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Original Article



Operational Risk and Profitability of Indonesian Islamic Banks: Examining the Mediating Role of Financial Intermediation

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Abstract

The rapid growth of Islamic banking in Indonesia has increased the importance of understanding the factors that influence bank profitability and financial sustainability. Despite significant expansion in assets, financing, and third-party funding, Islamic banks continue to face challenges in operational efficiency, financing risk, and liquidity management. This study aims to examine the influence of operational efficiency and financing risk on the profitability of Islamic commercial banks in Indonesia, with financial intermediation acting as a mediating variable. Specifically, the research analyzes the effects of Operating Expenses to Operating Income (BOPO) and Non-Performing Financing (NPF) on profitability measured by Return on Assets (ROA), while Financing to Deposit Ratio (FDR) is tested as an intervening variable. The study adopts a quantitative explanatory research design, using secondary data from the annual financial statements of Islamic commercial banks registered with the Financial Services Authority (OJK) for the 2014–2024 period. The data are analyzed using the Structural Equation Model (SEM) to evaluate both direct and indirect relationships among variables. The results show that BOPO has a negative and significant effect on ROA, indicating that operational inefficiency reduces bank profitability. FDR has a positive and significant effect on profitability, confirming the important role of financial intermediation in improving bank performance. In contrast, NPF does not directly affect profitability but does significantly affect financial intermediation. The mediation analysis reveals that FDR does not mediate the relationship between BOPO and ROA but significantly mediates the relationship between NPF and ROA. These findings highlight the critical importance of operational efficiency and effective financing distribution in improving Islamic bank profitability, while also emphasizing the indirect role of financing risk through the financial intermediation mechanism.

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1. Introduction

Islamic banking has experienced significant development worldwide over the past few decades, particularly in countries with large Muslim populations such as Indonesia. As the country with the largest Muslim population in the world, Indonesia has substantial potential for the growth of Islamic financial institutions. In recent years, the Islamic banking sector in Indonesia has shown steady expansion, reflected in the continuous increase in total assets, third-party funds, and financing distribution. According to data from the Financial

Services Authority (OJK), the profitability ratio of Islamic banks, measured by Return on Assets (ROA), ranged between approximately 1.4% and 2% during the period 2019–2023. This performance indicates a relatively stable level of profitability despite fluctuations in several financial indicators, including Non-Performing Financing (NPF), Financing to Deposit Ratio (FDR), and the efficiency ratio measured by Operating Expenses to Operating Income (BOPO).

Profitability is widely recognized as a critical indicator of banking performance and financial sustainability. In Islamic banking, profitability reflects a financial

institution's ability to manage assets, allocate financing effectively, and control operational costs while complying with Sharia principles. A stable ROA suggests that bank management can maintain a balance among asset productivity, financing risk, and operational efficiency. Previous studies have emphasized that the financial performance of Islamic banks is strongly influenced by internal financial indicators, including credit risk, operational efficiency, liquidity management, and capital adequacy (Andriansyah & Hasan, 2023; Hani et al., 2025; Sobana et al., 2025). These factors play a crucial role in determining the sustainability and competitiveness of Islamic banks in increasingly competitive financial markets.

Among these determinants, operational efficiency, credit risk, and liquidity management are often highlighted as key drivers of Islamic bank profitability. The BOPO ratio, which measures the relationship between operating expenses and operating income, is commonly used as an indicator of operational efficiency. A higher BOPO ratio reflects greater operational inefficiency, which may reduce bank profitability (Cahyani & Tubastuvi, 2024; Sulam et al., 2025). Similarly, the Non-Performing Financing (NPF) ratio represents the level of financing risk faced by Islamic banks. High NPF levels indicate a greater likelihood of financing default and can negatively affect profitability, as banks must allocate additional provisions to cover potential losses (Yolanda & Nasution, 2023; Anugra et al., 2025). In addition, liquidity management, commonly measured by the Financing to Deposit Ratio (FDR), plays a crucial role in determining the bank's ability to channel funds effectively. A higher FDR often indicates more active financing distribution and may increase profitability, if financing risks are properly managed (Andriansyah & Hasan, 2023; Hani et al., 2025).

Despite the theoretical relationships between these variables, empirical findings in the literature remain inconsistent. Several studies report that BOPO has a significant negative effect on profitability, suggesting that improved operational efficiency is essential for enhancing bank performance (Sulam et al., 2025; Cahyani & Tubastuvi, 2024). However, other studies indicate that BOPO's influence on profitability may vary across institutional and macroeconomic conditions (Kurnia et al., 2024). Similarly, the effect of NPF on profitability has been widely debated. Some studies find that higher NPF significantly reduces profitability due to increased credit risk (Anugra et al., 2025; Yolanda & Nasution, 2023), while others report that the relationship may be insignificant because effective risk management practices mitigate its impact (Sobana et al., 2025).

The role of FDR as a profitability determinant remains inconclusive in previous studies. Several studies suggest that FDR has a positive and significant influence on profitability because higher financing distribution increases revenue from financing activities (Andriansyah & Hasan, 2023; Hani et al., 2025). However, other

empirical studies find that FDR does not significantly affect profitability, indicating that liquidity management alone may not guarantee improved financial performance (Wahyudi et al., 2021; Audina & Rialdy, 2024). These mixed results highlight the complexity of financial intermediation processes in Islamic banking and suggest that the relationship between liquidity management and profitability may be influenced by other mediating or moderating factors.

In Islamic banking, financial intermediation plays a central role in the banking business model. Islamic banks act as intermediary institutions that collect funds from depositors and channel them into financing activities that comply with Sharia principles (Widarjono & Afandi, 2025). The effectiveness of this intermediation function can influence the relationship between risk factors and bank profitability. For instance, efficient financing allocation may strengthen the positive impact of liquidity management on profitability, while poor financing distribution may weaken this relationship. Some recent studies suggest that intermediation variables may mediate the relationship between financial performance indicators and profitability (Effendi et al., 2024). However, empirical evidence regarding this mediating role remains limited and inconclusive.

Another important issue relates to the growing complexity of risk management in Islamic banking. Islamic banks face various risks, including financing, operational, liquidity, and macroeconomic risks, which may influence their financial performance (Fatihin et al., 2024). Managing these risks effectively is essential to maintaining profitability and financial stability. Furthermore, the regulatory environment and governance structure also influence bank performance by shaping risk management practices and operational efficiency (Setiawan, 2023; Yulianti & Haribowo, 2024).

Despite the extensive literature on Islamic bank profitability, several research gaps remain. First, many previous studies examine the direct effects of financial ratios such as BOPO, NPF, and FDR on profitability without considering the potential mediating role of financial intermediation. Second, empirical findings on the relationships among operational efficiency, financing risk, liquidity management, and profitability remain inconsistent across studies and time periods. Third, limited research has specifically examined the mediating role of financial intermediation in explaining how operational and financing risks affect Islamic bank profitability in Indonesia.

Addressing these gaps is important because understanding the mechanisms by which risk and efficiency factors influence profitability can provide policymakers and banking practitioners with valuable insights. Examining the mediating role of financial intermediation may help explain the complex interactions between operational efficiency, financing risk, liquidity management, and profitability in Islamic banking systems.

Therefore, this study aims to analyze the influence of operational efficiency (BOPO) and financing risk (NPF) on the profitability of Islamic banks in Indonesia, with financial intermediation represented by the Financing to Deposit Ratio (FDR) as a mediating variable. Specifically, the objectives of this research are: (1) to examine the direct effects of BOPO and NPF on Islamic bank profitability; (2) to analyze the influence of BOPO and NPF on financial intermediation measured by FDR; and (3) to investigate the mediating role of FDR in the relationship between operational risk, financing risk, and profitability in Indonesian Islamic banks.

By addressing these objectives, this study contributes to the literature on Islamic banking performance by providing empirical evidence on the role of financial intermediation in linking risk factors and profitability. The findings are expected to offer practical insights for Islamic bank management and policymakers to improve operational efficiency, risk management, and financing strategies, thereby enhancing the sustainability and competitiveness of Islamic banking in Indonesia.

2. Literature Review

2.1. Islamic Bank Profitability and Financial Performance

Profitability is one of the most important indicators of banking performance because it reflects a financial institution's ability to efficiently utilize its assets to generate returns. In Islamic banking, profitability is generally measured using the Return on Assets (ROA) ratio, which indicates how effectively banks manage their assets to produce income while maintaining compliance with Sharia principles. Profitability also reflects the financial sustainability and competitiveness of Islamic banks within the broader financial system. The development of Islamic banking in Indonesia has increased the need to understand the factors influencing bank profitability, particularly because Islamic banks operate under a unique financial system that prohibits interest-based transactions and emphasizes risk-sharing mechanisms.

Several studies have identified internal financial indicators as key determinants of Islamic bank profitability. Andriansyah and Hasan (2023) find that internal financial ratios, such as the Financing to Deposit Ratio (FDR), Non-Performing Financing (NPF), and operational efficiency, significantly influence the profitability of Islamic banks in Indonesia. Their findings highlight that efficient liquidity management and effective financing distribution are important for enhancing bank performance. Similarly, Sobana et al. (2025) demonstrate that operational efficiency, capital adequacy, and financing allocation significantly affect Islamic bank profitability in both Indonesia and Malaysia. These findings suggest that internal management practices and financial policies are essential in determining bank performance.

However, Islamic bank profitability is also influenced by broader financial stability factors, including risk management, governance structures, and macroeconomic conditions. Mubarok et al. (2024) argue that macroeconomic variables such as inflation and exchange rates can significantly affect the profitability of Islamic banks in the long term. Likewise, Fatihin et al. (2024) show that different types of risks—including financing risk, liquidity risk, and market risk—have a substantial impact on Islamic bank performance. These studies emphasize that profitability in Islamic banking is not solely determined by internal financial ratios but is also shaped by external economic factors and regulatory environments.

2.2. Operational Efficiency and Profitability

Operational efficiency is widely considered a crucial factor in determining the financial performance of Islamic banks. The efficiency of banking operations is commonly measured by the BOPO ratio, which compares operating expenses to operating income. A lower BOPO ratio indicates higher operational efficiency, while a higher BOPO ratio suggests inefficiency that may reduce profitability.

Empirical studies consistently demonstrate that operational efficiency significantly influences Islamic bank profitability. Sulam et al. (2025) find that BOPO has a significant negative effect on ROA in Bank Syariah Indonesia, indicating that higher operating costs reduce bank profitability. Similarly, Cahyani and Tubastuvi (2024) report that operational efficiency is the most significant determinant of Islamic bank profitability compared to other financial indicators such as capital adequacy and liquidity. Hamadou (2024) also confirms that operational risk, represented by the BOPO ratio, negatively affects Islamic bank profitability in Indonesia.

These findings are further supported by Hani et al. (2025), who conclude that operational efficiency is one of the most important strategic factors affecting Islamic bank profitability. According to their study, efficient cost management allows banks to allocate resources more effectively and generate higher returns on assets. Similarly, Zuhroh et al. (2025) introduce the concept of "Efficiency in Efficiency," which emphasizes that operational efficiency should not only focus on reducing costs but also on optimizing the effectiveness of financial intermediation to generate profitability.

Nevertheless, some studies report inconsistent results regarding the effect of operational efficiency on profitability. For instance, Kurnia et al. (2024) find that BOPO does not significantly affect profitability in their analysis of Islamic commercial banks in Indonesia during the 2018–2022 period. These findings suggest that the relationship between operational efficiency and profitability may vary depending on institutional conditions, governance structures, and macroeconomic environments. Such inconsistencies indicate that further

investigation is required to better understand the role of operational efficiency in Islamic banking performance.

2.3. Financing Risk and Profitability

Financing risk is another key determinant of Islamic bank profitability. Financing risk is generally measured by the Non-Performing Financing (NPF) ratio, which represents the proportion of financing that is classified as problematic or in default. High NPF levels indicate increased credit risk, which may reduce bank profitability by increasing provisioning costs and lowering financing returns.

Numerous studies have examined the relationship between NPF and Islamic bank profitability. Yolanda and Nasution (2023) demonstrate that NPF has a significant negative effect on ROA, indicating that higher financing risk reduces bank profitability. Similar findings are reported by Anugra et al. (2025), who show that NPF negatively affects the profitability of Islamic commercial banks in Indonesia. These results suggest that effective credit risk management is essential for maintaining financial stability and profitability.

However, other studies report different findings. Sobana et al. (2025) find that NPF does not significantly affect profitability in their cross-country analysis of Islamic banks in Indonesia and Malaysia. Similarly, Wahyudi et al. (2021) report that NPF does not significantly affect profitability during the COVID-19 pandemic. These differences indicate that the impact of financing risk on profitability may depend on the effectiveness of bank risk management strategies and the economic environment.

Further research also highlights the complex relationship between financing risk and financial performance. Efendamara et al. (2024) show that profitability can influence financing risk, suggesting a reverse relationship in which higher profitability helps reduce NPF levels. Meanwhile, Widarjono and Afandi (2025) emphasize that sectoral diversification in financing portfolios can reduce financing risk and improve the stability of Islamic banking operations.

2.4. Liquidity Management and Financial Intermediation

Liquidity management is another important factor affecting Islamic bank profitability. In Islamic banking, liquidity is commonly measured using the Financing to Deposit Ratio (FDR), which indicates the extent to which banks distribute financing relative to the funds collected from depositors. A higher FDR generally indicates more active financing distribution, which may increase bank income from financing activities.

Several studies report that FDR positively affects profitability. Andriansyah and Hasan (2023) find that higher FDR levels significantly increase Islamic bank profitability because greater financing distribution generates higher revenue. Similarly, Hani et al. (2025)

and Yolanda and Nasution (2023) report that FDR has a positive effect on ROA. These findings suggest that effective financial intermediation plays an important role in improving Islamic bank performance.

However, other studies present contrasting results. Audina and Rialdy (2024) find that FDR does not significantly affect profitability in Indonesian Sharia Business Units. Similarly, Wahyudi et al. (2021) report that FDR does not significantly influence profitability during the COVID-19 period. These inconsistencies suggest that liquidity management alone may not be sufficient to explain variations in profitability among Islamic banks.

Islamic banks primarily function as financial intermediaries that collect funds from depositors and channel them through financing activities (Widarjono & Afandi, 2025). Therefore, the effectiveness of financial intermediation may influence how liquidity management affects profitability. Effendi et al. (2024) highlight that intermediation variables can mediate the relationship between internal banking factors and profitability, suggesting that financing distribution mechanisms may play an important role in linking risk factors and financial performance.

2.5. Risk Management and Governance in Islamic Banking

Beyond financial ratios, risk management and governance structures also play significant roles in determining Islamic bank performance. Fatihin et al. (2024) emphasize that effective risk management practices are essential for maintaining financial stability and improving bank profitability. Their findings suggest that different types of risk, including financing, market, and liquidity risks, significantly affect Islamic bank performance.

Corporate governance mechanisms also influence bank performance. Yulianti and Haribowo (2024) demonstrate that governance structures, such as the effectiveness of the board of directors and the quality of the Sharia supervisory board, can improve transparency and financial performance. Similarly, Setiawan (2023) argues that strong regulatory frameworks and supervisory systems are necessary to manage the unique risks faced by Islamic banks. These studies highlight that Islamic banking performance is influenced by multiple interconnected factors, including operational efficiency, financing risk, liquidity management, governance, and macroeconomic conditions.

Although numerous studies have examined the determinants of Islamic bank profitability, several research gaps remain. First, many previous studies focus on the direct relationship between financial ratios—such as BOPO, NPF, and FDR and profitability without considering the potential mediating mechanisms through which these variables influence financial performance. Second, empirical findings on the

relationships between operational efficiency, financing risk, and profitability remain inconsistent across studies and contexts. Some studies report significant relationships, while others find insignificant or contradictory results.

Third, limited research has specifically examined the mediating role of financial intermediation in explaining how operational and financing risks influence Islamic bank profitability. While Effendi et al. (2024) highlight the potential role of intermediation variables as mediators, empirical evidence regarding this mechanism remains limited. Similarly, studies such as Lestari et al. (2024) emphasize the importance of internal banking factors but do not comprehensively examine the mediating effects of financial intermediation.

Therefore, further research is needed to clarify the mechanisms through which operational efficiency and financing risk influence Islamic bank profitability. Examining the mediating role of financial intermediation, represented by the Financing to Deposit Ratio (FDR) may provide deeper insights into how Islamic banks translate operational efficiency and risk management into improved financial performance. By addressing these research gaps, this study seeks to contribute to the literature on Islamic banking by providing a more comprehensive analysis of the relationships between operational efficiency, financing risk, financial intermediation, and profitability in Indonesian Islamic banks.

3. Materials and Methods

3.1. Research Design

This study employs a quantitative, explanatory research design to examine the relationships among operational efficiency, financing risk, financial intermediation, and profitability in Islamic banking. Explanatory research is used to analyze causal relationships between variables and to test hypotheses developed from previous theoretical and empirical studies. In this research, operational efficiency and financing risk are treated as independent variables, profitability as the dependent variable, and financial intermediation as a mediating variable.

Specifically, this study investigates the influence of Operating Expenses to Operating Income (BOPO) and Non-Performing Financing (NPF) on profitability measured by Return on Assets (ROA), with Financing to Deposit Ratio (FDR) acting as an intervening variable. The conceptual framework assumes that operational efficiency and financing risk influence profitability both directly and indirectly through Islamic banks' financial intermediation function.

3.2. Data and Sample

This study utilizes secondary quantitative data obtained from the annual financial statements of Sharia

Commercial Banks (Bank Umum Syariah) operating in Indonesia. The financial data were collected from official publications issued by the Financial Services Authority (Otoritas Jasa Keuangan – OJK) and from the published financial reports of individual Islamic banks. The observation period of this study covers 2014–2024, allowing the research to capture variations in financial performance over time and to provide a more comprehensive understanding of the determinants of Islamic bank profitability.

The sample selection uses a purposive sampling technique, selecting banks based on specific criteria to ensure the reliability and completeness of the data. The selection criteria include:

1. Islamic Commercial Banks registered with the Financial Services Authority (OJK) during the study period.
2. Banks that consistently publish complete annual financial statements for the period 2014–2024.
3. Banks that report positive profitability during the observation period.
4. Banks that provide complete data for the variables used in this study, namely BOPO, NPF, FDR, and ROA.

By applying these criteria, the study ensures that the selected sample represents Islamic banks with stable operational performance and sufficient financial information for empirical analysis.

3.3. Variables and Measurement

This study analyzes four main variables derived from Islamic banking financial ratios.

3.3.1. Profitability (Dependent Variable)

Profitability is measured by Return on Assets (ROA), which reflects a bank's ability to generate profit from its total assets. ROA is widely used as a key indicator of bank financial performance.

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

3.3.2. Operational Efficiency (Independent Variable)

Operational efficiency is measured using the Operating Expenses to Operating Income (BOPO) ratio. This ratio indicates the efficiency of bank operations. A lower BOPO ratio indicates higher operational efficiency.

$$BOPO = \frac{\text{Operating Expenses}}{\text{Operating Income}}$$

3.3.3. Financing Risk (Independent Variable)

Financing risk is represented by the Non-Performing Financing (NPF) ratio, which measures the proportion of problematic financing relative to total financing.

$$NPF = \frac{\text{Non Performing Financing}}{\text{Total Financing}}$$

3.3.4. Financial Intermediation (Mediating Variable)

Financial intermediation is measured by the Financing to Deposit Ratio (FDR), which reflects Islamic banks' ability to channel funds collected from depositors into financing activities.

$$FDR = \frac{\text{Total Financing}}{\text{Total Deposit}}$$

3.4. Data Analysis Technique

The data analysis in this study uses the Structural Equation Model (SEM) to examine relationships among variables and test both direct and indirect effects within the research model. SEM is chosen because it allows the simultaneous estimation of multiple relationships among variables, including mediation effects.

4. Results and Discussion

The results of the analysis can be seen in Table 1 below:

Table 1. Result of Hypothesis Testing

Hypothesis	Coefficient	Std. Error	T Statistic	Sig. (P-value)	Decision ($\alpha = 0.05$)
H1: BOPO → ROA	-0.95	0.184	-5.163	0.000	Significant
H2: NPF → ROA	-0.378	0.194	-1.948	0.051	Not Significant
H3: FDR → ROA	0.468	0.128	3.656	0.000	Significant
H4: BOPO → FDR	-0.577	0.231	-2.498	0.012	Significant
H5: NPF → FDR	-0.317	0.105	-3.019	0.002	Significant
H6: BOPO → FDR → ROA	0.128	0.179	0.715	0.474	Not Significant
H7: NPF → FDR → ROA	0.253	0.113	2.239	0.025	Significant

Table 1 presents the results of the hypothesis testing using the Structural Equation Model (SEM) approach. The analysis evaluates the direct and indirect relationships between operational efficiency (BOPO), financing risk (NPF), financial intermediation (FDR), and profitability (ROA) in Islamic commercial banks in Indonesia. The significance of the relationships is determined using the t-statistic and p-value criteria with a significance level of 5%. The R^2 value for FDR is 0.260, indicating that the model explains only about 26% of the variation in FDR. The relatively low Adjusted R^2 value further suggests that the model is less effective in explaining the variability of this variable. In contrast, ROA has a much higher R^2 of 0.865 (86.5%), indicating that the model explains a substantially larger proportion of the variation in ROA. This reflects the model's very strong explanatory power for this variable. The model provides a much stronger explanation of ROA than FDR.

4.1. Operational Efficiency (BOPO) and Profitability (ROA)

The first hypothesis examines the influence of operational efficiency, as measured by the BOPO ratio, on profitability, as reflected in ROA. The empirical results show that BOPO has a negative and significant effect on ROA ($\beta = -0.95$; $t = -5.163$; $p < 0.05$). This indicates that higher operational costs relative to operating income significantly reduce Islamic banks' profitability.

This finding confirms that operational efficiency plays a crucial role in determining bank performance. When

operational costs increase disproportionately relative to operating income, the bank's ability to generate profits decreases. Islamic banks with lower operating costs are therefore better able to improve profitability through efficient resource utilization.

This result is consistent with several previous studies. Sulam et al. (2025) found that BOPO has a significant negative effect on ROA in Bank Syariah Indonesia, emphasizing that operational efficiency is a key determinant of banking profitability. Similarly, Cahyani and Tubastuvi (2024) reported that operational efficiency is the most influential factor affecting Islamic bank profitability, followed by capital adequacy and liquidity. Hamadou (2024) also demonstrated that operational risk, as measured by BOPO, negatively affects the profitability of Islamic banks in Indonesia.

Furthermore, Hani et al. (2025) argue that operational efficiency is one of the most critical determinants of Islamic bank performance because it directly influences cost management and revenue generation. Efficient banking operations allow financial institutions to allocate resources more effectively and improve asset productivity. These findings reinforce the argument that improving operational efficiency is essential for enhancing the profitability and competitiveness of Islamic banks.

4.2. Financing Risk (NPF) and Profitability (ROA)

The second hypothesis examines the relationship between financing risk and profitability. The results show that NPF has a negative but statistically insignificant

effect on ROA ($\beta = -0.378$; $t = -1.948$; $p = 0.051$). Although the relationship is negative, as expected, the effect is not statistically significant at the 5% level.

This result suggests that financing risk does not significantly influence the profitability of Islamic banks during the study period. One possible explanation is that Islamic banks may have implemented effective risk management strategies that mitigate the impact of problematic financing on overall profitability. Banks often maintain adequate reserves and implement stringent credit risk screening processes to manage credit risk.

The findings of this study are consistent with several previous studies that reported similar results. Sobana et al. (2025) found that NPF does not significantly influence the profitability of Islamic banks in Indonesia and Malaysia, suggesting that effective credit risk management can reduce the impact of financing defaults on bank performance. Similarly, Wahyudi et al. (2021) reported that NPF did not significantly affect Islamic bank profitability during the COVID-19 pandemic period.

However, other studies have reported contrasting findings. Anugra et al. (2025) and Yolanda and Nasution (2023) found that NPF significantly and negatively affects profitability, indicating that higher financing risk reduces bank performance. These differences suggest that the relationship between financing risk and profitability may depend on the economic environment, risk management practices, and regulatory frameworks.

4.3. Financial Intermediation (FDR) and Profitability (ROA)

The third hypothesis tests the influence of financial intermediation on profitability. The results show that FDR has a positive and significant effect on ROA ($\beta = 0.468$; $t = 3.656$; $p < 0.05$). This indicates that an increase in financing distribution relative to deposits significantly improves Islamic banks' profitability.

This finding supports the fundamental role of Islamic banks as financial intermediaries that mobilize funds from depositors and allocate them into productive financing activities. When Islamic banks successfully channel funds into financing activities, they generate revenue through profit-sharing contracts and other Sharia-compliant financing instruments.

The result aligns with previous empirical studies. Andriansyah and Hasan (2023) found that FDR positively affects Islamic bank profitability because a higher distribution of financing increases revenue generation. Similarly, Hani et al. (2025) reported that effective liquidity management through financing allocation significantly improves profitability. Yolanda and Nasution (2023) also found that FDR has a positive and significant influence on ROA in Bank Syariah Indonesia.

However, some studies reported different findings. Audina and Rialdy (2024) found that FDR does not significantly affect profitability in Sharia Business Units.

Wahyudi et al. (2021) also reported that FDR did not significantly influence profitability during the pandemic period. These differences highlight that the impact of financial intermediation may vary depending on economic conditions and institutional characteristics.

4.4. Effect of Operational Efficiency (BOPO) on Financial Intermediation (FDR)

The fourth hypothesis examines the relationship between operational efficiency and financial intermediation. The results indicate that BOPO has a negative and significant effect on FDR ($\beta = -0.577$; $t = -2.498$; $p < 0.05$). This suggests that operational inefficiencies reduce Islamic banks' ability to effectively distribute financing.

When operational costs increase, banks may become more cautious in expanding financing activities due to limited financial resources. High operational expenses reduce the funds available for financing distribution, thereby affecting the bank's intermediation function. These findings are supported by previous studies. Widarjono and Afandi (2025) emphasize that efficient banking operations are essential for maintaining a stable distribution of financing. Similarly, Zuhroh et al. (2025) argue that operational efficiency influences both profitability and the distribution of financing in Islamic banks.

4.5. Financing Risk (NPF) on Financial Intermediation (FDR)

The fifth hypothesis investigates the effect of financing risk on financial intermediation. The results show that NPF has a negative and significant effect on FDR ($\beta = -0.317$; $t = -3.019$; $p < 0.05$). This indicates that higher levels of problematic financing reduce Islamic banks' ability to distribute financing. When financing risk increases, banks tend to adopt more conservative financing policies to minimize potential losses. As a result, financing distribution decreases because banks prioritize risk mitigation rather than aggressive financing expansion.

This finding is consistent with previous research. Efendamara et al. (2024) reported that higher NPF levels influence banking performance and financing risk dynamics in Islamic commercial banks. Similarly, Widarjono and Afandi (2025) highlighted that financing risk significantly affects the stability of Islamic banking financing activities.

4.6. Mediating Role of Financial Intermediation (FDR)

The sixth and seventh hypotheses examine whether financial intermediation mediates the relationship between operational efficiency, financing risk, and profitability. The results show that FDR does not significantly mediate the relationship between BOPO and ROA ($\beta = 0.128$; $t = 0.715$; $p > 0.05$). This suggests that

operational efficiency influences profitability directly rather than through financial intermediation. In other words, improving operational efficiency directly enhances profitability without necessarily affecting financing distribution.

However, the results indicate that FDR significantly mediates the relationship between NPF and ROA ($\beta = 0.253$; $t = 2.239$; $p < 0.05$). This finding suggests that financing risk influences profitability indirectly by affecting financial intermediation. When financing risk increases, banks reduce financing distribution, which ultimately affects profitability.

These results provide important insights into the mechanisms linking risk and profitability in Islamic banking. Effendi et al. (2024) highlighted the potential mediating role of financial intermediation in explaining the relationship between internal banking factors and profitability. Similarly, Lestari et al. (2024) emphasized that internal financial factors influence bank performance through financing risk dynamics.

5. Conclusions

This study aimed to examine the relationships between operational efficiency, financing risk, financial intermediation, and profitability in Islamic commercial banks in Indonesia during the 2014–2024 period. Specifically, the research analyzed the direct effects of operational efficiency (BOPO) and financing risk (NPF) on profitability (ROA), as well as the mediating role of financial intermediation, as measured by the Financing to Deposit Ratio (FDR). The results yield several important findings that advance understanding of the determinants of Islamic bank performance.

First, the empirical results indicate that operational efficiency has a strong and significant influence on profitability. The BOPO ratio shows a negative, statistically significant relationship with ROA, indicating that higher operational costs relative to operating income reduce Islamic banks' profitability. This finding highlights the importance of cost efficiency in banking operations. Islamic banks that manage their operational expenses effectively are better able to generate higher profits and maintain financial sustainability. Therefore, improving operational efficiency through better cost management, technological innovation, and improved internal processes should be a priority for bank management.

Second, financing risk, measured by the Non-Performing Financing (NPF) ratio, shows a negative but statistically insignificant relationship with profitability. Although the direction of the relationship suggests that higher financing risk may reduce bank profitability, the effect is not statistically significant in this study. This finding suggests that Islamic banks in Indonesia may have implemented effective risk management strategies that mitigate the potential impact of problematic financing on overall financial performance. Adequate provisioning policies, careful financing screening

processes, and prudent credit monitoring systems may help reduce the direct impact of financing risk on profitability.

Third, financial intermediation, represented by the Financing to Deposit Ratio (FDR), has a positive and significant effect on profitability. This finding confirms the important role of Islamic banks as financial intermediaries that mobilize funds from depositors and distribute them through financing activities. Effective financing distribution enables Islamic banks to generate higher returns from financing contracts, thereby improving overall profitability. Consequently, maintaining an optimal FDR level is essential for ensuring both liquidity stability and profitability growth.

Fourth, the results indicate that operational efficiency significantly influences financial intermediation. The negative relationship between BOPO and FDR suggests that operational inefficiency can reduce Islamic banks' ability to effectively distribute financing. When operating costs increase, banks may become more cautious in expanding financing activities due to limited financial resources. Therefore, improving operational efficiency may not only increase profitability directly but also enhance Islamic banks' financial intermediation function.

Fifth, financing risk also has a significant negative effect on financial intermediation. Higher levels of non-performing financing tend to reduce the amount of financing distributed by Islamic banks. This result indicates that banks adopt more conservative financing policies when facing higher credit risk, which ultimately affects their intermediation activities. Effective credit risk management is therefore essential for maintaining both financial stability and sustainable financing distribution.

Regarding the mediating effect, the results show that financial intermediation does not significantly mediate the relationship between operational efficiency and profitability. This indicates that the influence of operational efficiency on profitability occurs primarily through direct mechanisms rather than through financing distribution. In contrast, financial intermediation significantly mediates the relationship between financing risk and profitability. This suggests that financing risk affects profitability indirectly by influencing financing distribution. When financing risk increases, banks tend to reduce their financing activities, thereby affecting their profit-generating capacity.

The findings of this study highlight the critical importance of operational efficiency and effective financial intermediation in improving Islamic bank profitability. Operational efficiency remains the most influential determinant of profitability, while financial intermediation plays a key role in transmitting the effects of financing risk to bank performance. These results emphasize that Islamic banks must simultaneously focus on cost efficiency, risk management, and effective financing distribution to maintain sustainable financial performance.

5.1. Research Limitations

Despite providing valuable insights, this study has several limitations. First, the analysis focuses only on internal financial indicators such as BOPO, NPF, and FDR, while external macroeconomic factors such as inflation, economic growth, exchange rates, and regulatory changes are not included in the model. These external variables may also influence Islamic banks' profitability and could provide additional explanatory power for future research models.

Second, the study uses annual financial data from Islamic commercial banks in Indonesia, which may limit the ability to capture short-term fluctuations in banking performance. Using quarterly or monthly data could provide a more detailed understanding of dynamic relationships among the variables. Third, the study focuses only on Islamic commercial banks in Indonesia, which may limit the generalizability of the findings to other countries or financial systems. Islamic banking practices may vary across countries due to differences in regulatory frameworks, market structures, and economic conditions.

5.2. Research Implications

The findings of this study provide important implications for both practitioners and policymakers. For bank management, improving operational efficiency should be a primary strategic priority, as it has the strongest impact on profitability. Banks should adopt modern technologies, digital banking systems, and effective cost management strategies to reduce operational expenses and improve productivity.

From a risk management perspective, banks should strengthen credit risk monitoring systems to minimize non-performing financing. Effective financing evaluation processes and risk mitigation strategies can help maintain stable financing distribution while reducing the potential impact of financing risk on bank performance.

For regulators and policymakers, the results highlight the importance of maintaining a stable regulatory framework that supports efficient financial intermediation. Policies that encourage prudent financing distribution and strengthen banking governance can help improve the resilience and competitiveness of the Islamic banking sector.

5.3. Future Research

Future studies may expand this research in several ways. First, researchers could incorporate additional variables such as capital adequacy, macroeconomic indicators, bank size, governance quality, and market competition to develop a more comprehensive model of Islamic bank profitability. Second, comparative studies between Islamic banks and conventional banks could provide deeper insights into the unique characteristics of Islamic banking performance. Third, future research may

explore alternative mediating or moderating variables, such as financial stability, risk management practices, or corporate governance, to better understand the complex mechanisms influencing Islamic bank performance.

In addition, extending the analysis to multiple countries or conducting cross-country comparisons could provide a broader perspective on the determinants of Islamic banking profitability in different regulatory and economic environments. Such studies would contribute to the development of more robust theoretical and empirical frameworks for understanding the performance of Islamic financial institutions.

In conclusion, this study contributes to the growing literature on Islamic banking by providing empirical evidence on the relationships between operational efficiency, financing risk, financial intermediation, and profitability in Indonesian Islamic banks. Strengthening operational efficiency, maintaining effective risk management, and optimizing financing distribution are essential strategies for ensuring the long-term sustainability and competitiveness of the Islamic banking sector.

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