Mudharabah, musyarakah, financing risk, and performance of Islamic banks: Empirical evidence from Indonesia

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Abstract

Purpose – This study examines the effects and thresholds of mudharabah and musyarakah on the financing risk and performance of Indonesian Islamic banks.

Methodology – Using panel data and quadratic regression analysis, we explore the non-linear relationships among mudharabah, musyarakah, financing risk, and performance of Islamic banks in Indonesia using a sample of 14 Indonesian Islamic banks during the period to 2008-2020.

Findings – We find that mudharabah is negatively related to financing risk and positively (at the initial stage) linked to Islamic banks' performance. Mudharabah will reduce financing risk if the proportion of mudharabah to total loans is in the range of 5.5-12.6%. A proportion of mudharabah below 5.5% or above 12.6% worsens nonperforming financing (NFP), loan loss provision (LLP), and Z-score. On the contrary, musyarakah is found to be positively (although marginally) related to financing risk and negatively and weakly associated with the performance of Indonesian Islamic banks.

Implications – Our findings offer consequential implications for both practitioners and policymakers. Understanding the dual effects of mudharabah and musyarakah can help implement strategies that optimize investment portfolios, enhance profitability, and minimize risk. For policymakers, these results shed light on the need for regulatory frameworks that encourage optimum thresholds of mudharabah financing to mitigate risk while spurring performance.

Originality – This study contributes to the literature by identifying a turning point in mudharabah financing that minimizes financing risk, a realm previously underexplored in Islamic finance. By incorporating this nuanced insight, our research provides a novel perspective on how Islamic banks can attain strategic equilibrium between risk management and performance improvement.

Introduction

Indonesia has the largest Moslem population worldwide. The World Population Review data show that the Moslem population in the country is expected to reach 229 million people or 87.2% of the total population in the near future. However, even though the majority of the Indonesian population adheres to Islam, the presence of Islamic banks in Indonesia is relatively new and has only emerged since 1991. Islamic banking in Indonesia has begun to show prospects among

Indonesian financial institutions. Nevertheless, the recent growth seems inadequate for Indonesian banks to become the largest Islamic banking in the world.

Islamic banks in Indonesia have assets worth $38 billion. This amount is relatively low when compared with other countries. For instance, Iran as a country with the largest Islamic banking assets in the world has $641 billion. Meanwhile, Saudi Arabia and Malaysia, with total assets of $477 billion and $297 billion, respectively, hold second and third positions. These three countries control 63% of the global market share of Islamic banks (Islamic Finance Development Report). Hence, further research is relevant and pivotal with respect to spurring the growth of Islamic banking in Indonesia.

Based on Indonesian Financial Services Authority (Otoritas Jasa Keuangan, OJK) Regulation No. 65 of 2016, Islamic banks are required to manage at least 10 types of risks. A major risk faced by Islamic banks is credit risk, or in Islamic banking, financing risk, since the majority of Islamic bank assets are harnessed to provide loans (financing). Previous studies from various countries have supported this notion (Abdurraheem et al., 2023; Al Rahahleh et al., 2019). Therefore, the salient challenge to Islamic banks' business models is to enhance loan growth while managing credit (financing) risk, according to national and global standards.

One of the goals of Islamic banks is to generate surplus, which is known as profit in conventional business. Many studies have elaborated that the main source of income for Islamic banks is financing (Alzoubi, 2018; Gazi et al., 2024; Sobol et al., 2023). Unlike conventional banking, Islamic banking prohibits interest. Hence, Islamic banks utilize other instruments permitted by Islamic law and are consistent with the Sharia principles. The loan (financing) that Islamic banks provide differs from that of conventional banking. Financing in Islamic commercial banks is based on two concepts: (1) profit-and-loss sharing (PLS) and (2) nonprofit loss sharing. This study focuses on PLS financing.

Several studies have reported that PLS financing can reduce risk in Islamic banks (Farihana & Rahman, 2021; Gazi et al., 2024). This is corroborated by empirical evidence that very few Islamic bank customers using the PLS financing system render uncertain returns to banks (Farihana & Rahman, 2021). In fact, a proportion of musyarakah financing below 37-39% could actually increase the credit risk of Islamic banks (Warninda et al., 2019). However, several other studies indicate that a higher level of participation in mudharabah and musyarakah financing results in more severe credit risk (Belkhaoui, 2020).

Some research findings provide evidence that PLS financing can improve bank financial performance. For instance, a particular study empirically finds that mudharabah and musyarakah financing positively and significantly affects income in Central Java. Similarly, research by Buchori and Prasetyo (2014) on a cooperative in Surabaya showed a positive relationship between mudharabah and musyarakah financing, and firm performance. Notwithstanding the majority of empirical evidence reporting a positive link between financing and performance, some research finds no significant effect of mudharabah on Islamic bank profitability. Moreover, Puteri et al. (2014) conclude that mudharabah is negatively associated with the profitability of Islamic banks in Indonesia.

As this issue is highly relevant to Indonesian banking systems and very compelling in the context of literature contribution, we examine PLS financing variables on the financing risk and performance of Islamic banks in Indonesia. This study dissects PLS financing into mudharabah and musyarakah to observe the nonlinear impacts of mudharabah and musyarakah financing on credit (financing) risk.

Literature Review

Financing risk

Credit (financing) risk is the possibility of losses experienced by a bank due to client/customer failure to fulfill the applicable contractual obligations within the required time period (Hassan et al., 2019). This definition corresponds with the perspective of the Indonesian Bankers Association (2015), which interprets financing risk as the risk resulting from the failure of customers or other parties to fulfill their obligations (primarily loan interest and principal) to financial institutions.

Credit risk arises due to the possibility that promised cash flows on financial claims held by financial institutions, such as loans or other securities, are not paid in full. This risk is particularly significant in banking institutions as it directly impacts profitability and financial stability. Almost all types of financial institutions face this risk (Saunders et al., 2024), making effective credit risk management essential for mitigating potential losses and ensuring the sustainability of financial operations.

Performance

In this study, we focus on financial performance, which is the financial result of a firm in the areas of profitability, cash flow, budget, and/or cost management (Morden, 2007). Bank financial performance is essentially a portrait of a bank's financial situation over a certain period, which includes the aspects of channeling loans and collecting funds. Furthermore, financial performance can be defined as the growth prospects and development potential of an organization. According to Rudianto (2013), banks' past financial performance is a good predictor of future financial performance. Bank financial performance is measured through an array of financial ratios that provide insights into the bank's efficiency, liquidity, and overall stability. These ratios serve as key indicators for shareholders to assess the bank's capability of sustaining operations and remaining competitive.

Mudharabah

The mudharabah scheme refers to cooperation between a shahibul maal as the party that provides capital to run a business and a mudharib as the party responsible for managerial functions (Ariffin et al., 2009). This concept is called mudharabah since at the time of forging a partnership agreement, one party only provides capital that will be managed by the mudharib or entrepreneur who operates the business to generate revenue and profit. This practice is in accordance with Indonesian Financial Accounting Standards (Pernyataan Standar Akuntansi Keuangan, PSAK) No. 105. According to Nurhayati and Wasilah (2013), mudharabah is a type of financing in Islamic financial institutions where there is a pledge of cooperation between Islamic financial institutions and their customers/borrowers. The profit-sharing ratio in mudharabah is agreed upon at the start of the contract to ensure fairness and transparency between the parties involved. This financing model embodies the principles of risk-sharing and mutual benefits central to Islamic finance.

Musyarakah

Musyarakah model is a pledge for cooperation between two or more parties to run a particular business. Each party contributes assets with an agreement that profits and risks are borne, predicated on a previously agreed consensus (Ariffin et al., 2009). In musyarakah, a profit-sharing contract exists when several entrepreneurs collaborate as business partners to finance new or ongoing businesses (Ascarya, 2017). Recent research emphasizes some key advantages of musyarakah financing, such as its ability to foster long-term collaboration and align the interests of all parties involved. Musyarakah allows for equitable risk-sharing, which can be particularly beneficial to high-risk ventures as each partner shares both profits and losses in proportion to their investments (Ahmad et al., 2023; Azizah et al., 2022). Musyarakah contracts are now mulled crucial in promoting sustainable economic practices by supporting micro, small, and medium-sized enterprises (MSMEs). These businesses frequently face financing challenges, but the musyarakah model facilitates risk sharing and aligns the financial interests of banks and entrepreneurs, thereby making it a mainstay in Islamic finance (Azizah et al., 2022). Furthermore, musyarakah, including permanent and diminishing variants, has been recognized for its ability to provide Islamic banks with higher returns than conventional financing mechanisms, thus making it a more attractive alternative for investment (Gazi et al., 2024).

Hypotheses development

Previous research pertaining to the effects of mudharabah, musyarakah, financing risk, and

performance of Islamic banks has provided initial contexts. A study conducted by Farihana and Rahman (2021) with a sample of 40 banks in 12 countries for the period 2005-2012 shows that the profit/loss-sharing financing variable reduces credit risk and that the majority of bank-specific and macroeconomic variables are significant in determining credit risk. Their findings correspond with the results of Zeineb and Mensi (2014), who collected bank data from 14 countries in the Middle East and North Africa (MENA) region with a sample of 71 banks during 2004-2011. Their results provide evidence that profit/loss-sharing financing reduces risk. Profit/loss-sharing financing encourages Islamic banks to carry out due diligence and strict asset monitoring. This is also in line with another study conducted by Warninda et al. (2019) that finds that musyarakah exhibits an inverse (nonlinear) effect and significantly reduces the risk of Islamic bank financing. Utilizing unbalanced panel data on 63 Islamic banks from 2006 to 2015, their research shows that mudharabah is positively related to Islamic bank financing risk. Overall, Warninda et al. (2019) indicate that credit risk reaches its highest point when the proportion of musyarakah financing is in the range of 37-39% of total bank financing. Hence, we conjecture that:

H_1: Mudharabah is negatively related to the financing risk of Indonesian Islamic banks
H_2: Musyarakah is negatively linked to the financing risk of Indonesian Islamic banks

A previous study reports that profit/loss-sharing financing positively and significantly affects bank performance (Hasan, 1985), and is more profitable than interest-based financing in the long run. Similarly, Abbas and Arizah (2019) utilized the annual reports of 10 Islamic commercial banks that had registered with the Indonesian Financial Services Authority (OJK) in the period to 2011-2016, and find that mudharabah has a partial effect on Islamic bank profitability, and that musyarakah has a competitive effect on the relationship between market share and profitability (Abbas & Arizah, 2019). In a similar spirit, (Buchori & Prasetyo, 2014) document that mudharabah financing has a positive and significant effect on the profitability of Islamic financial institutions in East Java. Accordingly, our subsequent hypotheses are as follows.

H_3: Mudharabah is positively related to the performance of Indonesian Islamic banks
H_4: Musyarakah is positively linked to the performance of Indonesian Islamic banks

Research Methods

Population and sample

The population in this study was Indonesian Islamic banks registered with Bank Indonesia from January 2008 to December 2020. We collected a verified dataset during the analysis period. We do not use Islamic banking reports from to 2021-2024 since they might be biased due to Covid-19 and its aftermath. Using a purposive sampling method (Cooper & Pamela, 2014), we selected sample firms based on desired characteristics or requirements and identified 14 Indonesian Sharia commercial banks.

Analysis techniques

We employ panel data and quadratic regressions in this study. Quadratic regression allows researchers to model U-shaped or inverted U-shaped relationships that cannot be adequately addressed by conventional linear methods. This finding is particularly relevant in Islamic finance studies (Saleem & Byrd, 2021). The quadratic regression approach is utilized to explore the non-linear relationships between mudharabah and musyarakah and financing risk. This method can also be harnessed to determine an effect threshold, examining an optimal level or minimum turning point of mudharabah and musyarakah financing in affecting the financing risk of Indonesian Islamic banks. The prevalence of a threshold has pivotal implications for policymakers for minimizing or regulating financing risk.

The data processing in this research involved several stages to ensure comprehensive analysis and accurate results. Initially, secondary data were collected from quarterly financial reports of 14 Islamic banks in Indonesia from 2008 to 2020. The first step involved a descriptive statistical analysis to summarize the data characteristics, including the mean, standard deviation, and range

of values for each variable. Subsequently, model selection was conducted by comparing fixed-effect and random-effect models using the Hausman test to determine the most efficient regression model. Panel data regressions are then employed to examine the linear relationships between the independent variables (mudharabah and musyarakah) and dependent variables (financing risk and performance). Moreover, quadratic regression is carried out to explore the nonlinear relationships and identify the threshold effects. All analyses are conducted using STATA, ensuring a rigorous and systematic approach to data processing.

Results and Discussion

Table 1 presents descriptive statistics for each measure or proxy of the research variables employed. The number of observations, average value, standard deviation, minimum values, and maximum value are documented in Table 1.

Table 1. Descriptive statistics and research variables

Variable	Observations	Average	Standard deviation	Minimum	Maximum
Panel A. Dependent variables (Risk)					
NPF	485	0,023	0,018	0	0,212
LLP	284	0,032	0,056	0	0,517
Z-Score	509	0,012	0,023	-0,056	0,104
Panel B. Dependent variables (Performance)					
ROA	509	0,014	0,040	-0,201	0,530
ROE	509	0,101	0,184	-0,940	0,744
Panel C. Independent variables					
MUD	228	0,048	0,034	0,0003	0,192
MUS	277	0,427	0,304	0,0006	1,193
Panel D. Control variables					
SIZE	510	0,070	0,006	0,052	0,081
CAR	308	0,300	0,415	0,102	3,464
CI	509	0,925	0,233	0,010	3,046

Note: NPF, nonperforming financing; LLP, loan loss provision; Z-score, Altman's Z-score; ROA, return on assets; ROE, return on equity; MUD, mudharabah MUS, musyarakah Size, total assets; CAR, capital adequacy ratio; CI, cost inefficiency.
Source: Data processing

As shown in Table 1, the number of observations for each variable varies. This is because some companies did not publish complete data in certain years. Accordingly, our study runs unbalanced data with the largest number of observations being a control variable Size, i.e., 510 observations, whereas the lowest observation is Mudharabah with 228 data points. As indicated in Table 1, 14 Indonesian Islamic banks have an average non-performing financing (NPF) of 2.3%, while the maximum NPF reaches 21.2%.

Hypothesis tests

Hypotheses testing is run using unbalanced panel data regressions with fixed effects and random effects models.

The effects of mudharabah and musyarakah on the financing risk of Indonesian Islamic banks
The first hypothesis is examined by regressing the financing risk proxies for mudharabah financing and the other control variables. In Table 2, columns (1), (4), and (7) report the regression results of the financing risk proxies (NPF, LLP, and Z-Score) on mudharabah and the control variables. Columns (2), (5), and (8) present the regression results of the financing risk proxies on musyarakah financing and control variables. Columns (3), (6), and (9) present the results when both mudharabah and musyarakah are included in the regressions. The results of the regressions testing the relationship between profit/loss-sharing financing and financing risk are documented as follows.

Table 2. Regression results of financing risk on mudharabah and musyarakah

Variable	Financing risk								
	NPF			LLP			Z-Score		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MUD	-6,25**		-6,04**	-17,71**		-17,09**	4,71***		4,43***
	(-2,10)		(-2,01)	(-2,39)		(-2,35)	(3,25)		(3,02)
MUS		1,06	0,90		1,77	4,12*		-1,70***	-0,78*
		(1,29)	(0,89)		(0,89)	(1,69)		(-3,78)	(-1,66)
SIZE	-3,45***	-3,55***	-4,01***	0,28	-0,35	-3,89	0,77**	1,37***	1,12**
	(-3,86)	(-3,71)	(-3,65)	(0,14)	(-0,16)	(-1,45)	(1,97)	(2,75)	(2,44)
CAR	0,05**	0,04**	0,05**	-0,03	-0,02	-0,02	0,00	-0,00	0,03***
	(2,53)	(2,59)	(2,47)	(-0,59)	(-0,66)	(-0,56)	(0,23)	(-0,63)	(0,42)
CI	0,02***	0,02***	0,02***	0,08***	0,07***	0,08***	-0,31***	-0,03***	-0,03***
	(4,03)	(4,58)	(4,10)	(6,61)	(6,46)	(6,90)	(-13,09)	(-13,53)	(-13,07)
Const	24,60***	24,31***	28,16***	-0,34	2,48	22,43	-1,54	-3,97	-3,65
	(3,83)	(3,70)	(3,72)	(-0,02)	(0,16)	(1,24)	(-0,54)	(-1,14)	(-1,14)
R-square	0,157	0,136	0,160	0,242	0,189	0,26	0,512	0,462	0,523

Note: NPF, nonperforming financing; LLP, loan loss provision; Z-score, Altman's Z-score; MUD, mudharabah; MUS, musyarakah; Size, total assets; CAR, capital adequacy ratio; CI, cost inefficiency. t-stats are reported in parentheses. *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.

Source: Data processing

Table 2 indicates that mudharabah (MUD) is negatively and significantly related with financing risk in Indonesian Islamic banks, both partially and simultaneously with musyarakah. The coefficients of MUD show a significance level of 5% when the financing risk is proxied by NPF and LLP. In a practical interpretation, an increase by one unit in mudharabah financing would reduce NPF by 6.25 units, and decrease the allowance for impairment losses by 17.71 units. When regressed simultaneously with musyarakah (MUS) in columns (3) and (6), an increase in mudharabah financing by one unit would reduce NPF and LLP by 6.04 and 17.09 units, respectively. Similarly, when using the Z-score as the proxy for financing risk, an increase by one unit in mudharabah would lead to a higher Z-score by 4.71 units (column 7) and 4.43 units when regressed simultaneously with musyarakah (column 9). A higher Z-score indicates lower financing risk in the financial institution. Hence, our first hypothesis is confirmed: mudharabah financing has a significant and negative relationship with the financing risk of Indonesian Islamic banks.

The results for musyarakah narrate a different story: The coefficients of musyarakah (MUS) are mostly insignificant when NPF and LLP are proxies for financing risk. However, in column (6), MUS is marginally and positively related to LLP when MUD is also included in the regression equation. Similarly, financing risk is proxied by Z-score, the coefficients on MUS are -1.70 and -0.78 in columns (8) and (9), respectively. Therefore, musyarakah is only weakly linked to financing risk, and their relationship tends to be inverse.

Subsequently, we conduct quadratic regressions to further examine the non-linear relationships among mudharabah, musyarakah, and financing risk. Columns (1), (4), and (7) of Table 3 show the results of the quadratic regressions of the financing risk proxies (NPF, LLP, and Z-score) on mudharabah and the control variables. Columns (2), (5), and (8) show the results for musyarakah, and columns (3), (6), and (9) document the findings when mudharabah and musyarakah are included in the regression equations. Table 3 presents the quadratic regression results.

As shown in Table 3, mudharabah exhibits a non-linear relationship with financing risk. The coefficients of squared mudharabah (MUD2) and unsquared mudharabah (MUD) show opposite signs and are significant. When the dependent variable is NPF (columns 1 and 3), the coefficients of MUD are positive, followed by negative coefficients of MUD2. These findings indicate that the relationship between mudharabah and the financing risk of Islamic banks is an inverted U-shape. Initially, an increase by one unit in mudharabah financing would increase NPF by 15.64 units. However, after a certain point, an increase in mudharabah financing actually reduces NPF by 142.93 units.

Table 3. Results of quadratic regression of financing risk on mudharabah and musyarakah

Variable	Financing risk								
	NPF			LLP			Z-Score		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MUD	15,64**		16,23**	-46,70**		-39,29**	11,30***		10,57***
	(2,22)		(2,30)	(-2,47)		(-2,13)	(3,16)		(2,96)
MUD2	-142,93***		-140,56***	185,23*		147,32	-43,24**		-40,02*
	(-3,40)		(-3,34)	(1,67)		(1,36)	(-2,03)		(-1,88)
MUS		-2,45	-2,49		-3,33	-0,64		-2,32**	-0,58
		(-1,52)	(-1,16)		(-0,83)	(-0,12)		(-2,56)	(-0,58)
MUS2		3,43**	3,22**		5,27	3,86		0,63	-0,12
		(2,52)	(1,98)		(1,53)	(0,96)		(0,80)	(-0,15)
SIZE	-3,63***	-3,03***	-3,72***	1,04	-0,06	-2,53	0,64*	1,42***	1,05**
	(-4,15)	(-3,13)	(-3,29)	(0,51)	(-0,03)	(-0,89)	(1,67)	(2,82)	(2,18)
CAR	0,05***	0,04***	0,05***	-0,03	-0,03	-0,03	0,00	-0,01	0,00
	(2,82)	(2,63)	(2,88)	(-0,69)	(-0,73)	(-0,64)	(0,50)	(-0,64)	(0,49)
CI	0,02***	0,02***	0,02***	0,08***	0,07***	0,08***	-0,03***	-0,03***	-0,03***
	(4,01)	(4,51)	(4,04)	(-0,33)	(6,50)	(6,88)	(-13,02)	(-13,50)	(-13,21)
Const	25,26***	21,22***	25,99***	-4,94	1,25	14,64	-0,84	-4,27	-3,37
	(4,03)	(3,21)	(3,40)	(-0,33)	(0,08)	(0,78)	(-0,30)	(-1,22)	(-1,02)
R-square	0,201	0,158	0,223	0,249	0,198	0,265	0,521	0,465	0,529

Note: NPF, nonperforming financing; LLP, loan loss provision; Z-score, Altman's Z-score; MUD, mudharabah; MUS, musyarakah; Size, total assets; CAR, capital adequacy ratio; CI, cost inefficiency. t-stats are reported in parentheses. *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.
Source: Data processing

Accordingly, it is crucial to recognize the threshold point for mudharabah financing in concerted efforts to minimize the financing risk of Islamic banks. The following is a plot of the ratio of NPF to mudharabah. (see Figure 1).
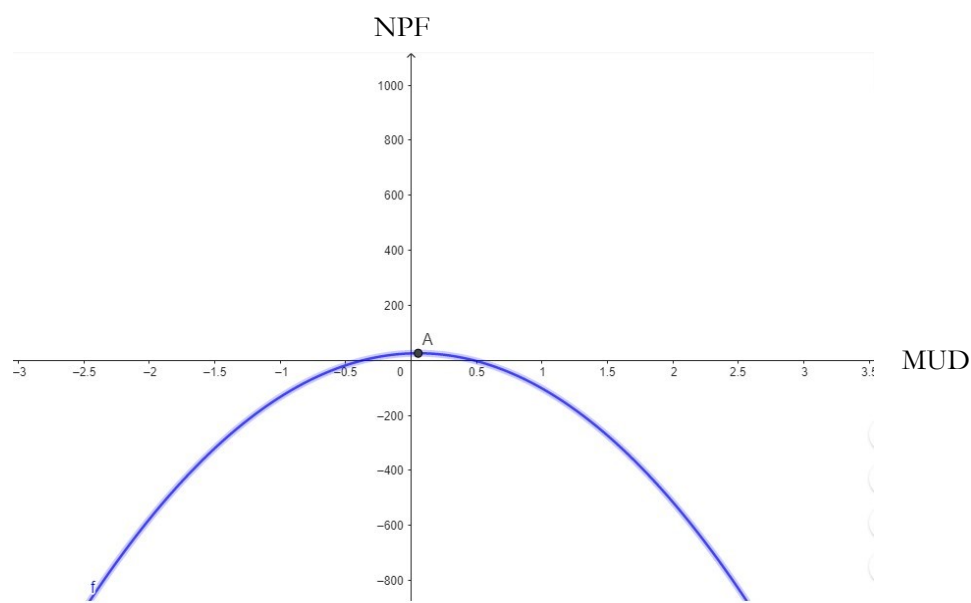

Figure 1. U-Test graph of mudharabah on financing risk
Source: Data processing

After running the u-test, we find that the threshold point for mudharabah financing is 0.055, indicating that mudharabah financing above 5.5% will reduce the occurrence of nonperforming loans. In contrast, if Islamic banks allocate mudharabah financing of less than 5.5%, they may experience a higher NPF.

The quadratic regression results for mudharabah differ when loan loss provision (LLP) is the dependent variable. When regressed partially (column 4) and simultaneously with musyarakah (column 6), the coefficients of MUD are negative, whereas those of MUD2 are positive, although the positive coefficient of MUD2 is not significant in column 6. Initially, each increase by one unit in mudharabah financing can reduce the allowance for impairment losses by 46.70 units. After crossing a threshold, adding one unit of mudharabah will increase LLP by 185.23 units. We examine this further using the u-test to gauge the threshold and find that the threshold for mudharabah financing is 0.126, indicating that the proportion of mudharabah financing above 12.6% will prompt Indonesian Islamic banks to increase their loss reserves. Conversely, if the proportion of mudharabah to the total loans is less than 12.6%, the allowance for impairment losses can be reduced.

This finding is in line with the quadratic regression results when using the Z-score as the proxy for financing risk. Initially, an increase in mudharabah financing by one unit will improve the quality of Islamic bank financing by 11.30 units. However, after a turning point, adding mudharabah by one unit can actually reduce the quality of Islamic bank financing by 43.24 units. Based on the U-test results, we find that the threshold for mudharabah financing is 0.131, indicating that the proportion of mudharabah above 13.1% of total loans can reduce the quality of Islamic bank financing. Below 13.1%, Islamic banks' Z-scores will strengthen.

Subsequently, columns (2), (3), (5), (6), (8), and (9) imply that the majority of the quadratic regressions of financing risk on musyarakah financing yield insignificant results. Even though the coefficients of squared musyarakah (MUS2) and those of unsquared musyarakah (MUS) show opposite signs, these results are mostly insignificant. Therefore, our study could not corroborate a U-shaped or inverted U-shaped pattern in the non-linear relationship between musyarakah financing and financing risk. The only "little" observation that we can infer is that after a certain turning point, adding musyarakah will actually impoverish the NPF (columns 2 and 3). Overall, our findings suggest that Islamic banks should aim for a proportion of mudharabah to total loans of between 5.5 and 12.6%.

The effects of mudharabah and musyarakah on the performance of Indonesian Islamic banks

To examine Hypotheses 3 and 4, we conducted regressions of the performance variables on profit/loss-sharing financing variables. The regression results of the relationship between profit/loss-sharing financing and performance are presented in Table 4.

Table 4. Regressions of Islamic bank performance on mudharabah and musyarakah

Variable	Performance					
	ROA			ROE		
	(1)	(2)	(3)	(4)	(5)	(6)
MUD	0,27		0,17	22,19		22,45
	(0,08)		(0,05)	(1,42)		(1,42)
MUS		-0,35	-0,45		-4,68*	-2,28
		(-0,38)	(-0,41)		(-1,87)	(-0,78)
SIZE	-3,1***	-2,90***	-2,81**	3,08*	3,21*	3,22*
	(-3,33)	(-2,70)	(-2,42)	(1,77)	(1,79)	(1,70)
CAR	0,13***	0,12***	0,13***	0,17**	0,01	0,16**
	(7,02)	(7,54)	(7,01)	2,39	(0,08)	(2,16)
CI	-0,11***	-0,16***	-0,11***	-0,57***	-0,54***	-0,57***
	(-21,46)	(-24,08)	(-21,36)	(-21,11)	(-22,23)	(-21,07)
Const	30,01***	29,62***	28,26***	30,36**	34,03**	30,97**
	(4,53)	(4,03)	(3,55)	(2,17)	(2,40)	(2,08)
R-square	0,751	0,777	0,751	0,691	0,653	0,692

Note: ROA, return on assets; ROE, return on equity; MUD, mudharabah; MUS, musyarakah; Size, total assets; CAR, capital adequacy ratio; CI, cost inefficiency. t-stats are reported in parentheses. *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively.
Source: Data processing

The results for mudharabah (MUD) are shown in columns (1), (3), (4), and (6) and those for musyarakah (MUS) in columns (2), (3), (5), and (6). Although the coefficients on MUD are positive in these regressions, none of them are significant. Hence, the conjecture of a positive relationship between mudharabah and the performance of Indonesian Islamic banks is not substantiated, despite the tendency to produce a positive coefficient on MUD in our regressions.

Meanwhile, the regressions of bank performance (ROA and ROE) on musyarakah in columns (2), (3), (5), and (6) mostly produce insignificant results, except for column (5), where the coefficient of MUS is negative and marginally significant. Every one-unit increase in musyarakah financing may reduce bank profitability by 4.68 units. Furthermore, to search for more evidence of the non-linear relationship between musyarakah financing and bank performance, we employ quadratic regressions, as shown in Table 5.

Table 5 reports that the quadratic regression results do not show a U-shaped or inverted U-shaped relationship between musyarakah financing and the performance of Islamic banks. There is a positive relationship between mudharabah (MUD) and ROE in column (6), indicating that increasing mudharabah initially enhances bank profitability. Nevertheless, the coefficient of MUD2 is insignificant.

Table 5. Results of quadratic regressions of Islamic bank performance on mudharabah and musyarakah

Variable	Performance					
	ROA				ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
MUD	9,91		9,82	61,78		67,38*
	(1,29)		(1,27)	(1,56)		(1,68)
MUD2	-62,88		-64,31	-265,48		-293,80
	(-1,38)		(-1,39)	(-1,09)		(-1,20)
MUS		0,30	0,98		-7,69	-3,83
		(0,17)	(0,43)		(-1,08)	(-0,43)
MUS2		-0,64	-1,12		3,00	1,45
		(-0,41)	(-0,63)		(0,45)	(0,19)
SIZE	-3,17***	-3,00***	-3,23**	2,82	3,14*	2,87
	(-3,41)	(-2,72)	(-2,61)	(1,62)	(1,69)	(1,43)
CAR	0,13***	0,12***	0,13***	0,18**	-0,00	0,17**
	(7,11)	(7,54)	(7,09)	(2,50)	(-0,02)	(2,18)
CI	-0,11***	-0,12***	-0,11***	-0,57***	-0,54***	-0,57***
	(-21,53)	(-24,02)	(-21,36)	(-21,11)	(-22,16)	(-20,98)
Const	30,28***	30,22***	30,60***	31,05**	35,29**	32,65**
	(4,57)	(4,02)	(3,67)	(2,24)	(2,40)	(2,10)
R-square	0,753	0,777	0,754	0,694	0,653	0,695

Note: ROA, return on assets; ROE, return on equity; MUD, mudharabah; MUS, musyarakah; Size, total assets; CAR, capital adequacy ratio; CI, cost inefficiency. t-stats are reported in parentheses. *, **, and *** denote significance levels of 10%, 5%, and 1%, respectively
Source: Data processing

Conclusion

This study examines the effects and thresholds of mudharabah and musyarakah on the financing risk and performance of Indonesian Islamic banks. Data used are quarterly financial reports from to 2008-2020 collected from the official websites of 14 Indonesian Islamic banks. Our findings suggest that mudharabah is negatively related to financing risk and positively (in the initial stage) linked to the performance of Indonesian Islamic banks. Mudharabah can reduce financing risk if the proportion of mudharabah to total loans is in the range of 5.5-12.6%. If Islamic banks provide mudharabah financing of less than 5.5%, non-performing financing (NPF) soars. Similarly, if mudharabah proportion exceeds 12.6%, Islamic banks must increase their loan loss provisions

(LLP). On the contrary, musyarakah is found to be positively (although marginally) related to financing risk and negatively and weakly linked to the performance of Indonesian Islamic banks.

This study has some caveats: (1) each variable measure or proxy has a different number of observations since several Islamic banks in Indonesia did not completely publish their quarterly financial reports; (2) the proxies used for performance variables are limited to profitability ratios. Furthermore, our findings provide an array of implications: (1) Theoretically, this research offers a fresh perspective through findings that differ from previous studies, that is, mudharabah can reduce financing risk, whereas musyarakah can potentially increase the financing risk of Indonesian Islamic banks. In addition, we find a range of thresholds in which mudharabah can reduce the financing risk. Our results also corroborate several previous studies that mudharabah is positively related to the performance of Islamic banks; (2) practically, this research can be a reference for Islamic bank executives in deciding on loan proportion, especially the proportion of profit/loss sharing financing, so as to minimize risk and enhance their performance.

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