

Risk and Profit: Exploring the Relationship in LQ45 Banking Companies

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Abstract

This study examines how credit, liquidity, and operational bank risks influence the financial performance of Indonesian banks in the LQ45 index from 2016 to 2023. Using purposive sampling, we analyze quarterly reports from five selected banks (BCA, BNI, BRI, BTN, and Bank Mandiri) within the 2016Q1 to 2023Q3 period. Results show that Non-Performing Loans (NPLs) adversely affect financial performance, while Loan-to-Deposit Ratios (LDRs) have a positive impact. Additionally, Operational Expenses to Operating Income (BOPOs) negatively influence financial performance. The findings stress the importance of banking management understanding the impacts of credit and operational risks for stability and avoiding failures. Despite common belief, high liquidity alone does not ensure positive outcomes, necessitating effective risk management to address liquidity and other associated risks.

Keywords: *Credit risk, Liquidity risk, Operational risk, Bank financial performance, Indonesia.*

Introduction

Over the last two decades, the stability of banks has faced threats from political interference, nonperforming loans, and fluctuations in interest rates. Research conducted by Accornero et al., (2018) revealed that a majority of the banking industry experienced a downturn primarily due to elevated credit risk. Effective assessment and management of risks stemming from these challenges require banks to consider both micro and macroeconomic factors (Hunjra *et al.*, 2022). Proper risk management is crucial for ensuring the continuity of banking operations, generating profits, and achieving high financial performance. Failure to effectively manage risks can lead to bank failure, potentially triggering a broader banking crisis, as witnessed in the events of 1997-1998 (Hunjra *et al.*, 2022). The highlighted importance of banking risk management in such

crises underscores its essential role in overcoming challenges and safeguarding companies from the threat of financial losses.

According to Financial Services Authority Regulation Number 4/POJK.03/2016, commercial banks are mandated to assess their health status, both individually and on a consolidated basis, utilizing a risk-based approach comprising four components, with risk profile being one of them. The objective of this assessment is to ascertain the banking sector's condition in terms of risk and performance. Moreover, the evaluation of risk profile factors encompasses an analysis of inherent risk and the implementation of risk management practices in daily banking operations. These factors encompass eight distinct banking risks: credit risk, market risk, liquidity risk, operational risk, legal risk, strategic risk, compliance risk, and reputation risk, as specified by the Financial Services Authority (2016). The management of these risks is crucial for banks in maintaining stability in financial performance.

As demonstrated by Hussain & Al-Ajmi (2012) in their research, financial institutions encounter significant challenges primarily in the realms of credit risk, liquidity risk, and operational risk. The outcomes of these risks can vary, yielding either favorable or unfavorable results contingent upon the management's risk-taking stance and its impact on potential profits (Wani & Dar, 2015). Consequently, assessing the performance of a bank in relation to the risks it undertakes becomes essential (Onsongo *et al.*, 2020).

Credit risk stands out as the most formidable challenge in the banking sector due to the potentially severe losses it entails compared to other risk types. Consequently, banks must diligently monitor and manage credit risk to enhance efficiency (Hunjra *et al.*, 2022). Liquidity risk emerges when banks encounter difficulties in fulfilling obligations and executing transactions promptly. Effective management of liquidity risks is imperative for ensuring the company's viability in both the short and long term (Hunjra *et al.*, 2022). Furthermore, banks must contend with operational risks stemming from internal or external operational failures, posing a tangible threat to their solvency. Effective management of operational risks is essential to prevent bank insolvency.

Numerous prior studies have explored the impact of financial risks on the performance of banking institutions (Apriani *et al.*, 2023; Hunjra *et al.*, 2022; Onsongo *et al.*, 2020; Putri & Gandakusuma, 2022; and Wahidhani, 2022). In this study, the dependent variable is the financial performance of banks, measured through Return on Assets (ROA), a metric consistent with several earlier investigations (Hunjra *et al.*, 2022; Khan & Hapiz, 2022; Siddique *et al.*, 2022; and Wahidhani, 2022). Conversely, credit risk and liquidity risk are treated as independent variables, represented by Non-Performing Loans (NPL) and Loan-to-Deposit Ratio (LDR) respectively, aligning with the proxies used in prior research (Cofitalan, 2022 and Hunjra *et al.*, 2022). Additionally, operational risk is examined as an independent variable, represented by the ratio of operational costs to operational income, referred to as BOPO, a proxy consistent with previous research insights (Cofitalan, 2022; Diallo *et al.*, 2015; and Wahidhani, 2022).

Currently, numerous banks are listed on the Indonesia Stock Exchange (referred to as IDX). As per data compiled by IDX Channel (2023) on idxchannel.com, there are 47 bank issuers listed on the IDX. Notably, the stock exchange introduced the LQ45 index in 1977, comprising 45 stocks selected for their high liquidity through a rigorous process (BIONS, 2022). For this study, the sample consists of banking companies listed in the LQ45 index from the first quarter of 2016 to the third quarter of 2023. The data for analysis were sourced from uploads accessible on the official IDX website.

Indeed, banking stands as a prominent financial intermediary institution with a profound impact on a country's economic growth. Numerous previous researchers have delved into various aspects of banking, exploring banking risks and assessing banking performance. Despite the extensive body of research on these topics, the significance of the present study remains pertinent, particularly in the context of Indonesia's dynamic economic conditions. The systemic risks encountered by banks can exert profound effects on their performance, making it imperative to examine these dynamics within the current economic context.

This research makes a valuable contribution by delving into the intricate dynamics of risks within the banking sector and examining their impact on the financial performance of Indonesian banks. The study focuses on a sample of banks listed on the Indonesia Stock Exchange (IDX) and included in the LQ45 index for the period spanning from 2016 to 2023. Notably, the research sources pertinent banking quarterly financial reports from the first quarter of 2016 to the third quarter of 2023, distinguishing it as a novel approach compared to prior studies. This unique aspect underscores the significance of the research, as it has the potential to offer insights into effective risk management practices, serving as a valuable guide for future studies on banking risk governance.

Literature Review and Hypothesis Development

The Basel Framework, introduced by the Basel Committee on Banking Supervision (BCBS) in (1974), represents a comprehensive set of standards serving as the primary global regulatory framework to ensure prudent banking practices. Basel II, a standard introduced by BCBS in June 2004, emerged in response to the financial crisis of 1997–1998 in Southeast Asia and South Asia. This framework signifies a pivotal change in the banking industry and financial markets. Emphasizing risk-based capital calculations, supervisory review processes, and market discipline, Basel II aims to enhance the stability of the banking financial system (Sintha, 2016).

The Basel II framework, introduced by BCBS and BIS (2006), is built on three pillars, representing a response to global market developments and advancements in banking risk management practices. These pillars serve as the foundation for fostering a robust and stable financial system and performance within the banking industry. Indonesia, as a member of the BCBS, has committed to adopting the Basel framework,

aligning with the global standards for banking practices in the country. The adoption of the Basel framework is anticipated to enable the Indonesian banking industry to effectively manage various risks and contribute to overall financial stability.

Banks, as institutions involved in issuing credits to borrowers or customers, are exposed to significant credit risk, as noted by Siddique et al. (2022). This risk materializes when borrowers fail to repay loan funds within the agreed timeframe, as outlined by Greuning & Bratatanovic (2009). The Basel II framework underscores the importance for banks to maintain sufficient capital to support their risk-taking activities, with credit risk serving as a key metric for assessing this need. Effective management and accurate measurement of credit risk are imperative for maintaining bank performance. To manage credit risk effectively, banks must establish a conducive environment that ensures consistent credit provision and appropriate credit administration, including robust monitoring and control mechanisms, as emphasized by Basel (2000), Colquitt (2007), Greuning & Bratatanovic (2009), and IAIS (2003). Since credit represents a significant source of income for banks, any issues related to credit risk can significantly impact their profitability, as highlighted by Giesecke (2004).

Continuing from the previous discussion, this collective body of research, including studies by Hunjra *et al.* (2022), Putri & Gandakusuma (2022), Siddique et al. (2022), and Wahidhani (2022), consistently supports the notion that credit risk, as measured by the Non-Performing Loan (NPL) ratio, exerts a negative impact on the financial performance of banking institutions. This alignment with previous findings is further strengthened by the work of Munangi & Sibindi (2020), who identified a significant and negative relationship between NPL and banking financial performance in South Africa. Similarly, Isanzu (2017) provided evidence of a negative influence between NPLs and bank financial performance in China. These collective results emphasize the critical role of managing and mitigating credit risk for sustaining and improving the financial performance of banks across various global contexts. Based on the comprehensive analysis of existing literature and empirical evidence, the researcher has formulated the first hypothesis for this research as follows:

H₁: Credit risk (NPL) has a negative influence on bank financial performance (ROA).

The concept of liquidity risk is crucial for banks, as it directly influences their ability to meet financial obligations and respond to depositors' withdrawal requests. Liquidity risk assessment involves evaluating the potential impact of such risks on a bank's profitability, particularly in cases where the institution lacks the necessary resources to fulfill contractual promises within specified time frames. This aligns with the principles of the Basel II framework, specifically the second pillar, which emphasizes the need for banks to comprehensively assess the risks associated with their activities, including liquidity risk. Anticipating and managing liquidity risks is essential to prevent potential losses that could adversely affect a bank's overall performance. Consequently,

exploring the relationship between liquidity risk and financial performance becomes a key aspect of understanding the dynamics within the banking industry.

The Loan to Deposit Ratio (LDR) serves as a financial metric providing insight into the liquidity risk faced by a bank. Numerous studies, including those by Chen *et al.* (2018), Hunjra *et al.* (2022), and Ly (2015), have consistently demonstrated a negative impact of liquidity risk on bank financial performance. This aligns with the broader consensus in research, as indicated by the findings of Dana *et al.* (2019), Onsongo *et al.* (2020), and Saleh & Afifa (2020), who utilized the LDR proxy to measure liquidity risk and observed a negative relationship between LDR and banking financial performance. The negative influence between LDR and financial performance underscores the significance of managing liquidity risk effectively for banks to maintain their stability and operational efficiency. Based on the comprehensive analysis of existing literature and empirical evidence, the researcher has formulated the second hypothesis for this research as follows:

H₂: Liquidity risk (LDR) has a negative influence on bank financial performance (ROA).

Operational risks, as defined by BCBS in (2006), encompass direct and indirect losses arising from internal or external process failures, deficiencies in systems, and human resource-related issues, both internal and external (Duho *et al.*, 2020). These risks are distinct from credit and liquidity risks, which are often influenced by external factors. Operational risks primarily originate within the bank itself, making their assessment challenging and capable of impacting the overall performance of the institution. Incorrectly formulated and implemented policies can pose significant threats to profitability by introducing unreasonable processes, potentially disrupting the operational activities of the bank (Putri & Gandakusuma, 2022).

Operational risk, assessed using different approaches such as the Basic Indicator Approach (BIA) as indicated by Hoseininassab *et al.* (2013) and Hunjra *et al.* (2022) has been found to exhibit a significant positive relationship with bank financial performance. However, conflicting findings from research conducted by Cofitalan (2022), Sante *et al.* (2021), and Wahidhani (2022) suggest a negative relationship between operational risk measured by the BOPO ratio and bank financial performance. The BOPO ratio serves as a financial metric, gauging operational efficiency and a bank's capability to execute its operational activities (Taswan, 2010). This implies that operational costs are inversely correlated with bank profitability, emphasizing the importance of effective operational cost control by bank management (Sutrisno, 2016). Based on this discussion and taking into account the operational risk measurement approach used in this study, the researcher has formulated the third hypothesis as follows:

H₃: Operational risk (BOPO) has a negative influence on bank financial performance (ROA).

Research Methods

The entire population for this study consists of all banking companies listed on the Indonesia Stock Exchange (IDX) from the first quarter of 2016 to the third quarter of 2023. According to data obtained from the official IDX website, there are a total of 47 banking companies registered on the IDX during this period. The sampling method chosen for this research is purposive sampling, which involves selectively choosing samples based on specific criteria. In this case, the criteria for selecting samples are as follows:

1. Banking companies that are consistently included in the LQ45 index for the period from 2016 to 2023.
2. Companies that publish quarterly financial reports throughout the research period, covering the first quarter of 2016 to the third quarter of 2023.

Following the specified criteria, the research selected five banking companies for analysis: Bank Central Asia (BCA), Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI), Bank Tabungan Negara (BTN), and Bank Mandiri. The data utilized in this quantitative research was sourced from the quarterly financial reports of these selected banking companies. The reports cover the period from the first quarter of 2016 to the third quarter of 2023 and were accessed through the official IDX website, as well as the official websites of the respective companies.

In this research, banking financial performance serves as the dependent variable, and it is measured using Return on Assets (ROA) (Dana *et al.*, 2019; Hunjra *et al.*, 2022; dan Wahidhani, 2022). ROA is a widely used metric to evaluate a bank's profitability by assessing its ability to generate profits relative to its total assets. It is calculated as the ratio of net income to total assets. ROA provides valuable insights into how effectively a bank utilizes its assets to generate profits, making it a fundamental indicator for assessing overall financial performance. The formula for ROA is:

$$ROA = \frac{Net\ Income}{Total\ Aset} \times 100\%$$

In addition to the dependent variable, three independent variables are considered in this research: credit risk, liquidity risk, and operational risk. Credit risk, as measured by the Non-Performing Loan (NPL) ratio, is a significant variable that captures the risk arising from various banking activities, particularly the failure of debtors or other parties to meet their obligations to the bank (Sintha, 2016). In this study, NPL is utilized as a proxy for credit risk, aligning with its role as a key indicator of escalating financial risk in previous research (Hunjra *et al.*, 2022; Putri & Gandakusuma, 2022; and Wahidhani, 2022). The formula for NPL is:

$$NPL = \frac{\text{Non-performing loans}}{\text{Total loans}} \times 100\%$$

liquidity risk variable is represented by the Loan-to-Deposit Ratio (LDR), which signifies the risk a bank faces if it struggles to meet its short-term obligations, potentially disrupting its operations (Murphy, 2023). LDR is considered an apt measure in this study due to its ability to gauge a bank's capacity to cover losses and withdraw loans from customers, reflecting its ability to manage liquidity risk effectively. The formula for LDR is:

$$LDR = \frac{\text{Total Loans}}{\text{Total Deposit}} 100\%$$

Operational risk in the banking sector encompasses various challenges stemming from internal process flaws, system disruptions, and external factors affecting bank operations. In this research, operational risk is evaluated using the BOPO (Operational Cost to Operational Income) ratio, which serves as a comprehensive indicator for gauging banking operational risk (Diallo *et al.*, 2015; Kamal, 2023; and Wahidhani, 2022). The formula for BOPO is:

$$BOPO = \frac{\text{Operating Expense}}{\text{Operating Income}} \times 100\%$$

In this study, control variables are introduced to account for external factors that may influence the relationship between the independent and dependent variables, ensuring a more accurate analysis of their impact. The selected control variables are firm age (FA) and firm size (FS). Firm age is measured by the duration since the establishment of the company, reflecting its maturity and experience in the industry. On the other hand, firm size is quantified by the natural logarithm of the company's total assets over the research period, providing a measure of its scale and financial magnitude. By including these control variables, the study aims to isolate the specific effects of the independent variables on the dependent variable, enhancing the robustness and validity of the findings.

The simple linear regression analysis model is used in this research to examine the impact of the independent variable on the dependent variable. The linear regression model is expressed by the following equation:

$$ROA = \alpha + \beta_1 NPL + \beta_2 LDR + \beta_3 BOPO + \beta_4 FA + \beta_5 FS + \varepsilon$$

Note: α = constata, β = coefficient, NPL= non-performing loans, LDR = loans to deposit ratio, BOPO = operating expense to operating income, FA = firm age, FS = firm size, dan ε = error.

Results and Discussion

The subjects of this research comprise banking companies listed on the Indonesia Stock Exchange, consistently included in the LQ45 index from 2016 to 2023. The selection of samples using the purposive sampling method resulted in a substantial dataset of 155 observation points that met the specified criteria. This careful sampling process ensures that the chosen companies align with the research objectives, enhancing the quality and relevance of the collected data. The sample size of 155 provides a robust foundation for the subsequent statistical analysis, allowing for meaningful insights into the relationships between variables under investigation. Table 1 presents the results of sample selection based on criteria.

Table 1. Sample Selection Result

No.	Sample Criteria	Total
1.	Banking companies listed on the Indonesia Stock Exchange from 2016 - 2023.	47
2.	Banking companies that are not consecutively included in the LQ45 index for the 2016 - 2023 period.	(42)
3.	Banking companies that do not publish quarterly financial reports for the period 2016Q1 - 2023Q3.	0
	Number of company samples for research	5
	Number of research observations (5×31 quarters)	155

Descriptive statistics are employed to analyze the data, presenting key measures such as the mean, standard deviation, minimum, and maximum values of both the dependent and independent control variables. This approach aims to offer a succinct overview of the research data's characteristics without drawing overarching conclusions prematurely (Ghozali, 2016). The utilization of descriptive statistics provides valuable insights into the central tendencies, variations, and extreme values within the dataset, laying the foundation for a more in-depth examination of the relationships between variables in the subsequent analyses. Table 2 presents descriptive statistics for all variables used in the research.

Table 2. Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
ROA	155	2,640968	1,043273	0,13	4,49

NPL	155	2,746452	0,8320338	1,08	4,91
LDR	155	87,96161	11,30872	60,54	114,24
BOPO	155	71,82781	11,2499	44,09	98,12
FA	155	80,42581	39,06321	17	127
FS	155	20,54162	0,5946983	18,99965	21,41988

Source: Author processed data (2024)

Table 2 presents descriptive statistics for the variables included in the study. The average value of banking financial performance, represented by ROA, is 2.640968 with a standard deviation of 1.043273, indicating that, on average, banking financial performance falls within the very healthy bank category. The range of ROA values from 0.13 to 4.49 illustrates the variability in financial performance across the sampled banks. Regarding credit risk, measured by NPL, the average NPL value is 2.746452 with a standard deviation of 0.8320338. The range of NPL values from 1.08 to 4.91 indicates that, on average, banks are categorized as healthy in managing problem loans. Liquidity risk, as measured by LDR, shows an average value of 87.96161 with a standard deviation of 11.30872. The range of LDR values from 60.54 to 114.24 suggests that, on average, banks have attained a fairly healthy category in facing liquidity risk. Operational risk, assessed through BOPO, exhibits an average value of 71.82781 with a standard deviation of 11.2499. The range of BOPO values from 44.09 to 98.12 indicates that, on average, banks are classified as very healthy in terms of their ability to handle operational risks. Additionally, firm age and size display average values of 80.42581 and 20.54162 respectively, with corresponding standard deviations. These variables demonstrate considerable variability in the age and size of the sampled banking companies.

The selection of the estimation model involved two key tests: the Chow test and the Hausman test. The Chow test was initially conducted to identify the suitable model, choosing between the common effect model and the fixed effect model. Following the Chow test, the Hausman test was performed due to the significant f-statistics probability value (< 0.05) from the Chow test, indicating the preference for the fixed effect model in this research. The Hausman test's purpose was to determine the optimal model between the fixed effect model and the random effect model to be employed in the analysis. The results of these tests guided the selection of the appropriate model for further examination. Based on the results summarized in Table 3, the appropriate analysis model for this research is determined to be the fixed effect model. This conclusion is supported by the outcomes of both the Chow test and the Hausman test, where the probability values were less than 0.05. These tests collectively indicate that the fixed effect model is the most suitable for the analysis of this research.

Table 3. Selection of Estimation Model

Tests			Prob.	Result
Chow Test	F(4,145)	101,29	0,000	Fixed-effect

Hausman Test	Chi2(5)	1059,41	0,000	Fixed-effect
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Source: Author processed data (2024)

Hypothesis testing is carried out to prove how each independent variable is able to explain the dependent variable and to assess the combined impact of the independent variables on the dependent variable. Table 4 presents a summary of the analysis results from testing the coefficient of determination (R^2), t statistical test, and f statistical test using the fixed-effect model.

Table 4. Hypothesis Testing Results

Variables	N	Coefficient	Std. Error	t-Statistics	Prob.
NPL	155	-0,1329879	0,0320716	-4,15	0,000
LDR	155	0,0123815	0,0031962	3,87	0,000
BOPO	155	-0,0699845	0,0028762	-24,33	0,000
FA	155	0,0093762	0,0252988	0,37	0,711
FS	155	-0,7388029	0,2528364	-2,92	0,004
R-Squared		0,8860			
Adj. R-Squared		0,8789			
Prob. (F-statistics)		0,000			

Source: Author processed data (2024)

Based on the results presented in Table 4, the adjusted R-squared value of 87.89% indicates a relatively good fit for the model. This means that the independent variables, including credit risk (NPL), liquidity risk (LDR), and operational risk (BOPO), collectively explain about 87.89% of the variation in the dependent variable, which is banking financial performance (ROA). However, it's important to note that there are other factors or variables outside the scope of this study that contribute to the remaining 12.11% of the variation in bank financial performance.

The collective influence of credit risk, liquidity risk, and operational risk on bank financial performance is statistically significant, as indicated by the F-statistics probability value of 0.000, which is less than the significance level of 0.05. This suggests that, together, these three risk factors have a meaningful impact on the profitability of banks. The implication is that banks should pay attention to and manage the efficiency levels of these risks to ensure and enhance their overall financial performance.

The t-statistical test results reveal that credit risk, as measured by the bank's NPL ratio, has a significant and negative impact on the bank's financial performance, with a probability value of 0.000, which is less than 0.05. This supports the acceptance of hypothesis one (H1), indicating that credit risk (NPL) indeed has a detrimental effect on bank financial performance. The findings align with previous research conducted by Apriani *et al.*, (2023); Dana *et al.*, (2019); Hunjra *et al.*, (2022); Khan *et al.*, (2020); and

Siddique *et al.*, (2022). The conclusion is drawn that higher NPL reflects increased credit risk, potentially leading to a reduction in banking financial performance. The researchers also suggest that effective monitoring of customers during loan issuance is crucial for banks to ensure regular returns on investments, ultimately impacting financial performance positively (Siddique *et al.*, 2022).

The study's findings regarding liquidity risk, as indicated by the Loan-to-Deposit Ratio (LDR), show a significant and positive impact on the bank's financial performance, with a probability value of 0.000, which is less than 0.05. Consequently, hypothesis two (H2), suggesting that liquidity risk (LDR) has a negative effect on bank financial performance, is rejected. This outcome is consistent with prior research conducted by Apriani *et al.*, (2023); Cofitalan, (2022); and Desiko, (2020), which found a positive influence of liquidity risk on bank financial performance. However, it contradicts the results of studies by Hunjra *et al.* (2022) and Siddique *et al.* (2022). The researchers suggest that the increase in the LDR ratio contributes to elevated banking liquidity risk, leading to higher bank profits. This is attributed to the role of banks as intermediaries providing loans to customers, earning income through interest payments on loans (Pratama *et al.*, 2021). While interest income is a primary source of profit for banks, the study emphasizes the need for caution, as high liquidity risk might indicate a bank's low liquidity capacity, potentially putting the bank in an unfavorable condition (Apriani *et al.*, 2023).

The study's analysis of operational risk, measured through the Bank's Operational Expense to Operational Income (BOPO) ratio, reveals a significant and negative impact on the bank's financial performance, with a probability value of 0.000, indicating a rejection of hypothesis three (H3), which posited that operational risk (BOPO) would negatively affect bank financial performance. This finding aligns with previous research by Sutrisno (2016), which highlighted how high operational costs can decrease bank profitability and overall financial performance. The researchers suggest that a higher BOPO value may indicate ineffective management of operational costs and income by banks, leading to inefficient operational activities. This inefficiency poses a significant concern for banks, emphasizing the importance of robust risk management practices to control these risks effectively. Moreover, the study's results are consistent with prior research by Apriani *et al.* (2023), Kamal (2023), Sante *et al.* (2021), and Wahidhani (2022), which also utilized BOPO as a metric for operational risk in Indonesian banks and found a significant negative influence on bank financial performance.

The analysis of control variables in this research indicates that company age does not have a significant effect on financial performance, with a probability value of 0.711 ($p > 0.05$). This outcome aligns with Siddique *et al.* (2022) findings, which also revealed that company age, when considered as a control variable, did not exert a significant impact on bank financial performance. The researchers posit that the longevity of a company's existence does not guarantee its ability to consistently maintain financial

performance. While long-established companies may have accumulated experience in generating profits, the findings emphasize the necessity for banks, irrespective of their age, to continually strategize and implement plans to maximize financial performance. This proactive approach is crucial for sustaining healthy banking operations over the long term, acknowledging that mere longevity is not a sufficient guarantee of sustained financial success (Melania & Tjahjono, 2022).

The analysis of company size as a control variable reveals a significant and negative influence on financial performance, with a probability value of 0.004 ($p < 0.05$). This finding aligns with prior research by Ahmed *et al.* (2022), Saleh & Afifa (2020), and Siddique *et al.* (2022), which also demonstrated a negative relationship between company size and financial performance. The size of a bank is recognized as a determinant factor affecting its financial performance, where larger banks tend to exhibit lower financial performance. The observed decrease in assets among larger banks is attributed to reduced credit distribution, given that loans constitute a substantial portion of total bank assets (Hamdi *et al.*, 2021). Constraints on lending activities impede asset growth, consequently impacting overall financial performance. The inability to uphold robust bank performance in enhancing asset quality represents a critical factor contributing to diminished profitability. To address this decline, banks must implement effective strategies aimed at managing credit risk, bolstering asset quality, and ensuring sustained profitability in the face of size-related challenges.

Conclusions

This research delves into the intricate dynamics of credit, liquidity, and operational risks, shedding light on their impact on the financial performance of banking companies within the LQ45 index in Indonesia. The empirical findings significantly underscore the detrimental effect of credit risk, exemplified by the NPL ratio, on financial performance. Effectively managing credit risk emerges as a pivotal factor for sustaining profitability in the banking sector. Contrary to conventional wisdom, this study challenges prevailing assumptions by revealing the positive influence of liquidity risk, proxied through the LDR, on financial performance. This novel insight prompts a reassessment of traditional beliefs about the negative consequences of liquidity risk on profitability. It underscores the imperative for adapting risk management strategies to navigate the intricate dynamics of liquidity in banking operations. Moreover, the research highlights the critical role of operational risk management in preserving operational efficiency and financial well-being. The observed significant and negative relationship between operational risk and financial performance accentuates the importance of robust risk management practices to ensure the stability and health of banking operations. These findings collectively contribute to advancing the understanding of risk dynamics in the banking industry and provide valuable insights for shaping effective risk management strategies.

Indeed, despite the valuable insights gained from this research, certain limitations should be acknowledged. Firstly, the study focuses solely on conventional Indonesian banks listed in the LQ45 index for the period of 2016 to 2023, potentially limiting the generalizability of the findings to other banking contexts or timeframes. Additionally, the research exclusively considers credit risk, liquidity risk, and operational risk, overlooking other critical risk factors such as market risk and exchange rate risk.

Future research endeavors could broaden the scope by investigating the impact of market risk and exchange rate risk on the financial performance of banks in Indonesia, offering a more comprehensive understanding of the risk landscape in the banking sector. Moreover, exploring banking risk management practices in diverse developing countries could provide valuable insights into navigating the dynamic banking environments prevalent in emerging economies. By addressing these limitations and expanding the scope of inquiry, future research efforts can contribute to advancing the knowledge base and enhancing risk management strategies in the global banking industry.

Bibliography

- Accornero, M., Cascarino, G., Felici, R., Parlapiano, F., & Sorrentino, A. M. (2018). Credit Risk in Banks' Exposures to Non-financial Firms. *European Financial Management*, 24(5), 775–791. <https://doi.org/10.1111/eufm.12138>
- Ahmed, H. M., El-Halaby, S. I., & Soliman, H. A. (2022). The Consequence of The Credit Risk on The Financial Performance in Light of COVID-19: Evidence from Islamic versus Conventional Banks Across MEA Region. *Future Business Journal*, 8(1). <https://doi.org/10.1186/s43093-022-00122-y>
- Apriani, E. S., Putri, S. E., & Ramli, R. (2023). The Effect of Credit Risk, Liquidity Risk and Operational Risk to Profitability in Conventional Banks Listed on Indonesia Stock Exchange Period 2019-2021. *MEC-J (Management and Economics Journal)*, 7(1), 63–76. <https://doi.org/10.18860/mec-j.v7i1.20512>
- Basel. (2000). Principles for the Management of Credit Risk. In *Basel Committee on Banking Supervision*. <https://www.bis.org/publ/bcb75.htm>
- Basel Committee on Banking Supervision. (1974). *The Basel Framework*. Bank of International Settlement. https://www.bis.org/basel_framework/
- Basel Committee on Banking Supervision., & Bank for International Settlements. (2006). *International Convergence of Capital Measurement and Capital Standards : a Revised Framework, Comprehensive Version*. Bank for International Settlements.
- BIONS. (2022, November 29). *Kenali LQ45, Indeks Saham Paling Cuan*. BIONS. <https://www.bions.id/edukasi/saham/apa-itu-indeks-lq45>
- Chen, Y. K., Shen, C. H., Kao, L., & Yeh, C. Y. (2018). Bank Liquidity Risk and Performance. *Review of Pacific Basin Financial Markets and Policies*, 21(1). <https://doi.org/10.1142/S0219091518500078>

- Cofitalan, J. M. L. (2022). Effect Of Credit Risk, Liquidity Risk, And Operational Risk On Profitability (Study On Banco Nasional De Comércio De Timor-Leste Bnctl-Dili). In *ABM: International Journal of Administration, Business and Management* (Vol. 4, Issue 1). www.bancocentral.tl,
- Colquitt, J. (2007). *Credit Risk Management: How to Avoid Lending Disasters and Maximize Earnings* (1st ed.). McGraw Hill.
- Dana, R. S., Widnyana, I. W., & Kepramareni, P. (2019). Bank Risk and Banking Financial Performance in Indonesia. *Journal of Advance Research in Dynamical & Control Systems*, 11(12), 697-703.
- Desiko, N. (2020). Pengaruh Risiko Kredit, Risiko Pasar dan Risiko Likuiditas terhadap Kinerja Keuangan Perbankan (Studi pada Bank Umum Konvensional yang terdaftar di Bursa Efek Indonesia periode 2014 - 2018). *Journal Competency of Business*, 4(1), 1-9.
- Diallo, O., Fitrijanti, T., & Tanzil, N. D. (2015). Analysis of The Influence of Liquidity, Credit and Operational Risk, in Indonesian Islamic Bank's Financing for The Period 2007-2013. *Gadjah Mada International Journal of Business*, 17(3), 279-294. <http://journal.ugm.ac.id/gamaijb>
- Duho, K. C. T., Onumah, J. M., Owodo, R. A., Asare, E. T., & Onumah, R. M. (2020). Bank Risk, Profit Efficiency and Profitability in A Frontier Market. *Journal of Economic and Administrative Sciences*, 36(4), 381-402. <https://doi.org/10.1108/jeas-01-2019-0009>
- Ghozali, I. (2016). *Aplikasi Analisis Multivariete Dengan Program IBM SPSS 23* (8th ed.). Universitas Diponegoro Press.
- Giesecke, K. (2004). *Credit Risk Modeling and Valuation: An Introduction*. 2. www.orie.cornell.edu/
- Greuning, H. Van, & Bratatanovic, S. B. (2009). *Analyzing Banking Risk A Framework for Assessing Corporate Governance and Risk Management* (Third). The World Bank.
- Hamdi, N. F., Pinem, D. B., & Miftah, M. (2021). Analisis Faktor-Faktor Yang Mempengaruhi Kinerja Keuangan Bank Umum Di Bursa Efek Indonesia. *IKRAITH-EKONOMIKA*, 4(3). www.bi.go.id
- Hoseininassab, E., Yavari, K., & Khoshsima, R. (2013). Effects of Risk Parameters (Credit, Operational, Liquidity and Market Risk) on Banking System Efficiency (Studying 15 Top Banks in Iran) Nader Mehregan * * *. In *Iranian Economic Review* (Vol. 17, Issue 1).
- Hunjra, A. I., Mehmood, A., Nguyen, H. P., & Tayachi, T. (2022). Do Firm-specific Risks Affect Bank Performance? *International Journal of Emerging Markets*, 17(3), 664-682. <https://doi.org/10.1108/IJOEM-04-2020-0329>
- Hussain, H. A., & Al-Ajmi, J. (2012). Risk Management Practices of Conventional and Islamic Banks in Bahrain. *Journal of Risk Finance*, 13(3), 215-239. <https://doi.org/10.1108/15265941211229244>
- IAIS - International Association of Insurance Supervisors. (2003). *Paper on Credit Risk Transfer between Insurance*.

- https://www.iaisweb.org/uploads/2022/01/Credit_transfer_between_insurance__banking_and_other_financial_sectors__March_2003.pdf.pdf
- Isanzu, J. S. (2017). The Impact of Credit Risk on the Financial Performance of Chinese Banks. *JOURNAL OF INTERNATIONAL BUSINESS RESEARCH AND MARKETING*, 2(3), 14-17. <https://doi.org/10.18775/jibrm.1849-8558.2015.23.3002>
- Kamal, A. G. (2023). The Impact of Financial Ratios on Bank Performance Before and During COVID-19: Evidence from Bank Business Activities Category 3 and 4 in Indonesia. *European Journal of Business and Management Research*, 8(3), 305-315. <https://doi.org/10.24018/ejbmr.2023.8.3.1995>
- Khan, M. A., Siddique, A., & Sarwar, Z. (2020). Determinants of Non-performing Loans in The Banking Sector in Developing State. *Asian Journal of Accounting Research*, 5(1), 135-145. <https://doi.org/10.1108/AJAR-10-2019-0080>
- Khan, N. I., & Hapiz, A. A. M. (2022). Financial Statement Fraud: Evidence from Malaysian Public Listed Companies. *Jurnal Intelek*, 17(1), 181. <https://doi.org/10.24191/ji.v17i1.15937>
- Ly, K. C. (2015). Liquidity Risk, Regulation and Bank Performance: Evidence from European Banks. *Global Economy and Finance Journal*, 8(1), 11-33.
- Melania, S., & Tjahjono, A. (2022). Pengaruh Corporate Social Responsibility, Ukuran Perusahaan, Umur Perusahaan, dan Board Size terhadap Kinerja Keuangan (Studi Kasus Perusahaan Pertambangan yang Terdaftar di BEI tahun 2016-2020). *Jurnal Riset Akuntansi Dan Bisnis Indonesia STIE Wiya Wiwaha*, 2(1), 199-219.
- Munangi, E., & Sibindi, A. (2020). An Empirical Analysis of The Impact of Credit Risk on The Financial Performance of South African Banks. In *Article in Academy of Accounting and Financial Studies Journal*. <https://www.researchgate.net/publication/342833260>
- Murphy, C. B. (2023, November 2). *Loan-to-Deposit Ratio (LDR) Definition*. Investopedia. <https://www.investopedia.com/terms/l/loan-to-deposit-ratio.asp#:~:text=Key%20Takeaways&text=To%20calculate%20the%20loan%2Dto,deposits%20for%20the%20same%20period.>
- Nugroho, R. S. (2023, March 15). *Daftar Emiten Bank di Bursa Efek Indonesia 2023*. IDX Channel. <https://www.idxchannel.com/market-news/daftar-emiten-bank-di-bursa-efek-indonesia-2023>
- Onsongo, S. K., Muathe, S. M. A., & Mwangi, L. W. (2020). Financial Risk and Financial Performance: Evidence and Insights from Commercial and Services Listed Companies in Nairobi Securities Exchange, Kenya. *International Journal of Financial Studies*, 8(3), 1-15. <https://doi.org/10.3390/ijfs8030051>
- Peraturan Otoritas Jasa Keuangan Tentang Penerapan Manajemen Risiko Bagi Bank Umum, Pub. L. No. 18/POJK.03/2016, Otoritas Jasa Keuangan (2016). <https://www.ojk.go.id/id/kanal/perbankan/regulasi/peraturan-ojk/Documents/Pages/POJK-Nomor-18.POJK.03.2016/SAL%20-%20POJK%20Manajemen%20Risiko%20.pdf>

- Pratama, M. S., Mubaroh, S., & Afriansyah, R. (2021). Pengaruh CAR, LDR, NIM, BOPO terhadap ROA pada Sektor Perbankan Go Public di BEI 2016-2018. *Jurnal Ekonomi Keuangan Dan Manajemen*, 17(1), 118–126. www.idx.co.id
- Putri, J. Y., & Gandakusuma, I. (2022). Analisis Pengaruh Risiko Kredit, Risiko Likuiditas, serta Risiko Operasional Terhadap Kinerja Perbankan: Studi Kasus pada Bank Umum Konvensional yang Terdaftar di Bursa Efek Indonesia Periode 2016-2020. *Jurnal Manajemen Dan Usahawan Indonesia* •, 46(1), 34–48.
- Saleh, I., & Afifa, M. A. (2020). The Effect of Credit risk, Liquidity Risk and Bank Capital on Bank Profitability: Evidence from An Emerging Market. *Cogent Economics and Finance*, 8(1). <https://doi.org/10.1080/23322039.2020.1814509>
- Sante, Z. V., Murni, S., & Tulung, J. E. (2021). Pengaruh Risiko Kredit, Risiko Likuiditas, dan Risiko Operasional terhadap Profitabilitas Perusahaan Perbankan yang Terdaftar Di LQ45, Buku III dan Buku IV Periode 2017-2019. *Jurnal EMBA*, 9(3), 1451–1462.
- Siddique, A., Khan, M. A., & Khan, Z. (2022). The Effect of Credit Risk Management and Bank-specific Factors on The Financial Performance of The South Asian Commercial Banks. *Asian Journal of Accounting Research*, 7(2), 182–194. <https://doi.org/10.1108/AJAR-08-2020-0071>
- Sintha, L. (2016). Pengelolaan Manajemen Risiko pada Industri Perbankan. *Jurnal Mitra Manajemen*, 8(1). <https://journal.universitassuryadarma.ac.id/index.php/jmm/article/view/504>
- Sutrisno. (2016). Risiko, Efisiensi dan Kinerja Pada Bank Konvensional di Indonesia. *Jurnal Ilmiah Akuntansi Dan Bisnis*, 11(2), 111–116.
- Taswan. (2010). *Manajemen perbankan* (2nd ed.). UPP STIM YKPN.
- Wahidhani, E. H. (2022). Banking Risk Analysis of Banking Financial Performance (Empirical Study on LQ45 Registered Banking Period 2014 – 2019). *International Journal of Social Science*, 2(2), 1565–1574. <https://doi.org/10.53625/ijss.v2i2.3621>
- Wani, A. A., & Dar, S. A. (2015). Relationship Between Financial Risk and Financial Performance: An Insight of Indian Insurance Industry. *International Journal of Science and Research (IJSR) ISSN*, 4(11). www.ijsr.net