



## ***How does equity financing impact non-performing financing? Evidence from Indonesia***

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**Abstract:** This study aims to investigate the impact of equity financing on non-performing financing (NPF) in Islamic commercial banks in Indonesia. To address this issue, we conducted a panel data regression analysis on 12 Islamic commercial banks in Indonesia from 2010 to 2022. The finding of this study suggests that an increase in equity financing is associated with a lower NPF ratio of Islamic banks. While it is theoretically argued that Islamic banks' equity financing may be associated with higher risk, our empirical evidence indicates the opposite, suggesting an improved risk profile. Indonesia presents a favorable environment for the application of equity financing for Islamic banks because large Islamic banks in Indonesia are often government-owned, which can lead to "safe" loan portfolios and strong loan repayment. Indonesia is also considered a religious country, creating a suitable environment for *mudharabah* and *musharakah* financing. Our findings suggest that Islamic banks in Indonesia should consider offering more equity financing, particularly for low-risk projects, such as those initiated by the governments.

## **Introduction**

Non-Performing loans (NPL), a key indicator of credit risk, are crucial for maintaining economic stability. NPLs were closely linked to the history of the financial crisis in 2007 in Asia, which led to the collapse of the global financial market (Endut et al., 2013). Since then, NPLs have continued to be challenging and raise a significant issue for financial institutions. In addition to conventional banks, Islamic banks also face credit risk, typically assessed using the Non-Performing Financing (NPF) ratio.

In Indonesia, financing risk in Islamic banks warrants particular attention because these banks tend to have higher NPF rates than conventional banks. Bank Indonesia, the central bank, mandates a maximum NPL rate of five percent for all banks (Financial Services Authority, 2013). Therefore, the examination of credit risk in the banking industry is crucial for several reasons. First, credit risk is a key criterion in evaluating a bank's financial performance. High NPL levels negatively impact a bank's income and business sustainability (Haniifah, 2015). Furthermore, the elevated ratio of NPL or NPF not only affects individual banks but also poses a threat to a country's economic stability. Rahman et al. (2016) found that poor management of NPLs or NPFs can lead to failures in banking operations and create vulnerabilities in the financial system.

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High NPF ratios in Islamic banks affect both financial and non-financial performance. According to the Regulation of Bank Indonesia No. 17/11/PBI/2015, a bank must maintain an NPF ratio below five percent to achieve a healthy financing risk assessment. Financially, an NPF ratio above five percent diminishes profitability and capital, as Islamic Commercial Banks (BUS) are required to reduce equity financing to manage NPF. Non-financially, a high NPF ratio erodes trust among depositors and the general public. When the financing risk in Islamic Banking institutions is high, the banks are deemed unhealthy (Mutamimah & Saputri, 2023). In Indonesia's banking sector, including Islamic Banks, credit risk—or financing risk, as it is termed in Islamic Banking—poses a significant threat to internal operations, rendering it the most critical risk associated with the intermediation function (Warninda et al., 2019).

According to data retrieved from the Financial Services Authority (OJK), as of the end of February 2018, Islamic banks' assets had grown by 20.65 percent year-on-year (YoY), reaching IDR 429.36 trillion. This asset growth was in line with the increase in third-party funds (DPK), which grew by 18.1%, amounting to IDR 339.05 trillion. Additionally, the ratio of NPF was recorded below the OJK's safe threshold, at 4.31 percent. Traditionally, providing credit has been the primary source of profit generation for banks. However, it also carries the highest level of risk among the implementation of other banking services. Therefore, it can be concluded that providing credit constitutes the most profitable banking activity while simultaneously presenting significant risks (Warninda et al., 2019).

NPF in Islamic banks serves as a crucial indicator of a bank's risk profile, influenced by several internal and external factors. The external factors commonly cited include gross domestic product (GDP), interest rates, and inflation rates (Adebola et al., 2011; Endut et al., 2013; Widarjono & Rudatin, 2021). Previous studies conducted by Firmansyah (2015), Havidz & Setiawan (2015), and Supriani & Sudarsono (2018) have also examined the internal and external factors affecting NPF ratios, yielding diverse findings. A high NPF ratio signifies the bank's failure to effectively manage funds disbursed to the public, consequently impacting the institution's overall performance and compromising its financial health (Aryani et al., 2016). In addition, NPF also plays a crucial role in determining the performance of banks, as it also contributes to economic development (Isaev & Masih, 2017).

As of October 2017, the NPF ratio for Islamic Banks in Indonesia stood at 4.12%. According to Ahmand Soekro, Head of the Sharia Banking Department of the Financial Services Authority (OJK), the target for the following year was an improvement in this ratio. By October 2017, the amount of financing provided by Sharia Banks was recorded at IDR 281.86 trillion. Concurrently, Third Party Funds reached IDR 325.69 trillion. The number of Deposit Accounts (DPK) stood at 26.57 million, while Financing Accounts totaled 5.71 million. The total assets of Sharia Banks during that year amounted to IDR 406.23 trillion.

According to Muhammad (2018), a primary contributor to the increased financing risk is the ease with which banks extend loans or make investments to customers. This often arises from pressure on banks to utilize surplus funds, resulting in less stringent credit assessments and an inadequate evaluation of potential risks associated with the financed businesses. This suggests that as Islamic Banks increase their financing activities, the financing risk, as measured by the NPF ratio, is likely to increase (Muhammad, 2014).

Profit-sharing equity financing instruments, provided by Islamic banks to customers based on partnership contracts such as *mudharabah* and *musharakah*, are considered foundational to Islamic finance. Abedifar et al. (2013) and Risfandy et al., (2020) emphasized that the Profit and Loss Sharing (PLS) financing model in Indonesia accounts for more than 30% of the total financing provided by Islamic banks, indicating that the PLS method in Indonesia is among the highest in the world. Previous studies compared the impact of PLS equity financing through different approaches (Abusharbeh, 2014; Grassa, 2012; Alandejani & Asutay, 2017).

Additionally, Adzimatunur & Manalu (2020) and Suzuki et al. (2020) found that *mudharabah*, as an Islamic financing instrument, exhibits a higher risk compared to *musyarakah*, with both contracts significantly influencing non-performing financing. *Mudharabah* and *musyarakah* financing carry high credit risk (Abusharbeh, 2014; Ernawati, 2016), primarily attributed to the limited knowledge among Islamic bank employees in selecting, evaluating, and managing profitable projects. Furthermore, to address the aforementioned issues, we employed a purposive sampling method based on specific criteria to select the 12-year period for analysis. This study focuses on 12 Islamic Commercial Banks in

Indonesia, with data sourced from the official OJK website (<https://www.ojk.go.id>) and the official websites of the respective banks. The findings indicate that *mudharabah* financing, *musyarakah* financing, and Return on Assets (ROA) have a negative and significant effect on Non-Performing Financing (NPF). This implies that as the amount of financing provided by Islamic Banks increases, the NPL or NPF value, which measures the risk of credit default, decreases.

Currently, the practice of equity financing is not widely adopted by Islamic banks due to its complexity and risks. Specifically, the presence of asymmetric information and pronounced moral hazard issues hinders Islamic banks from making optimal financing decisions (Abdul-Rahman et al., 2014; Aggarwal, 2000). As reported by the IFS Board (2019), there is a declining trend in the utilization of Profit-Loss Sharing (PLS) arrangements within Islamic deposits. Concurrently, Islamic financing based on PLS principles, or equity financing, exhibits limited adoption due to its inherent complexities. Additionally, a study by Valadez et al., (2013) also states that the proportion of Sharia deposits using PLS arrangements is decreasing, while Sharia financing with risk-sharing features (PLS financing or equity financing) remains relatively uncommon due to its complexity. This study contributes to the existing body of literature on bank financing risk, particularly measured by the ratio of credit risk (NPL/NPF) (Afif & Mawardi, 2014; Muhammad, 2014; Warninda et al., 2019). Focusing on Islamic Banks, this study further expands the existing literature on financial institutions operating in accordance with Islamic law (Abedifar et al., 2013; Grassa, 2012; Hamza & Saadaoui, 2013). Furthermore, this study enhances the understanding of the correlation between bank financing, particularly in Islamic banks operating in Indonesia, and the associated risk levels. Additionally, it also offers valuable insights for policymakers, helping them devise strategies to mitigate the risk of bank defaults, which, if left unaddressed, could lead to instability in the banking system.

## Literature Review and Hypothesis Development

According to Asutay (2007), equity financing and Profit and Loss Sharing (PLS) contracts are key to achieving justice and equality, aligning not only with *maqasid al-shari'a* (objectives of sharia) but also with the broader objectives of Islam. Additionally, equity financing through PLS contracts primarily involves *Mudharabah* (profit sharing) and *Musharakah* (joint venture) arrangements. *Mudharabah* is considered a cornerstone of Islamic banking, distinguishing it from conventional banking. In *Mudharabah* arrangement, Islamic banks provide capital to customers for their projects, with the generated profits being shared between the bank and the customer according to a pre-determined ratio (Massah & Al-sayed, 2013). However, *Mudharabah* also carries potential risks, as the entrepreneur's (*mudharib*) profits are uncertain, and the bank must be prepared to bear any potential losses. In this arrangement, Islamic banks act as fund providers while customers serve as entrepreneurs. *Mudharabah* financing is a profit-sharing agreement wherein Islamic Microfinance Institutions (MFIs) supply all the necessary capital, while the client contributes their effort and time to the project.

The second form of equity financing is *Musharakah*, which is similar to *Mudharabah* but with a key difference: in *Musharakah*, both the bank and the customer contribute to the project's capital, making it a true partnership. In *Musharakah* financing, both Islamic banks and customers jointly fund a project, sharing profits according to a pre-determined ratio (Massah & Al-sayed, 2013). Unlike *Mudharabah*, *Musharakah* involves both parties as capital providers, with profits and losses distributed based on the proportion of their investment in the project (Ashraf et al., 2016; Chong & Liu, 2009; Rahman, 2010). Additionally, the bank has the right to oversee the business, which helps mitigate agency issues that may arise between lenders and borrowers (Chakraborty & Ray, 2006). The *Musharakah* contract is a PLS arrangement where two or more parties invest equity in a project, profits are subsequently shared based on mutual agreement and losses according to their capital contributions.

Non-performing loans (NPLs) occur when a customer is unable to fulfill some or all of their agreed obligations. These loans, typically overdue for more than a year, are considered uncollectible and pose a significant challenge for banks. (Waqas et al., 2019). NPLs are often a consequence of ex-post credit risk, a phenomenon identified as a precursor to banking crises (Reinhart & Rogoff, 2010). As a result, NPLs can serve as early warning signals of financial instability and potential bank bankruptcy, which poses a risk to the overall health of the economy. This underscores the critical role of the banking sector in financial activities, with the stability of the economy heavily dependent on a healthy banking system.

NPLs are considered a major constraint on the effectiveness of the banking sector in promoting economic growth and are recognized as a significant cause of bank failures, potentially leading to banking crises (Sthembiso Msomi, 2022).

Banks with a high NPL ratio are at risk of bankruptcy. The rising number of NPLs indicates a decline in bank performance, which can also lead to decreased operational activities and income. The NPL ratio also affects the bank's reputation, as a lower ratio indicates better loan management and maintains liquidity. By analyzing and managing internal factors, such as maintaining financial ratios that influence the NPL ratio, banks can reduce their NPL levels below the standard value.

Non-Performing Financing (NPF) in Islamic banking is a tool to measure the risk of the financing practice. Both NPF in Islamic banks and NPL in conventional banks are influenced by microeconomic and macroeconomic factors, as well as the internal and external characteristics of the bank. The performance of banks can be measured by the NPF/NPL levels, serving as a reflection of the ratio of liquidity, profitability, and solvency (Dwihandayani, 2017). NPF plays a crucial role in evaluating the bank's overall performance and the quality of its financing operations, given that financing constitutes a cornerstone of a bank's contribution to economic growth (Isaev & Masih, 2017). The competitiveness of Islamic banks in relation to conventional banks will be significantly influenced by their ability to effectively manage the NPF levels (Nugraheni & Muhammad, 2019).

The examination of credit risk in the banking industry is crucial for several reasons. First, credit risk is a key criterion for evaluating a bank's financial performance. High NPL levels negatively affect a bank's earnings and the continuity of business (Haniifah, 2015). Second, a high NPL ratio impacts individual banks and has broader implications for a country's economic stability. Ineffective management of NPLs can lead to the failure of banking practices and render national finances vulnerable (Priyadi et al., 2021). As for Islamic banks, a study conducted by Nugraha & Setiawan (2018) utilizing a sample of Sharia Commercial Banks in Indonesia, revealed that these institutions generally implement financing practices with greater propriety and appropriateness, resulting in a lower NPF ratio.

### ***Hypothesis Development***

Equity financing consists of two models, namely *mudharabah* financing and *musyarakah* financing (Asutay, 2007). *Mudharabah* financing represents a profit-sharing equity arrangement where an Islamic bank and a customer collaborate on a business venture. The bank provides the capital, while the customer contributes their expertise and skills for project execution (Warninda et al., 2019). However, studies conducted by Adzimatunur & Manalu (2020) and Suzuki et al. (2020) found that *mudharabah* presents a relatively higher risk for banks and both contracts significantly influence problematic financing. In *Musyarakah* financing, the profits and losses were shared based on their contributions to the project (Ashraf et al., 2016; Chong & Liu, 2009; R. A. Rahman, 2010). Additionally, banks have the right to monitor the customer's business activities, which serves to mitigate potential issues between lenders and borrowers (Chakraborty & Ray, 2006). Nevertheless, both *Mudharabah* and *Musyarakah* financing carry higher credit risks (Abusharbeh, 2014; Ernawati, 2016), and as equity financing increases, so does the likelihood of Non-Performing Financing (NPF). Therefore, the first hypothesis for this study is as follows:

*Hypothesis 1: Equity financing has a positive impact on Non-Performing Financing.*

Equity Financing, encompassing *mudharabah* and *musyarakah*, constitutes only a small portion of the financing portfolio of Islamic banks. Unlike their conventional counterparts, Islamic banks are theoretically expected not only to pursue profit but also to promote social welfare and economic growth. However, despite its theoretical advantages, equity financing is not widely adopted among Islamic banks due to its complexity and associated risks. Islamic banks frequently encounter challenges in making optimal financing decisions due to asymmetric information and significant moral hazard issues (Abdul-Rahman et al., 2014; Aggarwal & Yousef, 1996). Furthermore, equity financing has a negative impact on our key control variables such as CAR, SIZE, ROA, FDR, and GOV. However, in cases when Islamic banks have strong fundamental conditions, *mudharabah* and *musyarakah* financing may lead to an increase in NPLs, although these conditions may also contribute to a reduction in NPLs



through the improvement of their efficiency and performance. According to fundamental signal theory, high business efficiency indicates strong bank performance. As a bank operates efficiently, it will lead to higher profits. Conversely, inefficient banks with high operational costs may experience decreased profitability (Wibowo & Wibowo, 2019). This aligns with findings from Petria et al. (2015) and Almazari (2014) revealing that strong fundamental conditions within Islamic banks are influenced by two factors: (1) CAR, ROA, FDR, SIZE, and GOV which can contribute to a reduction in NPFs, and (2) these variables can result in lower NPFs overall. Therefore, the second hypothesis is proposed as follows:

*Hypothesis 2: The impact of equity financing depends on the fundamental conditions at the bank level.*

## Research Methods

### Data

In this study, we selected samples from 12 Islamic Commercial Banks in Indonesia annually using the purposive sampling method. This method was selected based on specific criteria and considerations, covering a period of 12 years. We determined that this technique is suitable for our study, as it constitutes a quantitative study that does not necessitate a generalization process. The criteria for selecting research samples are: first, the bank must have its annual report published by the Indonesia Financial Authority (OJK) and/or can be accessed publicly. Lastly, the bank used as the data must be an Islamic commercial bank that operates in Indonesia, whether it is publicly or privately owned.

The sample of 12 Islamic Commercial Banks, serving as the focus of our observation consisted of public and private banks (Bank Muamalat Indonesia, Mega Syariah Indonesia, KB Bukopin Syariah, Panin Dubai Syariah, Victoria Syariah, BCA Syariah, BJB Syariah, Aladin Syariah, BTPN Syariah, Aceh Syariah, NTB Syariah, BNI Syariah, BRI Syariah, Mandiri Syariah, and BSI). Data were sourced from the official OJK website (<https://www.ojk.go.id>) and the official websites of each of the 12 Islamic Commercial Banks operating in Indonesia. Additionally, our study aims to measure the impact of equity financing on the failure rate of Islamic banking financing.

In this study, to investigate the effect of equity financing and Non-Performing Loans, we employ an econometric model utilizing the following estimation approach:

$$NPF_{i,t} = \alpha_0 + \beta Equity_{i,t} + \varphi X_{i,t} + \gamma GOV_{i,t} + \varepsilon_{i,t} \quad (1)$$

where  $i$  and  $t$  represent the bank index and time period, respectively. The dependent variable is the financing risk of Islamic Commercial Banks, proxied by Non-Performing Financing (NPF). Equity is a proxy for equity financing (*Mudharabah* and *Musyarakah*),  $X$  represents a vector of bank-level variables that reflect the bank's health and financial condition (CAR for capital, ROA for asset, FDR for liquidity, OER for efficiency, and  $\ln$ SIZE for bank size) affecting the NPF, and GOV is a dummy variable for bank ownership (privately or publicly owned). These dummy variables are classified into 1 and 0 and are used to compare banks with government-owned and privately owned ones. If the bank is owned by the government, the value of the dummy is 1, and conversely, if the bank is privately owned, then the value of its dummy variable is 0.

The study employs annual gross values (value before/value-added/annual gross income value) for *Mudharabah* and *Musyarakah* financing, in line with the methodology outlined by Warninda et al. (2019). The NPF ratio data also uses Gross NPF. NPF, as the dependent variable, measures financing risk and is affected by both macro and microeconomic factors as well as the external and internal characteristics of the company. The NPF level to assess liquidity, profitability, and solvency ratios can also be used to measure banks' performance (Dwihandayani, 2017).

Non-performing financing, indicated by the ratio of problematic financing, is a crucial parameter for evaluating the performance of banks, particularly as intermediary institutions responsible for collecting and distributing capital (*shahibul maal*) to those in need (*mudharib*). The independent variables used are *Mudharabah* financing (MUD) and *Musyarakah* financing (MUS). A low NPF level, indicated by high profits, suggests that a significant portion of the bank's assets is allocated to financing, thus a significant portion of the bank's income is derived from these activities. Table 1 presents a summary of the definitions of each variable used in this study.

**Table 1.** Variable Definitions

Variable	Definition	Sources
<i>Non-Performing Financing</i> (NPF)	Loans experiencing repayment difficulties, including principal installments or profit sharing, for 90 days or more past their maturity date, due to internal factors (such as deliberate actions) or external factors (events beyond the creditor's control), are measured using a ratio scale. This ratio is calculated as the percentage of total problematic financing divided by the total financing provided by the bank.	OJK Regulation Number 15/POJK.03/2017
<i>Mudharabah</i> (MUD)	This practice of financing was obtained through the agreement between the bank and the customer. The bank serves as the capital provider, while the customer contributes the expertise to carry out the project. This cooperation is measured using a ratio scale, calculated as the percentage of total <i>mudharabah</i> financing divided by the sum of total overall receivables (including <i>murabahah</i> receivables minus deferred <i>murabahah</i> margin income, <i>istishna'</i> receivables minus deferred <i>istishna'</i> margin income, multiservice receivables, qardh receivables, lease receivables) and total overall profit-sharing financing ( <i>mudharabah</i> ), multiplied by 100.	(Warninda et al., 2019) ( <a href="https://www.ojk.go.id">https://www.ojk.go.id</a> )
<i>Musyarakah</i> (MUS)	This variable was obtained through the value of the collaboration between Islamic banks and customers from their capital and the project, with the results shared by both parties. It is measured using a ratio scale, calculated as the percentage of total <i>musyarakah</i> financing divided by the sum of total receivables (including <i>murabahah</i> receivables minus deferred <i>murabahah</i> margin income, <i>istishna'</i> receivables minus deferred <i>istishna'</i> margin income, multiservice receivables, qardh receivables, lease receivables) and total profit-sharing financing ( <i>musyarakah</i> ), multiplied by 100.	(Warninda et al., 2019) ( <a href="https://www.ojk.go.id">https://www.ojk.go.id</a> )
<i>Capital Adequacy Ratio</i> (CAR)	The ratio, which serves as the primary basis for assessing a bank's adequacy of funds and is a crucial instrument for managing the risk of loss on productive assets, particularly those arising from credit risk, is measured using a ratio scale calculated of total equity divided by total assets.	(Sukmana, 2015)
<i>Return on Assets</i> (ROA)	The ratio reflecting the effectiveness of Islamic Commercial Banks in managing assets and generating returns on those assets is introduced as a proxy for profitability. It is measured using a ratio scale calculated as the percentage of net income divided by total assets.	(Beck et al., 2013)
<i>Financing to Deposit Ratio</i> (FDR)	The level of efficiency of Islamic Banks in distributing community funds is measured using a ratio scale calculated as the percentage of total financing distributed divided by the total community funds collected by the bank.	(Suryanto, 2015)
<i>Operational Efficiency Ratio</i> (OER)	"This variable, measured using a ratio scale (percentage), compares a bank's operating expenses to its operating income. This ratio assesses the	(Dendawijaya, 2011)

		organization's performance by evaluating the relationship between operating expenses and operating income.	
<i>Firm/Bank (SIZE)</i>	<i>Size</i>	Company size, measured by the natural logarithm of a bank's total assets, contributes to the prevention of excessive risk-taking behavior and enhances banking stability. It is generally used to mitigate banking risk.	(Khan et al., 2017; Stiroh, 2006)
<i>Governance (GOV)</i>		The Governance Index (GOV) captures variations in institutional development that may impact bank risk. GOV is designated as a dummy variable, assuming a value of 0 when the Islamic Commercial Bank is owned by a National Private Company and a value of 1 when the bank is owned by a Regional Government.	(Čihák & Hesse, 2010) Annual Report of Islamic Commercial Banks

We employ the Random Effects (RE) and Ordinary Least Square (OLS) techniques to estimate our model. According to Gujarati & Porter (2009), the estimation method for the panel random effects model is Generalized Least Squares (GLS). The Panel Common Effects and Fixed Effects models are included in the Ordinary Least Squares (OLS). One advantage of the GLS method is that it does not require the fulfillment of classical assumptions. This study examines the impact of equity financing, specifically *mudharabah* and *musyarakah* financing on NPF at Islamic Commercial Banks in Indonesia.

## Analysis and Discussion

### Descriptive Statistic

Prior to conducting multivariate analysis (basic regression) and MUS interaction regression, we performed descriptive statistics by examining the mean values of the dependent variable (NPF), independent variables (MUD and MUS), and control variables (CAR, ROA, FDR, OER, lnSIZE, and GOV). The study analyzes these variables using 129 observation data points. Based on the results of the descriptive statistics presented in Table 2, the NPF variable, as the dependent variable, indicates an average value of 3.85 percent with a standard deviation of 5.52. These results suggest that the level of financing risk experienced by Islamic banks is still below the credit risk threshold set by Bank Indonesia, which is 5 percent. Thus, it can be concluded that the credit financing condition of Islamic banks remains within a normal and safe range.

**Table 2.** Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
NPF	129	3.847364	5.516751	0	43.99
MUD	129	4.122984	5.321486	0	37.063
MUS	129	35.52552	27.39472	0	95.697
CAR	129	31.43388	43.77064	10.64	390.5
ROA	129	0.94093	4.155539	-20.13	13.58
FDR	129	91.2645	57.00462	0	506
OER	129	98.7324	45.20687	56.16	428.4
lnSIZE	129	29.8837	1.311388	27.2184	33.35371
GOV	129	0.209302	0.408397	0	1

The MUD financing variable indicates an average value of 4.12, signifying that the average amount of financing distributed by the bank is 4.12 units, with significant variability. In addition to the MUD financing variable, the study also includes the MUS financing variable with an average value of 35.53,

suggesting that the average amount of financing distributed under the MUS scheme has high variability, although it is not significantly different from the average amount distributed. The mean of CAR as a proxy for bank capital value is 31.43, indicating that the banks in this study have relatively strong average capital with significant variation. The ROA variable as a proxy of bank assets, has an average value of 0.94 with a standard deviation of 4.16, suggesting that the average profitability of these Islamic banks tends to be moderate but with significant fluctuation. The mean value of the FDR variable is 91.27 with a standard deviation of 57.01, indicating that the average level of financing activity provided by the banks is high, with a large degree of variability.

Additionally, the mean value of the OER variable, serving as a proxy of efficiency is 98.73 with a standard deviation of 45.21, indicating that the average operational costs incurred by Islamic banks are close to the income received. The mean value of the lnSIZE variable, derived from the natural logarithm of total assets, is 29.88 with a standard deviation of 1.31, indicating that the average quantity of assets owned by the banks tends to be large. Lastly, the mean value of the GOV variable is 0.21, indicating that most of the Islamic banks in this study are privately owned national banks.

We also provide a correlation matrix in Table 3 to assess potential collinearity issues among dependent, independent, and control variables. Based on the results in Table 3 the Correlation Matrix, the overall correlation between all variables indicates a low value (below 0.8).

**Table 3.** Correlation Matrix

	NPF	MUD	MUS	CAR	ROA	FDR	OER	lnSIZE	GOV
NPF	1.000								
MUD	-0.082	1.000							
MUS	0.036	0.211	1.000						
CAR	-0.118	-0.109	-0.242	1.000					
ROA	-0.582	-0.091	-0.258	-0.117	1.000				
FDR	0.025	-0.105	-0.110	0.390	-0.032	1.000			
OER	0.248	-0.072	0.019	0.658	-0.703	0.153	1.000		
lnSIZE	-0.124	-0.107	0.026	-0.329	0.161	-0.325	-0.231	1.000	
GOV	-0.123	-0.154	-0.173	-0.127	0.101	-0.190	-0.186	0.548	1.000

The initial multivariate analysis employed a basic regression model to assess the impact of the independent variables (*mudharabah* financing and *musyarakah* financing) and control variables (CAR, ROA, FDR, OER, lnSIZE, and GOV) on the dependent variable (NPF) using the random effect analysis method.

**Table 4.** Baseline Regression

	NPF	NPF	NPF
MUD	-0.159** (-2.17)		-0.165** (-2.35)
MUS		-0.0385** (-2.15)	-0.0367** (-2.28)
CAR	0.00270 (0.08)	-0.00149 (-0.04)	0.00279 (0.09)
ROA	-1.391** (-2.10)	-1.374** (-2.13)	-1.463** (-2.43)
FDR	-0.00356 (-0.51)	-0.000882 (-0.11)	-0.00381 (-0.55)
OER	-0.0714 (-1.24)	-0.0647 (-1.10)	-0.0756 (-1.39)
lnSIZE	-0.125 (-0.32)	0.206 (0.43)	0.118 (0.27)
GOV	-2.316	-2.697*	-3.110*



	(-1.32)	(-1.70)	(-1.76)
_cons	17.43	7.573	12.17
	(1.12)	(0.44)	(0.76)
N	129	129	129
r2			

Note: All regressions use the Random Effect (RE) model. \*, \*\*, and \*\*\* indicate significance at their respective levels, namely 10%, 5%, and 1%.

Based on the baseline regression results presented in Table 4, the variables of MUD and MUS, serving as proxies for *mudharabah* and *musyarakah* financing have a significant negative effect on the non-performing financing in Islamic banks. This finding suggests that an increase in *mudharabah* and *musyarakah* financing extended by Islamic banks reduces the risk of financing failure experienced by the banks. These results align with the findings of Smolo & Kabir Hassan (2011), revealing that equity financing, *musyarakah* and *mudharabah*, offers consumers relatively more affordable financing options, thereby facilitating the efficient fulfillment of their financial needs. The affordability of such financing enhances the likelihood of loan repayment by borrowers. This argument is further substantiated by Adzimatunur & Manalu's (2020) empirical finding demonstrating that an increase in *musharakah* contract financing is associated with lower NPF.

Ibrahim & Rizvi (2018) indicate that Islamic financing (*mudharabah* and *musharakah*) tends to outpace the growth of conventional banks, particularly during periods of economic crisis. One contributing factor to this phenomenon is the alignment of these Islamic financing models with religious and environmental principles, which also serve as the foundation for the banks' operations. Supporting this view, Meslier et al. (2020) found that equity financing levels are higher in countries with a large Muslim population, such as Indonesia. As the country with the largest Muslim population globally (World Population Review, 2021), Indonesia exhibits the highest proportion of equity financing, indicating a supportive environment for Shariah-compliant equity financing. This observation is further strengthened by the ownership structure of these banks. Trinugroho et al. (2021) corroborate this finding, demonstrating that Islamic banks in Indonesia, operating within a country with a significant Muslim population, exhibit lower operational risks when maintaining connections with their parent institutions compared to those operating independently. A substantial portion of large Islamic banks in Indonesia are state-owned, providing them with crucial financial support from the government.

In summary, in the Indonesian context, equity financing (*mudharabah* and *musharakah*) is associated with lower NPL due to several factors: (1) it is considered a less expensive form of financing, (2) Indonesian consumers often exhibit strong religious values, and (3) a significant portion of large Islamic banks in Indonesia are state-owned. Therefore, hypothesis 1 is rejected.

In addition to these findings, ROA, as a control variable, used as a proxy for measuring profitability, indicates a significant negative effect on NPF. This suggests that banks with higher profitability tend to have lower levels of nonperforming loans. These results are consistent with the findings of Ongore & Kusa (2013), which found that banks with lower non-performing loans and higher asset quality tend to be more profitable than their counterparts. Furthermore, it can be concluded that an increase in credit risk is associated with a decline in a bank's financial performance in terms of profit generation (Ekinci & Poyraz, 2019).

Given the significant influence of bank fundamentals on Islamic banking activities, particularly equity financing, this study further investigated the impact of variables, such as CAR for bank capital, ROA for assets, FDR for liquidity, OER for efficiency, and lnSIZE for bank size with the MUS variable (a proxy for *musyarakah* financing) against NPF. In this financing model, the bank and the customer collaborate on the project, jointly acting as capital providers. Empirically, this model demonstrates a lower risk compared to *mudharabah* (Adzimatunur, 2020; Suzuki, 2020). To further investigate the potential interaction between financial risk and fundamental bank conditions, we conducted additional tests. The results from these tests, using the random effect model, revealed that the interaction variable between MUS\*CAR had a significant negative effect, indicating that with an increase in capital due to financing issued by the bank, these banks tend to have a lower NPF value. This finding aligns with a previous study, which also indicated that an increase in financing by Islamic banks can reduce the risk of default.

**Table 5.** Further Analysis

	NPF	NPF	NPF	NPF	NPF
MUS	-0.0430** (-2.60)	-0.0386** (-2.50)	-0.0416** (-2.53)	-0.0398** (-2.57)	-0.0395** (-2.54)
CAR	-0.00132 (-0.07)	-0.00575 (-0.32)	0.0135 (0.75)	-0.00866 (-0.48)	-0.00388 (-0.21)
FDR	0.000106 (0.01)	0.00119 (0.09)	-0.00273 (-0.26)	0.00111 (0.09)	-0.0000625 (-0.01)
ROA	-1.236*** (-3.11)	-1.242*** (-3.20)	-1.200*** (-3.25)	-1.221*** (-3.12)	-1.252*** (-3.21)
OER	-0.0531 (-1.62)	-0.0516 (-1.61)	-0.0711** (-2.38)	-0.0463 (-1.44)	-0.0533 (-1.65)
lnSIZE	-0.0478 (-0.17)	-0.0300 (-0.11)	0.0853 (0.32)	-0.0188 (-0.07)	0.0164 (0.06)
GOV	-2.172*** (-3.15)	-2.531*** (-3.36)	-2.175*** (-3.24)	-2.267*** (-3.13)	-2.367*** (-3.19)
MUS*CAR	-0.00299** (-2.04)				
MUS*FDR		-0.00231*** (-3.23)			
MUS*ROA			-0.128*** (-2.95)		
MUS*OER				-0.00176** (-2.57)	
MUS*lnSIZE					-0.00668*** (-3.13)
_cons	14.00 (1.36)	13.78 (1.37)	11.45 (1.19)	12.88 (1.28)	12.64 (1.28)
N	129	129	129	129	129
r2	0.461	0.474	0.497	0.464	0.473

Note: All regressions use the Random Effect (RE) model. \*, \*\*, and \*\*\* indicate significance at their respective levels, namely 10%, 5%, and 1%.

Additionally, the interaction variable MUS\*FDR, examining the potential interaction between bank equity financing and bank liquidity, also yielded significant negative results. According to the data in Table 5, an increase in the amount of operational financing issued by the bank can reduce the NPF ratio of Islamic banks, consistent with the increase in financing. Similarly, the MUS\*OER variable produced significant negative results, suggesting that the reduction in credit risk is related to the increasing effectiveness of Islamic banks as their financing activities grow. The MUS\*lnSIZE variable also followed this trend, with significantly negative results, indicating that the risk of bad credit decreases as Islamic Bank assets grow, attributable to the positive effect of increased financing.

Another interaction variable, MUS\*ROA, also produced statistically significant negative results, indicating that the reduction in financing risk is associated with increased profitability of Islamic banks due to the financing activities. Based on these findings, it can be concluded that banks with strong fundamental conditions prefer profit-sharing financing instruments, such as *musyarakah* and *mudharabah*, because an increase in financing issued by the bank can lead to a decrease in the risk of bad credit. Thus, based on the obtained results, hypothesis 2 is accepted.

To further validate our findings, we conducted additional tests to assess the robustness of our results. By employing the Ordinary Least Square (OLS) model, as presented in Table 6, we obtained robust and consistent results, corroborating previous findings.

**Table 6.** Robustness test

	NPF	NPF	NPF
MUD	-0.221*** (-2.92)		-0.194*** (-3.10)
MUS		-0.0451** (-2.60)	-0.0397** (-2.55)

CAR	0.000538 (0.03)	-0.00938 (-0.53)	-0.00382 (-0.21)
ROA	-1.163*** (-2.88)	-1.163*** (-2.96)	-1.252*** (-3.21)
FDR	0.000312 (0.03)	0.00286 (0.23)	-0.000146 (-0.01)
OER	-0.0509 (-1.51)	-0.0420 (-1.32)	-0.0534 (-1.65)
lnSIZE	-0.123 (-0.44)	0.0379 (0.14)	-0.00974 (-0.04)
GOV	-1.727** (-2.41)	-1.975*** (-2.95)	-2.365*** (-3.20)
_cons	14.87 (1.43)	10.01 (1.02)	13.43 (1.34)
N	129	129	129
r2	0.443	0.443	0.474

Note: All regressions use the Ordinary Least Square (OLS) model. \*, \*\*, and \*\*\* indicate significance at their respective levels, namely 10%, 5%, and 1%.

## Conclusion

This study examines the influence of equity financing, specifically *Mudharabah* (MUD) and *Musyarakah* (MUS) on Non-Performing Financing (NPF) in Islamic Commercial Banks in Indonesia. Using panel data regression analysis from 12 Islamic Commercial Banks from 2010 to 2022, we found that equity financing has a negative and significant effect on NPF. This finding indicates that an increase in inequity financing practices can contribute to a reduction in the NPF value of Islamic Commercial Banks in Indonesia. Furthermore, the findings indicate that enhancing asset management and profitability can further reduce the risk of problematic financing.

In addition, our findings indicate that equity financing (MUD and MUS) contributes to a reduction in NPF value due to enhanced efficiency, profitability, operational effectiveness, and capital and asset ownership linked to an increase in financing activities by Islamic Banks. These findings also underscore the need for Islamic banks to continue to innovate and enhance their understanding of financing activities while maintaining low non-performing financing risk levels. In addition, the findings suggest that Islamic banks in Indonesia should consider offering more equity financing, as both forms of financing (MUD and MUS) have a low risk and continue to receive strong government support. However, a thorough assessment of the risk profiles of the recipient companies remains crucial. In this context, the study by [Al-Wesabi & Ahmad \(2013\)](#) stated that inadequate credit risk management could lead to the failure of three-quarters of all Islamic Banks, which is often due to a lack of knowledge about credit risk dynamics. Therefore, a comprehensive understanding of the risk on banks' credit is crucial for financial system stability ([Adebola et al., 2011](#)).

## References

- Abdul-Rahman, A., Abdul Latif, R., Muda, R., & Abdullah, M. A. (2014). Failure and potential of profit-loss sharing contracts: A perspective of New Institutional, Economic (NIE) Theory. *Pacific-Basin Finance Journal*, 28, 136–151. <https://doi.org/10.1016/j.pacfin.2014.01.004>
- Abedifar, P., Molyneux, P., Tarazi, A., Deyoung, R., Beck, T., Ebrahim, S., Fiordelisi, F., Goddard, J., Lepetit, L., Ongena, S., Rous, P., Thornton, J., & Wilson, J. (2013). Risk in Islamic Banking. *Review of Finance*, 17(6), 2035–2096. <https://doi.org/https://doi.org/10.1093/rof/rfs041>
- Abusharbeh, M. T. (2014). Credit Risks and Profitability of Islamic Banks: Evidence from Indonesia. *World Review of Business Research Issue*. Pp, 4(3), 136–147.
- Adebola, S. S., Wan Yusoff, W. S., & Dahalan, J. (2011). An ARDL approach to the determinants of nonperforming loans in Islamic banking System in Malaysia. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 1(1), 20–30.
- Adzimatunur, F., & Manalu, V. G. (2020). The Impact of Mudharabah and Musharakah based Financing

- to Credit Risk. 1st Annual Conference of Ihtifaz: Islamic Economics, Finance, and Banking, 127–134. <http://seminar.uad.ac.id/index.php/ihtifaz/article/view/3625>
- Afif, Z. N., & Mawardi, I. (2014). Pengaruh Pembiayaan Murabahah Terhadap Laba Melalui Variabel Intervening Pembiayaan Bermasalah Bank Umum Syariah di Indonesia. *JESTT*, 1(8), 565–580.
- Aggarwal, R. K., & Yousef, T. (1996). Islamic Banks and Investment Financing. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.845>
- Alandejani, M., & Asutay, M. (2017). Nonperforming loans in the GCC banking sectors: Does the Islamic finance matter? Research in International Business and Finance, 42, 832–854. <https://doi.org/10.1016/j.ribaf.2017.07.020>
- Almazari, A. A. (2014). Impact of Internal Factors on Bank Profitability: Comparative Study between Saudi Arabia and Jordan. *Journal of Applied Finance & Banking*, 4(1), 125–140.
- Al-Wesabi, H. A. H., & Ahmad, N. H. (2013). Credit Risk of Islamic Banks in GCC Countries. *International Journal of Banking and Finance*, 10. <https://doi.org/10.32890/ijbf2013.10.2.8476>
- Aryani, Y., Anggraeni, L., & Wiliasih, R. (2016). Faktor-faktor yang Memengaruhi Non Performing Financing pada Bank Umum Syariah Indonesia Periode 2010-2014. *Al-Muzara'ah*, 4(1), 44–60. <https://doi.org/10.29244/jam.4.1.44-60>
- Ashraf, D., Ramady, M., & Albinali, K. (2016). Financial fragility of banks, ownership structure and income diversification: Empirical evidence from the GCC region. *Research in International Business and Finance*, 38, 56–68. <https://doi.org/10.1016/j.ribaf.2016.03.010>
- Asutay, M. (2007). Conceptualisation on the Second Best Solution in Overcoming the Social Failure of Islamic Banking and Finance. *IJUM Journal of Economics and Management*, 15(2), 167–195. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1693608](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1693608)
- Barra, C., & Ruggiero, N. (2023). Bank-specific factors and credit risk: evidence from Italian banks in different local markets. *Journal of Financial Regulation and Compliance*, 31(3), 316–350. <https://doi.org/10.1108/JFRC-04-2022-0051>
- Beck, T., De Jonghe, O., & Schepens, G. (2013). Bank competition and stability: Cross-country heterogeneity. *Journal of Financial Intermediation*, 22(2). <https://doi.org/10.1016/j.jfi.2012.07.001>
- Chakraborty, S., & Ray, T. (2006). Bank-based versus market-based financial systems: A growth-theoretic analysis. *Journal of Monetary Economics*, 53(2), 329–350. <https://doi.org/10.1016/j.jmoneco.2005.01.003>
- Chong, B. S., & Liu, M.-H. (2009). Islamic banking: Interest-free or interest-based? *Pacific-Basin Finance Journal*, 17(1), 125–144. <https://doi.org/10.1016/j.pacfin.2007.12.003>
- Čihák, M., & Hesse, H. (2010). Islamic Banks and Financial Stability: An Empirical Analysis. *Journal of Financial Services Research*, 38(2), 95–113. <https://doi.org/10.1007/s10693-010-0089-0>
- Dendawijaya, L. (2011). Manajemen Perbankan. Ghalia Indonesia.
- Dwihandayani, D. (2017). Analisis Kinerja Non Performing Loan (Npl) Perbankan Di Indonesia Dan Faktor-Faktor Yang Mempengaruhi Npl. *Jurnal Ilmiah Ekonomi Bisnis*, 22(3), 265–274. <https://ejournal.gunadarma.ac.id/index.php/ekbis/article/view/1759/1518>
- Effendi, J., Thiarany, U., & Nursyamsiah, T. (2017). Factors Influencing Non-Performing Financing (NPF) at Sharia Banking. *Walisongo: Jurnal Penelitian Sosial Keagamaan*, 25(1), 109. <https://doi.org/10.21580/ws.25.1.1540>
- Ekinci, R., & Poyraz, G. (2019). The Effect of Credit Risk on Financial Performance of Deposit Banks in Turkey. *Procedia Computer Science*, 158, 979–987. <https://doi.org/10.1016/j.procs.2019.09.139>
- Endut, R., Syuhada, N., Ismail, F., & Mahmood, W. M. W. (2013). Macroeconomic implications on non-performing loans in Asian Pacific Region. *World Applied Sciences Journal*, 23(23), 57–60. <https://doi.org/10.5829/idosi.wasj.2013.23.eemcge.22011>
- Ernawati, E. (2016). Risk of Profit Loss Sharing Financing: The Case of Indonesia. *Al-Iqtishad: Journal of Islamic Economics*, 8(1). <https://doi.org/10.15408/aiq.v8i1.1793>
- Firmansyah, I. (2015). Determinant of Non Performing Loan: The Case of Islamic Bank in Indonesia. *Buletin Ekonomi Moneter Dan Perbankan*, 17(2), 241–258. <https://doi.org/10.21098/bemp.v17i2.51>
- Grassa, R. (2012). Islamic banks' income structure and risk: evidence from GCC countries. *Accounting*

- Research Journal, 25(3), 227–241. <https://doi.org/10.1108/10309611211290185>
- Gujarati, D., & Porter, D. C. (2009). *Basic Econometrics* (Fifth Edition). McGraw-Hill/Irwin.
- Hamza, H., & Saadaoui, Z. (2013). Investment deposits, risk-taking and capital decisions in Islamic banks. *Studies in Economics and Finance*, 30(3), 244–265. <https://doi.org/10.1108/SEF-Feb-2012-0016>
- Haniifah, N. (2015). Economic determinants of non-performing loans (NPLs) in Ugandan commercial banks. *Taylor's Business Review*, 5, 135–153. [http://university2.taylors.edu.my/tbr/uploaded/2015\\_vol5\\_issue2\\_p3.pdf](http://university2.taylors.edu.my/tbr/uploaded/2015_vol5_issue2_p3.pdf)
- Havidz, S. A. H., & Setiawan, C. (2015). Bank Efficiency and Non-Performing Financing (NPF) in the Indonesian Islamic Banks. *Asian Journal of Economic Modelling*, 3(3), 61–79. <https://doi.org/10.18488/journal.8/2015.3.3/8.3.61.79>
- Ibrahim, M. H., & Rizvi, S. A. R. (2018). Bank lending, deposits and risk-taking in times of crisis: A panel analysis of Islamic and conventional banks. *Emerging Markets Review*, 35, 31–47. <https://doi.org/10.1016/j.ememar.2017.12.003>
- IFS Board. (2019). *Islamic financial services industry stability report*.
- Isaev, M., & Masih, M. (2017). Macroeconomic and Bank-Specific Determinants of Different Categories of Non-Performing Financing in Islamic Banks: Evidence From Malaysia. *Munich Personal RePEc Archive*, 79719, 1–24. <https://mpra.ub.uni-muenchen.de/79719/>
- Khan, H. H., Kutan, A. M., Naz, I., & Qureshi, F. (2017). Efficiency, growth and market power in the banking industry: New approach to efficient structure hypothesis. *North American Journal of Economics and Finance*, 42. <https://doi.org/10.1016/j.najef.2017.08.004>
- Lee, Y. Y., Dato Haji Yahya, M. H., Habibullah, M. S., & Mohd Ashhari, Z. (2020). Non-performing loans in European Union: country governance dimensions. *Journal of Financial Economic Policy*, 12(2), 209–226. <https://doi.org/10.1108/JFEP-01-2019-0027>
- Massah, S. El, & Al-sayed, O. (2013). Risk Aversion and Islamic Finance : an Experimental Approach. 16(1), 49–77.
- Meslier, C., Risfandy, T., & Tarazi, A. (2020). Islamic banks' equity financing, Shariah supervisory board, and banking environments. *Pacific-Basin Finance Journal*, 62, 101354. <https://doi.org/10.1016/j.pacfin.2020.101354>
- Muhammad. (2014). *Manajemen Dana Bank Syariah*. Rajagrafindo Persada.
- Muhammad. (2018). *Manajemen Bank Syari'ah*. UPP STIM YKPN.
- Mutamimah, M., & Saputri, P. L. (2023). Corporate governance and financing risk in Islamic banks in Indonesia. *Journal of Islamic Accounting and Business Research*, 14(3), 436–450. <https://doi.org/10.1108/JIABR-09-2021-0268>
- Nugraha, E., & Setiawan, A. (2018). Non Performing Financing Factor in Syaria Commercial Banking in Indonesia. *International Journal of Commerce and Finance*, 4(1), 27–39.
- Nugraheni, P., & Muhammad, R. (2019). Board of directors and credit risk: An empirical study of Indonesian Islamic banks. *Jurnal Keuangan Dan Perbankan*, 23(4). <https://doi.org/10.26905/jkdp.v23i4.3484>
- Ongore, V. O., & Kusa, G. B. (2013). Determinants of financial performance of commercial banks in Kenya. *International Journal of Economics and Financial Issues*, 3(1), 237–252.
- Peraturan Bank Indonesia Tentang Penetapan Status Dan Tindak Lanjut Pengawasan Bank Umum Konvensional (2013). [www.ojk.go.id](http://www.ojk.go.id)
- Petria, N., Capraru, B., & Ilnatov, I. (2015). Determinants of Banks' Profitability: Evidence from EU 27 Banking Systems. *Procedia Economics and Finance*, 20, 518–524. [https://doi.org/10.1016/S2212-5671\(15\)00104-5](https://doi.org/10.1016/S2212-5671(15)00104-5)
- Priyadi, U., Utami, K. D. S., Muhammad, R., & Nugraheni, P. (2021). Determinants of credit risk of Indonesian Shari'ah rural banks. *ISRA International Journal of Islamic Finance*, 13(3), 284–301. <https://doi.org/10.1108/IJIF-09-2019-0134>
- Rahman, Md. A., Asaduzzaman, Md., & Hossin, Md. S. (2016). Impact of Financial Ratios on Non-Performing Loans of Publicly Traded Commercial Banks in Bangladesh. *International Journal of Financial Research*, 8(1), 181. <https://doi.org/10.5430/ijfr.v8n1p181>
- Rahman, R. A. (2010). Instruments and risks in Islamic financial institutions. *Malaysian Accounting Review*, 9(2), 11–21.



- Reinhart, C., & Rogoff, K. (2010). From Financial Crash to Debt Crisis. <https://doi.org/10.3386/w15795>
- Risfandy, T., Harahap, B., Hakim, A. R., Sutaryo, S., Nugroho, L. I., & Trinugroho, I. (2020). Equity Financing at Islamic Banks: Do Competition and Bank Fundamentals Matter? *Emerging Markets Finance and Trade*, 56(2), 314–328. <https://doi.org/10.1080/1540496X.2018.1553160>
- Sthembiso Msomi, T. (2022). Factors affecting non-performing loans in commercial banks of selected West African countries. *Banks and Bank Systems*, 17(1), 1–12. [https://doi.org/10.21511/bbs.17\(1\).2022.01](https://doi.org/10.21511/bbs.17(1).2022.01)
- Stiroh, K. (2006). A Portfolio View of Banking with Interest and Non-interest Activities. *Journal of Money, Credit and Banking*, 38(5), 1351–1361.
- Sukmana, R. (2015). Determinants of Non Performing Financing in Indonesian Islamic Banks (1436-03).
- Supriani, I., & Sudarsono, H. (2018). Analisis Pengaruh Variabel Mikro Dan Makro Terhadap NPF Perbankan Syariah di Indonesia. *Equilibrium: Jurnal Ekonomi Syariah*, 6(1), 1. <https://doi.org/10.21043/equilibrium.v6i1.3040>
- Suryanto, S. (2015). Non Performing Loans on Regional Development Bank in Indonesia and Factors that Influence. *Mediterranean Journal of Social Sciences*. <https://doi.org/10.5901/mjss.2015.v6n4p280>
- Suzuki, Y., Uddin, S. M. S., & Islam, A. K. M. R. (2020). Incentives for conventional banks for the conversion into Islamic banks: evidence from Bangladesh. *Journal of Islamic Accounting and Business Research*, 11(2), 273–287. <https://doi.org/10.1108/JIABR-03-2017-0031>
- Trinugroho, I., Santoso, W., Irawanto, R., & Pamungkas, P. (2021). Is spin-off policy an effective way to improve performance of Islamic banks? Evidence from Indonesia. *Research in International Business and Finance*, 56, 101352. <https://doi.org/10.1016/j.ribaf.2020.101352>
- Waqas, M., Fatima, N., Khan, A., & Arif, M. (2019). Determinants of Non-performing Loans. *International Journal of Finance & Banking Studies* (2147-4486), 6(1), 51–68. <https://doi.org/10.20525/ijfbs.v6i1.617>
- Warninda, T. D., Ekaputra, I. A., & Rokhim, R. (2019). Do Mudarabah and Musharakah financing impact Islamic Bank credit risk differently? *Research in International Business and Finance*, 49, 166–175. <https://doi.org/10.1016/j.ribaf.2019.03.002>
- Wibowo, I., & Wibowo, B. (2019). The Effect of Competition Levels and Banking Concentration on Systemic Risks: Indonesia's Case. *Indonesian Capital Market Review*, 9(2). <https://doi.org/10.21002/icmr.v9i2.7138>
- Widarjono, A., & Rudatin, A. (2021). Financing diversification and Indonesian Islamic bank's non-performing financing. *Jurnal Ekonomi & Keuangan Islam*, 7(1), 45–58. <https://doi.org/10.20885/jeki.vol7.iss1.art4>
- World Population Review. (2021). Top 10 Countries with the Largest Number of Muslims (2021). *World Population Review*. <https://worldpopulationreview.com/country-rankings/muslim-population-by-country>