROE: The regression model is highly significant ($F = 43.498$, $p < 0.000$), indicating that the independent variables simultaneously affect ROE.

Regression Coefficient

ROA:

1. Liquidity Risks - LDR: Negatively significant ($\beta = -0.280$, $p < 0.000$).
2. Credit Risk - NPL: Not significant ($\beta = 0.005$, $p = 0.158$).
3. Market Risks - NIM: Significant positive effect ($\beta = 0.349$, $p < 0.000$).
4. Operational Risk - CIR: Significant negative effect ($\beta = -0.007$, $p = 0.004$).
5. Leverage Risk - CAR: Significant positive effect ($\beta = 0.025$, $p = 0.006$).

ROE:

1. Liquidity Risks - LDR: Significant negative effect ($\beta = -1.946$, $p < 0.000$).
2. Credit Risk - NPL: Not significant ($\beta = -0.036$, $p = 0.339$).
3. Market Risks - NIM: Significant positive effect ($\beta = 3.148$, $p < 0.000$).
4. Operational Risk - CIR: Not significant ($\beta = 0.023$, $p = 0.377$).
5. Leverage Risk - CAR: Not significant ($\beta = 0.031$, $p = 0.755$).

Regression Equation

$$\text{ROA} = 0.003 - 0.280 \text{LDR} + 0.005 \text{NPL} + 0.349 \text{NIM} - 0.007 \text{CIR} + 0.025 \text{CAR}$$

$$\text{ROE} = -0.376 - 1.946 \text{LDR} - 0.036 \text{NPL} + 3.148 \text{NIM} + 0.023 \text{CIR} + 0.031 \text{CAR}$$

Financial Risk Simultaneously on the Performance of Regional Development Banks in Indonesia

Based on Model Summary, the results show that financial risks have a significant influence on banking performance in Indonesia, measured through their impact on Return on Assets (ROA) and Return on Equity (ROE). The Adjusted R Square value of 0.745 for ROA indicates that 74.5% of the variability in ROA can be explained by the independent variables studied, such as Liquidity Risks (LDR), Credit Risk (NPL), Market Risks (NIM), Operational Risk (CIR), and Leverage Risk (CAR). Similarly, the Adjusted R Square value of 0.613 for ROE indicates that 61.3% of the variability in ROE can be explained by the same variables. This indicates that the regression model used has a fairly good ability to explain variations in bank performance.

The results showed that various financial risks, namely Liquidity Risks (LDR), Credit Risk (NPL), Market Risks (NIM), Operational Risk (CIR), and Leverage Risk (CAR), simultaneously have a significant influence on banking performance in Indonesia, as measured through their impact on Return on Assets (ROA) and Return on Equity (ROE). This is indicated by the high F value, which is 79.313 for ROA and 43.498 for ROE, both of which far exceed the F table value of 2.29 at the 0.05 significance level. The significance value of 0.000 shows that the overall regression model is highly significant, indicating that the independent variables collectively influence bank performance. Thus, good financial risk management is indispensable to improve the profitability (ROA) and return on equity (ROE) of banks, as these variables jointly play an important role in determining the financial performance of banks in Indonesia.

The results of financial risk research have a significant influence on banking performance in Indonesia, in line with research conducted by (Bastomi et al., n.d.). This finding underscores the importance of understanding the complexity of the relationship between financial risk variables and banking financial results. This is in line with the financial theories that emphasize risk management as a key element in corporate strategy (Brealey et al., 2017). This empirical study also provides a deeper understanding of how financial risks, such as liquidity, credit risk dan operational risk simultaneously affect banking performance in line with the works of (Cheng et al., 2020).

The results of this study indicate that effective financial risk management is critical in improving the profitability and return on equity of regional development banks in Indonesia. This is in line with modern theoretical views on risk management and banking finance, which show the importance of firms in minimizing risk to achieve their financial goals (Brealey et al., 2017). This suggests that financial institutions need to pay close attention to aspects of financial risk, such as liquidity, credit risk, market risk, operational risk, and leverage, to improve their financial performance.

In the evolving context of Indonesian banking, a better understanding of the relationship between financial risk and banking performance is crucial for decision-makers in the banking industry, including in the implementation of governance, risk, and compliance (GRC) principles provided

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by the Financial Services Authority (OJK). Recent regulations from OJK include more detailed provisions related to risk management, governance, and compliance to improve the effectiveness of supervision and risk management in Indonesian banks. Along with the emphasis on good governance, risk, and compliance in the financial sector, this study provides a strong theoretical foundation for banking industry practitioners and policymakers to take appropriate actions to manage financial risks and improve banking performance in Indonesia. By strengthening GRC principles, financial institutions especially banks can better manage financial risks holistically, which in turn will improve the stability and sustainability of the banking industry.

Partial Financial Risk on the Performance of Regional Development Banks in Indonesia

The results of this study also show that Liquidity Risks, Market Risks, Operational Risk and Leverage Risk also individually affect Return on Assets (ROA) and Return on Equity (ROE) in regional development banks in Indonesia.

Liquidity risk, as measured by Loan to Deposit Ratio indicates that more loans than deposits, leading to liquidity pressures and increased funding costs. This lowers profitability, thereby reducing Return on Assets and Return on Equity. This also shows that LDR has a significant negative effect on bank financial performance, indicating that an increase in liquidity risk substantially lowers the performance of bank assets and equity.

Market risk, which reflects volatility in the value of a bank's assets and liabilities due to changes in market conditions also affects the profitability of a bank's assets through ROA and ROE. Operational risk, which relates to failures in internal processes, systems, or external events, can cause significant financial losses and reduce ROA. Leverage risk, measured through capital ratios, indicates the extent to which a bank uses debt to finance its assets, where a high level of leverage can increase the risk of bankruptcy and lower asset profitability.

In line with research by [Ross, Westerfield, and Jordan \(2019\)](#) this research shows that the importance of liquidity risk management. This ensures that banks have sufficient liquid assets to meet short-term obligations, while optimal net interest margins are achieved through effective management of interest income and costs. This is in line with the study by Juma et al. (2018) who found that the liquidity risk and interest rate risk are significantly associated with ROA. This also supports the finding that good liquidity risk management can improve bank profitability, the research by [Mudanya et al. \(2022\)](#) who found the importance of credit risk management practices in improving bank financial performance, and the research by [Halim et al. \(2020\)](#) who found that conventional and Islamic banks in Bangladesh showed different results in operational cost management. In this regard this study shows that the operational risk management and leverage are also important in improving the financial performance of banks.

Dominant Financial Risk Factors on the Performance of Regional Development Banks in Indonesia

Based on the regression analysis results, the financial risk factors that have the most dominant influence on ROA and ROE performance are Liquidity Risks (LDR) and Market Risks (NIM). For ROA, LDR has a regression coefficient of -0.280 ($p < .000$), which means every 1 percent increase in LDR reduces ROA by 0.280 percent. This suggests that liquidity risk has a strong negative impact on bank profitability. In contrast, NIM shows a regression coefficient of 0.349 ($p < .000$), which means that every 1 percent increase in NIM increases ROA by 0.349 percent. A higher net interest margin reflects the bank's efficiency in generating interest income, which significantly increases profitability. For ROE, Liquidity Risks (LDR) also show a highly significant effect with a coefficient of -1.946 ($p < .000$), which indicates that every 1 percent increase in LDR reduces ROE by 1.946 percent. This significantly negative effect indicates that liquidity risk reduces not only profitability but also return on equity. NIM has a regression coefficient of 3.148 ($p < .000$), which indicates that every 1 percent increase in NIM increases ROE by 3.148 percent. This positive effect confirms that an increase in net interest margin significantly increases banks' return on equity.

Modern risk management theory suggests that good liquidity risk management ensures that banks have enough liquid assets to meet their short-term obligations, thereby preventing liquidity failures that could negatively impact bank profitability and stability (Saunders & Cornett, 2020). In addition, effective market risk management, especially in optimizing net interest margins, plays an important role in increasing the bank's net interest income, which directly affects the bank's financial performance (Hull, 2018).

CONCLUSION

This study shows that the Liquidity Risks (LDR) and Market Risks (NIM) are the most dominant financial risk factors in influencing bank performance, both in terms of ROA and ROE. Poor liquidity risk management can significantly reduce a bank's profitability and return on equity, while efficiency in managing net interest margin can substantially improve a bank's financial performance. Therefore, the main focus of financial risk management strategies should be on liquidity management and net interest margin optimization to achieve optimal bank performance.

Based on this study, financial risks such as Liquidity Risks (LDR), Credit Risk (NPL), Market Risks (NIM), Operational Risk (CIR), and Leverage Risk (CAR) have a significant influence on banking performance in Indonesia, with an influence of 74.5 percent on ROA and 61.3 percent on ROE. Partial analysis shows that Liquidity Risks, Market Risks, Operational Risk and Leverage Risk significantly affect Return on Assets. While on Return on Equity shows that only Liquidity Risks and Market Risks have a significant influence on regional development banks in Indonesia. Liquidity Risks (LDR) and Market Risks (NIM) are the most dominant financial risk factors in influencing bank performance, both in terms of ROA and ROE.

REFERENCE

- Agnese, P., & Capuano, P. (2020). Risk governance and performance: Evidence from Eurozone's large banks. *International Journal of Financial Research*, 11(5), 28–41. <https://doi.org/10.5430/IJFR.V11N5P28>
- Altman, E. I., Sabato, G., & Wilson, N. (2014). The value of non-financial information in small and medium-sized enterprise risk management. *Journal of Credit Risk*, 10(2), 95–127.
- Bastomi, M., Salim, U., & Aisjah, S. (n.d.). The role of corporate governance and risk management on banking financial performance in Indonesia. *Jurnal Keuangan Dan Perbankan*, 21(4), 670–680.
- Brealey, R. A., Myers, S. C., & Allen, F. (2017). *Principles of corporate finance*. McGraw-Hill Education.
- Casado-Aranda, L.-A., Sánchez-Fernández, J., & Montoro-Ríos, F. J. (2018). How Consumers Process Online Privacy, Financial, and Performance Risks: An fMRI Study. *Cyberpsychology, Behavior, and Social Networking*, 21(9), 556–562. <https://doi.org/10.1089/cyber.2018.0196>
- Cheng, L., Nsiah, T. K., Ofori, C., & Ayisi, A. L. (2020). Credit risk, operational risk, liquidity risk on profitability. A study on South Africa commercial banks. A PLS-SEM Analysis. *Revista Argentina de Clínica Psicológica*, 29(5), 5.
- Cornett, M. M., McNutt, J. J., Strahan, P. E., & Tehranian, H. (2011). Liquidity risk management and credit supply in the financial crisis. *Journal of Financial Economics*, 101(2), 297–312.
- Dao, B. T. T., & Nguyen, K. A. (2020). Capital adequacy ratio and bank performance in Vietnam: A simultaneous equations framework. *Asia-Pacific Financial Markets*, 26(4), 381–397. <https://doi.org/10.1007/s10690-019-09295-4>.
- Dietrich, A., & Wanzenried, G. (2014). The determinants of commercial banking profitability in low-, middle-, and high-income countries. *The Quarterly Review of Economics and Finance*, 54(3), 337–354.
- Du, B., & Palia, D. (2018). Short-Term Debt and Bank Risk. *Journal of Financial and Quantitative Analysis*, 53(2), 815–835. <https://doi.org/10.1017/S0022109017001132>
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26(2), 301–325.
- Financial Services Authority. (2016). *Financial Services Authority Regulation Number 18/POJK.03/2016 concerning the Implementation of Risk Management for Commercial Banks*. Financial Services Authority.
- Fraser, J., & Simkins, B. J. (2016). *Enterprise Risk Management: Today's Leading Research and Best Practices for Tomorrow's Executives*. Wiley.
- Gadzo, S. G., Kportorgbi, H. K., & Gatsi, J. G. (2019). *Credit risk and operational risk on financial performance of universal banks in Ghana: A partial least squared structural equation model*. Cogent Economics & Finance.
- Hull, J. C. (2018). *Risk Management and Financial Institutions*. Wiley.

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Darmansyah and Juniar

- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Juma, A. M., Odunga, R., Atheru, G., & Nzai, C. (2018). Financial Risks Analysis and Performance of Commercial Banks in Kenya. *Journal of Finance and Accounting*, 2(2), 76–95.
- Khan, K., Nouman, M., & Imran, M. (2015). Determinants of financial performance of financial sectors (An assessment through Economic value added. *Institute of Business and Management Sciences*, 1–32.
- Mudanya, A., Kadima, M. J., & Miroga, J. (2022). Credit Risk Management Practices and Financial Performance of Commercial Banks in Kenya: A Case of Banks in Vihiga County. *Journal of Risk and Financial Management*, 16, 302.
- Nguyen, T. H. H., Elmagrhi, M. H., Ntim, C. G., & Wu, Y. (2021). Environmental performance, sustainability, governance and financial performance: Evidence from heavily polluting industries in China. *Business Strategy and the Environment*, 30(5), 2313–2331. <https://doi.org/10.1002/bse.2748>
- Nisar, S., Peng, K., Wang, S., & Ashraf, B. N. (2018). The impact of revenue diversification on bank profitability and stability: Empirical evidence from South Asian countries. *International Journal of Financial Studies*, 6(2), 40.
- Pantea, M., Gligor, D., & Anis, C. (2014). Economic determinants of Romanian firms' financial performance. *Procedia-Social and Behavioral Sciences*, 124, 272–281. [org/10.1016/j.sbspro.2014.02.486](https://doi.org/10.1016/j.sbspro.2014.02.486).
- Racz, N., Weippl, E., & Seufert, A. (2010). A frame of reference for research of integrated governance, risk and compliance (GRC. *Communications and Multimedia Security*, 106–117.
- Ross, S. A., Westerfield, R. W., & Jaffe, J. (2013). *Corporate Finance*. McGraw-Hill Education.
- Saeidi, S. P., Sofian, S., Saeidi, P., Saeidi, S. P., & Saeidi, S. A. (2015). How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. *Journal of Business Research*, 68(2), 341–350.
- Saunders, A., & Cornett, M. M. (2018). *Financial Institutions Management: A Risk Management Approach*. McGraw-Hill Education.
- Seraj, A. H. A., Fazal, S. A., & Alshebami, A. S. (2022). Entrepreneurial Competency, Financial Literacy, and Sustainable Performance—Examining the Mediating Role of Entrepreneurial Resilience among Saudi Entrepreneurs. *Sustainability (Switzerland)*, 14(17). <https://doi.org/10.3390/su141710689>
- Sinaga, K. R. (2022). Coordination System Between Financial Services Authorities And Deposit Guarantee Insittutions In Handling Failed Banks Based On Law Number 21 Year 2011 Concerning Financial Services Authorities. *Journal of Law Science*, 4(1), 1–11.
- Tamakloe, B., Boateng, A., Mensah, E. T., & Maposa, D. (2023). Impact of risk management on the performance of commercial banks in Ghana: A panel regression approach. *Journal of Risk and Financial Management*, 16(7), 322.

**Impact of Financial Risks on the Performance of Regional Development Banks in Indonesian:
A Comprehensive Analysis of ROA and ROE**

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Toth, R., Kasa, R., & Lentner, C. (2022). The Impact of Financial Culture on the Operation of Hungarian SMEs before and during COVID-19. *Risks*, 10(7). <https://doi.org/10.3390/risks10070135>

Vinh, V. Q., & Dung, N. T. (2020). Liquidity risk, bank credit risk, and financial performance: Evidence from Vietnamese commercial banks. *Journal of Risk and Financial Management*, 13(6), 131. <https://doi.org/10.3390/jrfm13060131>.