

Exploring the Drivers of Non-Performing Financing among Islamic Banks in Indonesia

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Abstract. This study investigates the internal factors that influence the level of Non-Performing Financing among Islamic banks in Indonesia by analyzing panel data from eight banks covering the period from the first quarter of 2017 to the second quarter of 2025. Panel data regression techniques are applied, and the Fixed Effect Model is identified as the most appropriate model based on standard model selection tests. The results show that the Capital Adequacy Ratio, Net Operating Margin, and Profit-Sharing Ratio have significant negative effects on Non-Performing Financing, indicating that stronger capital positions, higher levels of operational profitability, and more balanced profit-sharing arrangements help reduce financing risk. Conversely, the Financing-to-Deposit Ratio has a significant positive effect, suggesting that excessive expansion of financing relative to collected deposits increases the likelihood of financing becoming non-performing. Operational Efficiency Ratio and the number of branch offices do not exhibit significant effects on financing quality. Overall, the findings emphasize the importance of robust capital management, prudent liquidity strategies, and fair profit-sharing mechanisms in promoting financial stability within Islamic banks in Indonesia. These results provide valuable insights for regulators and practitioners seeking to strengthen risk management in the Islamic banking industry.

Keywords: Non-Performing Financing, Islamic Banks, Capital Adequacy, Profitability, Liquidity

1. Introduction

The stability and resilience of Islamic banks are strongly influenced by their ability to manage credit risk, particularly risks associated with Non-Performing Financing (NPF). As one of the core indicators of financing quality, NPF reflects the effectiveness of risk assessment, monitoring, and recovery strategies within Islamic financial institutions, while also serving as an indicator of overall bank soundness (Muhammad *et al.*, 2020; Sari *et al.*, 2022). A high level of NPF not only reduces profitability but also weakens capital strength and disrupts the intermediation function that Islamic banks play in supporting economic growth (Hani *et al.*, 2025; Pujiyanty *et al.*, 2022). In Indonesia, NPF volatility has drawn serious concern, as Islamic banks have periodically approached or exceeded Bank Indonesia's regulatory threshold (Hardana *et al.*, 2023; Ibrahim *et al.*, 2025).

Multiple internal bank factors may influence the level of NPF. These include the bank's capital adequacy (CAR), financing liquidity (FDR), profitability and operational performance (NOM and OER), the proportion of profit-sharing financing (PSR), and the breadth of branch networks (Branch) (Alfakhirah and Jaya, 2024; Asiyah *et al.*, 2022; Muhammad *et al.*, 2020; Syaidi *et al.*, 2024). Each of these indicators reflects different aspects of financial strength, risk-taking behavior, operational efficiency, and monitoring capacity. Their combined interaction shapes how well Islamic banks manage risks and prevent financing from deteriorating into non-performing status (Afgani *et al.*, 2025). Understanding these determinants is thus essential to designing effective risk mitigation strategies that align with the principles and operational characteristics of Islamic banking (Gustanto *et al.*, 2025).

In recent years, the Indonesian Islamic banking industry has undergone rapid growth, accompanied by increasing competition and evolving market dynamics. As banks expand their financing portfolios to meet the rising demand for sharia-compliant financial services, they also face greater exposure to various forms of credit and operational risks (Niswatin and Rahmat Santoso, 2025). These challenges become even more complex due to the distinctive nature of Islamic financing contracts, which rely on asset-backed structures and profit-and-loss sharing mechanisms (Aprilianto, 2020). Consequently, the management of NPF requires not only strong financial fundamentals but also robust governance practices, effective risk monitoring, and a deep understanding of customer behavior across diverse financing schemes (Sabihah *et al.*, 2025).

Islamic banks in Indonesia operate within a regulatory environment that continues to align with global financial standards while upholding sharia principles, with OJK and Bank Indonesia emphasizing the need to maintain strong financing quality as a basis for systemic stability (Hasan *et al.*, 2025; Salwatun Aslamia *et al.*, 2023). Economic fluctuations further heighten the vulnerability of financing portfolios, underscoring the need for stronger internal resilience (Putri, 2021). At the same time, structural characteristics such as branch network scale,

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operational efficiency, and resource allocation influence the effectiveness of risk mitigation across institutions. These conditions make it essential to examine internal determinants, including capital adequacy, liquidity management, profit margins, cost efficiency, and financing composition, to understand variations in banks' ability to maintain low NPF levels. Positioned within this context, this study offers comprehensive empirical insights that support theoretical development, practical improvement, and policy formulation in Islamic banking risk management.

2. Literature Review

2.1. Asymmetric Information Theory

Asymmetric Information Theory explains how differences in information between banks and borrowers can lead to adverse selection and moral hazard, increasing the likelihood of financing problems (Jappelli and Pagano, 2002). In Islamic banking, where financing often relies on partnership-based contracts such as *mudharabah* and *musyarakah*, the risk of information opacity is even higher due to profit-sharing mechanisms and the absence of collateral in some contracts (Saleem *et al.*, 2023). This theory underpins the role of internal bank indicators, such as risk assessment quality, monitoring intensity, and branch effectiveness, in preventing the escalation of NPF.

Unlike conventional banks that rely heavily on collateralized lending and fixed interest-based repayments, Islamic banks employ sharia-compliant partnership models such as *mudharabah* and *musyarakah*, where profits and losses are shared between the bank and the client (Chong and Liu, 2009). While these contracts promote fairness and risk sharing, they also intensify information opacity, as banks must depend on the accuracy of clients' business reports, profit declarations, and operational transparency. The absence of collateral in several PLS (profit-and-loss sharing) contracts further amplifies the need for reliable information and robust monitoring mechanisms.

In this context, asymmetric information theory emphasizes the importance of internal bank capabilities in mitigating information-related risks. The quality of risk assessment determines how accurately banks can evaluate borrower characteristics and detect hidden risks before financing approval (Machado *et al.*, 2025). Monitoring intensity becomes crucial in reducing moral hazard (Berns *et al.*, 2021). Additionally, the effectiveness of branch networks influences how consistently risk management processes are implemented across different regions (Moutinho and Phillips, 2002).

2.2. Hypotheses Development

2.2.1. Non-Performing Financing (NPF)

The intermediation function of Islamic banks becomes weakened when financing quality deteriorates, as banks lose the ability to channel funds efficiently from depositors to borrowers. Elevated levels of non-performing financing (NPF) prompt stricter credit policies, diminish depositor confidence, and reduce banks' willingness to extend new financing, particularly to higher-risk sectors (Fakhrunnas *et al.*, 2022). When non-performing financing increases, banks' capital buffers are strained as more funds must be set aside for potential losses, thereby reducing their resilience to shocks and limiting their ability to expand lending (Muhammad *et al.*, 2020).

Non-Performing Financing (NPF) in Islamic banking reflects a unique risk structure arising from the contractual foundations of sharia-compliant financing. A study finds that Mudarabah does not elevate credit risk, whereas Musharakah exhibits a non-linear *reverse U-shaped* relationship with the highest risk occurring when it constitutes around 37–39% of the financing portfolio. These findings conclude that the two PLS contracts carry distinct risk characteristics, requiring banks to manage the share of Musharakah carefully to avoid increasing NPF (Warninda *et al.*, 2019). There are clear differences in liquidity-risk behavior between Islamic and conventional banking systems, indicating that financing-structure factors affect each system differently and therefore require regulators and market participants to develop distinct liquidity-risk management frameworks (Abdul-Rahman *et al.*, 2018).

2.2.2. Capital Adequacy Ratio (CAR)

The capital adequacy ratio (CAR) is determined by assigning risk weights to a bank's exposures, so that higher potential losses require higher risk weights and, consequently, more capital to cover the exposure (Andersen and Juelsrud, 2024). Several studies have examined the impact of CAR on Non-Performing Financing (NPF) in Islamic banks, consistently highlighting its crucial role in mitigating credit risk. For instance, research by Muhammad *et al.* (2020) that CAR negatively affects NPF. Penelitian lainnya juga confirmed that well-capitalized Islamic banks maintain lower levels of NPF, as sufficient capital encourages prudent financing and risk management (Alfakhirah and Jaya, 2024; Yuwannita *et al.*, 2022). Stronger capital buffers reduce NPF risk, and banks are more resilient to losses. Therefore, the following hypothesis can be proposed:

H1. CAR negatively affects NPF

2.2.3. Financing-to-Deposit Ratio (FDR)

The Financing to Deposit Ratio (FDR) reflects a bank's ability to channel third-party funds into productive financing (Nengsih, 2015). The impact of the Financing to Deposit Ratio (FDR) on Non-Performing Financing (NPF) has produced mixed results in empirical studies. Some research indicates that FDR has no significant effect on NPF, suggesting that banks may be able to maintain sound credit quality regardless of how aggressively they deploy deposit funds into productive financing (Muhammad *et al.*, 2020). Conversely, another researcher found that a higher FDR can lead to an increase in NPF because banks that allocate a larger portion of deposits into financing may face greater liquidity risk (Alfakhirah and Jaya, 2024; Sari *et al.*, 2022; Yuwannita *et al.*, 2022).

H2. FDR positively affects NPF

2.2.4. Net Operating Margin (NOM)

Profitability, measured by indicators such as Return on Assets (ROA) or Net Operating Margin (NOM), is often found to be negatively associated with Non-Performing Financing (NPF) in Islamic banks. Several studies suggest that more profitable banks tend to have lower levels of NPF. Ikhsan (2023) showed that Net Operating Margin (NOM) negatively affects Non-Performing Financing (NPF). Higher Net Operating Margin (NOM) can reduce Non-Performing Financing (NPF) because more profitable banks are typically more efficient, able to monitor borrowers effectively, maintain stronger internal buffers against losses, and make more selective credit decisions.

H3. NOM negatively affects NPF

2.2.5. Operational Efficiency Ratio (OER)

The Operating Expense Ratio (OER) influences Non-Performing Financing (NPF) by reflecting a bank's cost efficiency in managing its operations. Higher OER indicates greater operational costs relative to assets, which can limit the bank's resources for monitoring and managing financing, potentially increasing NPF. Several studies have shown varying effects of the Operating Expense Ratio (OER) on Non-Performing Financing (NPF). Safitri *et al.* (2020) found that OER has a significant positive effect on NPF, whereas Saadati and Nurjihan (2023) and Faisal (2021) reported a negative effect of OER on NPF. A higher Operating Expense Ratio (OER) can reduce Non-Performing Financing (NPF) because increased operational spending often supports stronger monitoring, risk management, and recovery efforts, helping banks prevent financing from becoming non-performing.

H4. OER negatively affects NPF

2.2.6. Profit Sharing Ratio (PSR)

In profit-sharing contracts, the Profit-Sharing Ratio (PSR) is an important factor that influences both borrower behavior and the bank's profit distribution. The study finds that Mudharabah financing is generally associated with lower financing risk and better bank performance, while Musharakah financing is slightly linked to higher financing risk and has a weak negative impact on the performance of Indonesian Islamic banks (Annizar and Junarsin, 2025). Studies such as Farooq and Zaheer (2015) emphasize that excessively high profit-sharing ratios can burden borrowers, increase the risk of moral hazard, and raise the likelihood of non-performing financing. If Musharakah financing is extended more than Mudharabah financing, the financing risk will increase, and vice versa.

H5. PSR has a mixed effect on NPF

2.2.7. Branch Network

The number of branch offices serves as an indicator of operational capacity, distribution efficiency, and financing monitoring ability. Research by Muhammad *et al.* (2020) shows that having too many branches (bank size) can also lead to high coordination costs and inconsistencies in financing analysis standards, which may increase NPF.

H6. Branch positively affects NPF

3. Research Methodology

This study employs a quantitative approach using a panel data design to analyze the determinants of financing performance among 8 (eight) Islamic banks in Indonesia that consistently maintained a non-zero financing-to-deposit ratio during the period from Q1 2017 to Q2 2025. The analysis is based on secondary data obtained from the quarterly financial statements of each bank, official publications of the Financial Services Authority (OJK), and other relevant sources. The dependent variable is the Non-Performing Financing (NPF), while the independent variables include key bank-specific indicators such as bank size, liquidity, operational efficiency, and capitalization, selected based on intermediation theory and prior empirical studies.

Data analysis is conducted using EViews through a series of panel data estimation procedures, including the common effect, fixed effect, and random effect models. Model selection is performed using the Chow test, Hausman test, and Lagrange Multiplier (LM) test. After determining the most appropriate model, the study

conducts relevant diagnostic tests such as heteroscedasticity, autocorrelation, and cross-section dependence tests, followed by significance testing using the F-test and t-test. The final results provide empirical insights into the influence of internal bank characteristics on NPF dynamics across Islamic banks during the study period.

4. Result and Discussion

4.1. Descriptive Statistics

Table 1. Descriptive Statistics

	N	Mean	Maximum	Minimum	STDEV
NPF	272	1.6883	4.98	0	1.5551
CAR	272	25.6028	58.1	10.16	10.2380
FDR	272	85.9098	196.73	38.33	19.4919
NOM	272	1.8063	14.97	-8.71	3.8176
OER	272	88.1820	206.19	54.85	16.9997
PSR	272	48.4414	96.95	0	30.3816
Branch	272	25.6912	83	9	22.0767

Based on the descriptive statistics presented in Table 1, the variables used in this study exhibit substantial variation across Islamic banks in Indonesia. The average NPF stands at 1.68%, which remains within a healthy threshold, although the maximum value approaches the regulatory limit, indicating that some banks or periods experienced heightened financing risk. The wide dispersion in CAR suggests differing capital management strategies, with several banks holding exceptionally strong capital buffers to absorb potential losses. Meanwhile, the average FDR falls within the ideal industry range, yet the extremely high maximum value reveals that certain banks pursued aggressive financing expansion that may have led to liquidity pressures. Profitability (NOM), operational efficiency (OER), and profit-sharing ratios (PSR) also demonstrate broad variability, reflecting differences in operational capacity, strategic approaches, and financing structures. These findings indicate that internal conditions among Islamic banks are highly heterogeneous, which can influence their respective levels of financing risk.

4.2. Correlations

Table 2. Correlations

	CAR	FDR	NOM	OER	PSR	BRANCH
CAR	1					
FDR	-0.0021	1				
NOM	0.6464	0.0825	1			
OER	-0.4717	0.1031	-0.7494	1		
PSR	-0.2718	0.0975	-0.5310	0.4309	1	
BRANCH	-0.1420	-0.5668	-0.0637	0.0759	-0.0287	1

The correlation matrix in Table 2 further illustrates the relationships among the independent variables. No correlation coefficient exceeds the threshold of 0.80, indicating the absence of severe multicollinearity issues that could compromise the estimation results. A relatively strong negative correlation is found between NOM and OER, suggesting that greater operational efficiency is associated with higher profitability. Moderate correlation between CAR and NOM implies that better-capitalized banks tend to be more profitable. Additionally, the negative correlation between Branch and FDR indicates that banks with larger branch networks may operate more conservatively in channeling funds into financing. Overall, the correlation structure remains within acceptable limits, allowing all variables to be included in the panel regression analysis without adjustment. The presence of both positive and negative moderate correlations also suggests that the explanatory variables capture distinct dimensions of bank performance and risk behavior. This further supports the suitability of the selected variables in explaining variations in Non-Performing Financing across Islamic banks.

4.3. Panel Data Regressions (FEM, REM, and CEM)

Table 3. Panel Regression and Model Test

Variables	FEM		REM		CEM	
	β	t-stat (prob)	β	t-stat (prob)	β	t-stat (prob)
C	2.1285	2.4920 (0.0133)	1.4879	2.1990 (0.0287)	-2.5474	-4.3051 (0.0000)
CAR	-0.0378	-4.3728 (0.0000)	-0.0471	-6.3827 (0.0000)	-0.0683	-8.5918 (0.0000)
FDR	0.0188	5.9623 (0.0000)	0.0216	6.9929 (0.0000)	0.0337	8.2318 (0.0000)

NOM	-0.0898	-2.0360 (0.0428)	-0.0979	-2.8369 (0.0049)	0.0509	1.6017 (0.1104)
OER	-0.0097	-1.8229 (0.0695)	-0.0069	-1.4268 (0.1548)	0.0214	3.7929 (0.0002)
PSR	-0.0084	-2.0677 (0.0397)	0.0006	0.1807 (0.8568)	0.0133	5.5386 (0.0000)
BRANCH	0.0129	0.5409 (0.5890)	0.0120	1.6899 (0.0922)	0.0182	5.2606 (0.0000)
R-Squared	0.8099		0.3016		0.6101	
F-test	84.6066	(0.0000)	19.0746	(0.0000)	69.1047	(0.0000)
Chow (Cross-section F)	38.7808	(0.0000)				
Hausman (Cross-section random)			37.8448	(0.0000)		
Lagrange Multiplier (both)					7.777081	(0.0053)

The panel regression results in Table 3 indicate that the Fixed Effect Model (FEM) is the most appropriate model for this study, as supported by the significant Chow and Hausman tests. The FEM findings show that CAR has a significant negative effect on NPF, meaning that banks with stronger capital positions tend to experience lower financing risk. FDR exhibits a significant positive effect, indicating that higher financing expansion relative to deposits increases the likelihood of default. NOM also has a significant negative effect, demonstrating that more profitable banks are better able to monitor borrowers and prevent financing problems. PSR additionally shows a significant negative effect, meaning that more equitable profit-sharing arrangements strengthen borrower incentives and reduce moral hazard, ultimately lowering NPF. In contrast, OER, despite having a negative coefficient, is statistically insignificant, implying that operational efficiency does not consistently influence financing quality. The number of branches (Branch) is also insignificant, suggesting that branch network scale alone does not determine financing performance. With an R-squared of 0.8099, the FEM exhibits strong explanatory power, capturing nearly 81% of the variation in NPF across banks and over time.

The regression results in Table 3 are broadly consistent with the studies cited in the Introduction and Hypotheses Development sections. The significant negative effect of CAR on NPF supports the findings of Muhammad et al. (2020), Yuwannita et al. (2022), and Alfakhirah and Jaya (2024), who emphasize that stronger capital buffers reduce financing risk. Likewise, the positive effect of FDR on NPF aligns with evidence from Alfakhirah and Jaya (2024), Sari et al. (2022), and Yuwannita et al. (2022), confirming that aggressive financing expansion increases default probability. The negative and significant relationship between NOM and NPF reinforces Ikhsan (2023), who found that higher profitability enhances monitoring capacity and reduces financing problems. The significant negative effect of PSR also corroborates the conclusions of Farooq and Zaheer (2015) and Annizar and Junarsin (2025), who argue that equitable profit-sharing reduces moral hazard and improves financing performance. In contrast, the insignificant results for OER and Branch do not provide strong support for earlier mixed findings by Safitri et al. (2020), Saadati and Nurjihan (2023), Faisal (2021), or Muhammad et al. (2020). Overall, these regression outcomes affirm the theoretical framework, indicating that internal bank characteristics, particularly capital strength, liquidity management, profitability, and financing structure that play a central role in shaping NPF levels among Islamic banks in Indonesia.

5. Conclusions

This study provides empirical evidence on the key internal factors influencing Non-Performing Financing (NPF) among Islamic banks in Indonesia. The Fixed Effect Model results demonstrate that capital adequacy (CAR), profitability (NOM), and the profit-sharing ratio (PSR) play vital roles in reducing financing risk, confirming that banks with stronger financial buffers, effective profitability performance, and equitable profit-sharing mechanisms are better equipped to prevent financing from deteriorating into non-performing status. In contrast, the financing-to-deposit ratio (FDR) significantly increases NPF, indicating that excessive financing expansion may heighten liquidity pressures and weaken risk management effectiveness. The insignificant effects of operational efficiency (OER) and branch networks suggest that cost structure and branch scale alone are not sufficient predictors of financing quality.

The findings contribute to the growing body of literature on Islamic banking by providing empirical evidence on how internal bank characteristics shape Non-Performing Financing. The significant roles of capital adequacy, profitability, and profit-sharing structures strengthen theoretical arguments rooted in asymmetric information and risk-sharing principles, demonstrating that internal financial resilience and incentive alignment are central to maintaining financing quality. The results also validate the relevance of intermediation theory in the

context of Islamic banking, showing that liquidity pressures arising from aggressive financing expansion can elevate financing risk. Furthermore, the insignificance of operational efficiency and branch networks highlights the need for future studies to explore more nuanced institutional, managerial, and contract-specific factors that may better explain variations in financing performance.

The research offers several actionable insights for practitioners and regulators. Islamic banks should prioritize strengthening capital buffers, enhancing profitability through efficient operations, and designing balanced profit-sharing agreements that reduce moral hazard among borrowers. Banks must also manage financing expansion more cautiously to avoid excessive liquidity pressures that increase default risk. The limited impact of operational costs and branch expansion suggests that improving financing quality requires investments in governance, credit assessment, and monitoring systems rather than merely increasing physical scale. For regulators, the findings support the refinement of supervisory guidelines focusing on capital resilience, sustainable financing growth, and the evaluation of profit-sharing structures as core components of sound risk-management practices in the Islamic banking sector.

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