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Comparative Analysis of Financial Risk Between Conventional and Shariah Banks: A Perspective of Market, Liquidity, and Credit Risks

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Abstract: *This study aims to compare financial risk management between conventional and Shariah banks in Indonesia. Financial risk is measured using three key indicators: Net Interest Margin (NIM) as a proxy for market risk, Current Ratio (CR) for liquidity risk, and Non-Performing Loan (NPL) for credit risk. The study employs the Mann–Whitney U Test to examine differences between the two types of banks using a sample of conventional and Shariah banks registered in Indonesia. The results indicate no significant differences between conventional and Shariah banks in terms of NIM and CR, although Shariah banks exhibit a higher yet more volatile NIM and a more stable CR. However, a significant difference is found in NPL, where Shariah banks display higher NPL ratios than conventional banks. These findings suggest that although both types of banks differ in their approaches to managing market and liquidity risks, Shariah banks are more vulnerable to credit risk, as reflected in their higher NPL levels. This study is expected to provide insights for banks and regulators to enhance risk management in both banking systems and serve as a foundation for developing more effective risk management policies in the conventional and Shariah banking sectors.*
Keywords: *Financial Risk, Banking, Market Risk, Liquidity Risk, Credit Risk*

INTRODUCTION

The banking industry plays a strategic role in maintaining financial system stability while supporting economic growth. In practice, conventional and Shariah banks adopt different principles, structures, and risk management mechanisms. Conventional banks rely on interest-based systems, while Shariah banks are founded on Islamic principles that prohibit *riba* (interest) and emphasize profit-sharing contracts. These fundamental distinctions have significant implications for how each type of bank manages market, liquidity, and credit risks (Maidah et al., 2024; Sahri, 2024). Financial risk management is critical since failure to control risks can threaten banking stability and potentially trigger systemic impacts on the broader financial system (Williams, 2024). Financial risk management refers to the efforts undertaken to identify, measure, and control the risks faced by firms, including those within the banking sector. Effective

identification, mitigation, and management of these risks are essential for ensuring bank resilience and sustained performance (Iswardhani & Rahmat, 2025).

Previous studies suggest that Shariah banks face more complex risk profiles due to the unique nature of Shariah-compliant products and contracts such as *mudharabah* and *musyarakah* that require banks to share in their clients' business risks. Consequently, risks extend beyond credit default to include profit-and-loss sharing risks. Meanwhile, conventional banks tend to apply more standardized credit risk assessment procedures focused on borrowers' financial viability, collateral, and predictable interest income (Ramadhan et al., 2024).

The most common risks encountered by banks include market risk, credit risk, and liquidity risk. Fabozzi (2010) defines financial risk as the possibility that a firm may be unable to meet its financial obligations due to market, credit, or liquidity uncertainties. Therefore, banks must be able to manage these three types of risks to maintain financial health and operational stability.

From a market risk perspective, the Net Interest Margin (NIM) is an important indicator of how efficiently a bank manages its interest income relative to its earning assets (Mosey et al., 2018). A low NIM may signal high competitive pressure or inefficiencies in managing interest-based income. Although Shariah banks do not charge interest, NIM is still used to evaluate the efficiency of profit-sharing and Shariah financial instruments, ultimately influencing overall bank performance. The Net Interest Margin (NIM) is one of the most frequently used indicators to measure market risk in banks. NIM calculates the difference between interest income earned from productive assets and interest expenses paid on liabilities, divided by the average total of productive assets. NIM reflects a bank's sensitivity to changes in market interest rates, which is a key aspect of market risk. A decline in NIM may occur when the cost of funding rises faster than interest income. Additionally, a bank's dependence on short-term funding and interest rate fluctuations can cause NIM volatility, which affects the stability of income and profitability (Laliberte & Sengupta, 2021).

In the context of Shariah banks, which do not operate on an interest-based financing system, NIM remains relevant as a measure of efficiency in managing profit-sharing based financing and Shariah-compliant financial instruments. Shariah banks employ various instruments such as *musyarakah* and *mudharabah*, which are structured on profit-sharing principles. These

instruments also influence profit margins and operational efficiency in managing market risk (Maidah et al., 2024).

Liquidity risk, measured by the Current Ratio (CR), is another major focus of banking risk management. According to Chasanah & Prasetyo (2020), CR reflects a bank's ability to meet its short-term obligations with liquid assets. A low CR may indicate potential liquidity stress that could adversely affect operational stability. Shariah banks face additional liquidity management challenges due to their reliance on profit-sharing financing instruments, which require distinct approaches to cash and reserve management compared with conventional banks that use interest-based instruments. The Current Ratio (CR) is one of the primary indicators used to measure liquidity risk in banks. CR is calculated as the ratio between current assets and current liabilities, reflecting a bank's ability to meet its short-term obligations (Brigham & Ehrhardt, 2020). A higher CR indicates a stronger ability to cover short-term liabilities, while a lower CR suggests potential liquidity issues.

In a comparative context between conventional and Shariah banks, liquidity management may differ due to variations in financial instruments and financing characteristics. Shariah banks, which rely on profit-sharing–based financing and prudential principles, tend to maintain tighter liquidity positions than conventional banks (Ramadhan et al., 2024). Therefore, maintaining a healthy CR through effective cash flow monitoring, diversification of funding sources, and compliance with liquidity standards such as the Liquidity Coverage Ratio (LCR) is crucial to mitigating liquidity risk in both banking systems. This ensures operational continuity and financial stability.

Apart from market and liquidity risks, credit risk also remains a central concern in the banking industry. The Non-Performing Loan (NPL) ratio measures the quality of a bank's loan portfolio. The Non-Performing Loan (NPL) ratio is one of the main indicators used to measure credit risk in banks. NPL refers to loans that are not repaid according to the terms of the agreement, typically after a specific period of nonpayment. A high NPL ratio indicates poor asset quality and heightened credit risk. Arhinful et al. (2025) found that NPL has a significant negative effect on the price-to-earnings (P/E) and price-to-book (P/B) ratios, reflecting declining investor confidence in banks with high NPL levels. Furthermore, an increase in NPL can affect a bank's profitability through higher loan loss provisions and reduced interest income. Aji & Manda (2021) found that

a high NPL ratio reduces bank profitability due to increased loan-loss provisions, which diminish net income. Credit risk is particularly critical for banks with significant exposure to unsecured financing.

To manage credit risk, banks must implement stringent credit policies, conduct regular monitoring of credit portfolios, and adopt technological innovations such as fintech to enhance credit assessment accuracy (Chai & Sun, 2024). Additionally, diversifying the credit portfolio and strengthening credit risk management can help mitigate the adverse impact of NPL on a bank's financial stability.

For Shariah banks, unique financing models such as *musyarakah* and *mudharabah* influence how credit risk is managed (Ramadhan et al., 2024). Moreover, NPL management differs because financing is based on profit-sharing principles. Although Shariah banks generally adhere to more conservative financing policies, credit risk still exists—especially when financing products are poorly managed. Ramadhan et al. (2024) emphasize the importance of prudent financing management in Shariah banks to minimize problematic financing that could threaten institutional stability. These distinctions emphasize that risk management characteristics differ not only in operational principles but also in financial instruments, client relationships, and regulatory frameworks governing both systems (Syahrir et al., 2023).

Furthermore, conventional banks enjoy greater flexibility in liquidity management through access to interest-based money market instruments. Shariah banks, however, face limited options for Shariah-compliant liquidity tools such as *sukuk* and *Sertifikat Bank Indonesia Syariah (SBIS)*, making liquidity management more challenging (Siagian et al., 2024). In terms of market risk, conventional banks are more exposed to interest rate volatility, whereas Shariah banks' performance depends on the efficiency of financing contracts and the balance between profit-sharing and business sustainability (Dwitanto et al., 2023).

These fundamental differences imply that the effectiveness of risk management strategies in both types of banks depends heavily on regulatory contexts and macroeconomic conditions. For example, during the COVID-19 crisis, conventional banks experienced relatively higher credit growth, while Shariah banks demonstrated stronger asset quality due to prudent and selective financing practices (Maidah et al., 2024). Therefore, a comparative analysis of market, liquidity,

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and credit risks in both systems is vital to understanding how fundamental principles affect banking stability and sustainability (Devica et al., 2025).

This study aims to provide a clearer understanding of the differences in financial risk management between conventional and Shariah banks in Indonesia. The main focus is on analyzing market risk (measured by NIM), liquidity risk (measured by CR), and credit risk (measured by NPL). Hence, this research seeks to offer a comparative depiction of how the two banking systems face financial risks based on their distinct operational foundations.

METHOD

This study employs a quantitative approach with a comparative research design to analyze differences in financial risk management between conventional and Shariah banks in Indonesia. The data used are secondary data obtained from the annual financial statements of banks listed on the Indonesia Stock Exchange (IDX) for the period 2020–2024. The variables analyzed in this study include the Net Interest Margin (NIM) as an indicator of market risk, the Current Ratio (CR) as an indicator of liquidity risk, and the Non-Performing Loan (NPL) as an indicator of credit risk.

The population of this study consists of banks listed on the IDX with both conventional and Shariah statuses. The sample was selected using a purposive sampling technique based on the criterion that banks must have published complete financial statements for the 2020–2024 period. The data used include income statements, balance sheets, and financial notes containing information on NIM, CR, and NPL. The operational definitions of the variables are presented in Table 1.

Risk	Variable	Description	Formula / Measurement
Market Risk	Net Interest Margin (NIM)	The difference between interest income and interest expenses relative to productive assets	(Net Interest Income / Productive Assets) × 100%
Liquidity Risk	Current Ratio (CR)	The ability of a bank to meet its short-term obligations using current assets	Current Assets / Current Liabilities
Kredit Risk	Non-Performing Loan (NPL)	The percentage of non-performing loans to total loans	(Non-Performing Loans / Total Loans) × 100%

Table 1. *Operational Definitions. Source: Data Processed (2025)*

After the data collection stage, a normality test was conducted to determine whether the research data were normally distributed. The results of this normality test served as the basis for selecting the appropriate comparative analysis method. If the data were normally distributed, the

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analysis was performed using the *Independent Samples t-test*, a parametric test designed to compare the mean values of two independent groups (Setyaedhi et al., 2025). This test is appropriate because it can identify statistically significant differences between conventional and Shariah banks based on mean values, assuming that the data are measured on an interval or ratio scale and meet the normality assumption.

However, if the data were not normally distributed, the *Mann–Whitney U Test* was used instead. This test compares two independent samples in a nonparametric statistical framework. The samples are combined and ranked according to their order of magnitude (Corder & Foreman, 2011). The *Mann–Whitney U Test* serves as a suitable alternative when parametric assumptions are not met, allowing a valid comparative analysis between conventional and Shariah banks.

RESULT AND DISCUSSION

The purpose of descriptive analysis is to provide a clear and structured overview of the collected data, focusing on the presentation of accurate facts and the relationships among the various phenomena under analysis (Prihatiningsih, 2022). The presentation of descriptive statistics aims to understand the trends, variations, and initial conditions of the research variables, thereby serving as a foundation for interpretation in the subsequent stages of analysis.

	Conventional Bank				Shariah Bank			
	Min	Max	Mean	Std. Deviation	Min	Max	Mean	Std. Deviation
NIM	4.91	28.53	9.3202	3.43112	6.81	36.18	16.6207	11.69882
CR	0.13	73.47	1.5586	5.95057	0.46	3.39	1.1660	0.94313
NPL	0.00	1.00	0.0509	0.14472	0.01	0.53	0.1507	0.15975

Table 2. *Descriptive Statistic. Source: Data Processed (2025)*

Based on the results of the descriptive analysis presented in Table 2, there are clear differences between conventional and Shariah banks across the three analyzed variables: Net Interest Margin (NIM), Current Ratio (CR), and Non-Performing Loan (NPL). Although both types of banks have distinct characteristics in terms of risk management and financial performance, these results provide a clearer picture of how each manages its operations and the risks they face.

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For conventional banks, the NIM values range from 4.91% to 28.53%, with an average of 9.32% and a standard deviation of 3.43%. The relatively wide variation in NIM indicates instability in the interest income earned by conventional banks, which may be caused by market interest rate fluctuations or changes in interest rate determination strategies. On the other hand, in Shariah banks, NIM ranges more widely—from 6.81% to 36.18%—with a higher average of 16.62% and a larger standard deviation of 11.70%. Although the average NIM of Shariah banks is higher than that of conventional banks, the greater fluctuations in NIM among Shariah banks can be interpreted as an indication of instability in their income, which may be attributed to higher risks associated with profit-sharing–based financing. Shariah banks rely more heavily on financing tied to their customers' business performance, which tends to be more vulnerable to economic conditions and market fluctuations.

The analysis also shows that conventional banks have highly varied CR values, ranging from 0.13 to 73.47, with an average of 1.56 and a relatively large standard deviation of 5.95. This substantial variation reflects differences in liquidity management among conventional banks, where some may have very low liquidity reserves while others maintain stronger liquidity positions. In contrast, Shariah banks demonstrate more stable CR values, ranging from 0.46 to 3.39, with an average of 1.17 and a standard deviation of 0.94. This stability suggests that Shariah banks maintain more consistent short-term liquidity management, possibly due to the implementation of prudential principles in financing and fund management. With their profit-sharing–based financing structure, Shariah banks tend to adopt a more cautious approach in maintaining liquidity reserves, which is reflected in their more stable CR values.

For the NPL variable, conventional banks recorded very low values ranging from 0.00% to 1.00%, with an average of 0.05% and a standard deviation of 0.14%. This indicates that conventional banks maintain relatively strong credit risk management, with most of their loans being repaid on time. Conversely, Shariah banks reported slightly higher NPL ratios, ranging from 0.01% to 0.53%, with an average of 0.15% and a standard deviation of 0.16%. Although the NPL levels in Shariah banks remain relatively low, the slight increase in problematic financing compared to conventional banks indicates a difference in credit risk management. This could be due to the riskier nature of profit-sharing–based financing, which depends on customers' business outcomes and is therefore more exposed to fluctuating economic conditions and business

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uncertainties. Even though Shariah banks adhere to prudential principles, profit-sharing–based financing inherently carries higher credit risk than interest-bearing loans in conventional banks.

Normality Test

Before conducting the comparative analysis, the first essential step was to test the normality of the data to determine whether the distribution followed a normal pattern. The normality test is used to identify the appropriate statistical method for analyzing differences between groups. If the data are normally distributed, parametric tests such as the Independent Samples t-test can be used, whereas if the data are not normally distributed, nonparametric tests such as the Mann–Whitney U Test are more appropriate.

Category of Bank		Kolmogorov-Smirnov[a]		Shapiro-Wilk	
		Statistic	Sig.	Statistic	Sig.
NIM	Conventional	0.219	0.000	0.623	0.000
	Shariah	0.303	0.001	0.740	0.001
CR	Conventional	0.405	0.000	0.158	0.000
	Shariah	0.298	0.001	0.692	0.000
NPL	Conventional	0.370	0.000	0.236	0.000
	Shariah	0.189	0.154	0.825	0.008

Table 3. *Normality Test. Source: Data Processed (2025)*

The results of the normality test presented in Table 3 indicate that most of the data for the Net Interest Margin (NIM) and Current Ratio (CR) variables in both groups of banks (conventional and Shariah) are not normally distributed, as reflected by Kolmogorov–Smirnov and Shapiro–Wilk significance values lower than 0.05. Meanwhile, for the Non-Performing Loan (NPL) variable, the data for conventional banks are also not normally distributed; however, the NPL data for Shariah banks appear closer to normal according to the Kolmogorov–Smirnov test, even though the Shapiro–Wilk test still indicates non-normality. Therefore, the Mann–Whitney U Test was employed to conduct the comparative analysis between the two types of banks.

Hypothesis Testing

In this study, since the data were not normally distributed, hypothesis testing was carried out using the Mann–Whitney U Test, a nonparametric test suitable for comparing two independent groups without requiring the assumption of normality. This test was used to determine whether there were significant differences between conventional and Shariah banks for the analyzed variables, namely the Net Interest Margin (NIM), Current Ratio (CR), and Non-Performing Loan

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(NPL). By applying the Mann–Whitney U Test, this research was able to evaluate differences in the median values between the two banking systems even under non-normal data distribution conditions, ensuring that the results remain valid and reliable.

	Net Interest Margin	Current Risk	Nonprofitable Loan
Mann-Whitney U	1063.500	1045.000	700.500
Wilcoxon W	17353.500	17335.000	16990.500
Z	-1.364	-1.452	-3.134
Asymp. Sig. (2-tailed)	0.172	0.146	0.002

Table 4. *Mann-Whitney U Test. Source: Data Processed (2025)*

The results of the Mann–Whitney U Test presented in Table 4 provide valuable insights into the differences between conventional and Shariah banks across several analyzed variables. For the NIM variable, which reflects differences in net interest income earned from productive assets, no significant difference was found between the two types of banks, with an Asymp. Sig. (2-tailed) value of 0.172. This indicates that although variations exist in NIM values between conventional and Shariah banks, the differences are not large enough to be considered statistically significant. This may be attributed to market factors that similarly affect both banking systems, such as prevailing interest rates or monetary policies that influence the entire banking sector.

Likewise, for the Current Ratio (CR) variable—which measures short-term liquidity and a bank's ability to meet short-term financial obligations using current assets—the Asymp. Sig. (2-tailed) value of 0.146 shows no significant difference between conventional and Shariah banks in terms of liquidity. This suggests that both types of banks may employ similar approaches to liquidity management, even though their financing structures differ: Shariah banks rely on profit-sharing principles, while conventional banks make greater use of fixed-interest instruments.

However, for the Non-Performing Loan (NPL) variable—which assesses loan quality and the level of credit risk faced by banks—a significant difference was observed between conventional and Shariah banks, with an Asymp. Sig. (2-tailed) value of 0.002. This finding indicates a clear difference in NPL levels between the two systems, which can be interpreted as a variation in credit risk management practices. Shariah banks tend to face more challenges in managing high-risk financing despite adhering to stricter prudential principles compared to conventional banks. This difference may stem from the types of financing products offered, as

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Shariah banks primarily provide profit-sharing–based financing that carries different risk characteristics from the interest-bearing loans typically extended by conventional banks.

Category of Bank		Mean Rank	Sum of Ranks
Net Interest Margin	Conventional	96.41	17353.50
	Shariah	117.10	1756.50
Current Risk	Conventional	96.31	17335.00
	Shariah	118.33	1775.00
Non Profitable Loan	Conventional	94.39	16990.50
	Shariah	141.30	2119.50

***Table 5**. Statistic Ranks. Source: Data Processed (2025)*

Based on the results of the Mann–Whitney U Test and the Ranks analysis presented in Table 5, a significant difference was found in the Non-Performing Loan (NPL) variable between conventional and Shariah banks, while the Net Interest Margin (NIM) and Current Ratio (CR) showed no significant differences. These findings highlight the variations in risk management practices between the two types of banks.

a) Net Interest Margin (NIM):

Although the Mean Rank of Shariah banks (117.10) was higher than that of conventional banks (96.41), the Mann–Whitney U Test results indicated that the difference was not statistically significant (Asymp. Sig. = 0.172). Previous research by Maidah et al. (2024) found that although Shariah banks manage profit-sharing–based financing, the difference in NIM compared to conventional banks is not always significant, particularly under macroeconomic conditions that similarly affect both banking systems. Mosey et al. (2018) also noted that while NIM in conventional banks often depends more heavily on interest rate movements, the same rate fluctuations influence both systems, which may explain the non-significant difference in NIM between them.

b) Current Ratio (CR):

The Mann–Whitney U Test results for CR also showed no significant difference between the two banking systems (Asymp. Sig. = 0.146). This finding is supported by Chasanah & Prasetyo (2020), who stated that although there are differences in financing structures, both conventional and Shariah banks tend to adopt similar approaches in managing short-term liquidity, as both must

ensure that their current assets are sufficient to meet short-term obligations. While variations in CR may exist, these differences are not substantial enough to significantly affect short-term liquidity stability between conventional and Shariah banks.

c) Non-Performing Loan (NPL):

Unlike NIM and CR, NPL exhibited a statistically significant difference between conventional and Shariah banks, with Shariah banks having a higher Mean Rank (141.30) compared to conventional banks (94.39), and an Asymp. Sig. (2-tailed) value of 0.002. Ramadhan et al. (2024) explained that although Shariah banks tend to be more prudent in financing decisions, the use of instruments such as *mudharabah* and *musyarakah* may increase risks associated with unsecured financing. This aligns with Aji & Manda (2021), who found that higher NPL ratios can reduce bank profitability by increasing loan loss provisions and decreasing interest income. Shariah banks, which are more extensively engaged in profit-sharing–based financing, are inherently exposed to higher risks—reflected in their relatively higher NPL levels compared to conventional banks.

CONCLUSION

Based on the findings of this study, it can be concluded that notable differences exist between conventional and Shariah-compliant banks in the management of financial risks, particularly in relation to market, liquidity, and credit risks. With respect to the Net Interest Margin (NIM) variable, although Shariah banks recorded higher values, the difference was not statistically significant. This indicates that, despite the distinct operational principles that govern Shariah banking—especially the prohibition of interest and the reliance on profit-and-loss sharing—both banking systems are exposed to similar dynamics associated with interest rate fluctuations and the management of income derived from interest or profit-sharing mechanisms.

Regarding the Current Ratio (CR), the results show that Shariah banks displayed relatively greater stability in maintaining short-term liquidity. However, the difference between the two banking models was not statistically significant. This suggests that conventional and Shariah banks adopt broadly comparable strategies to preserve liquidity positions, notwithstanding their differing financing structures and regulatory frameworks.

In contrast, a significant difference was identified in the Non-Performing Loan (NPL) ratio, wherein Shariah banks exhibited higher NPL levels than their conventional counterparts. This may be attributed to the nature of profit-sharing financing contracts in Shariah banking, which are more vulnerable to fluctuations in customers' business performance. Conventional banks, by relying more heavily on interest-based lending structures, tend to face relatively more stable credit-risk exposures. Nevertheless, both banking systems continue to encounter challenges in managing credit risk, with Shariah banks requiring enhanced risk-mitigation mechanisms to address elevated NPL ratios. Overall, this study provides a comprehensive understanding of how foundational differences in principles and financial instruments between conventional and Shariah-compliant banks shape their respective approaches to managing market, liquidity, and credit risks. The findings are expected to offer valuable insights for policymakers, regulators, and practitioners in designing strategies that can strengthen the resilience, stability, and overall performance of both banking systems in Indonesia.

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