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[Risks] Manuscript ID: risks-1950456 - Assistant Editor Assigned

2 messages

Vivian Lu <vivian.lu@mdpi.com>

21 September 2022 at 18:07

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To: Sutrisno Sutrisno <sutrisno@uii.ac.id>

Cc: Vivian Lu <vivian.lu@mdpi.com>, Agus Widarjono <agus.widarjono@uii.ac.id>, Risks Editorial Office <risks@mdpi.com>

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Journal: Risks

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Title: Is Profit-Loss Sharing Financing Matter for Islamic Bank's Profitability?: The Indonesian case

Authors: Sutrisno Sutrisno *, Agus Widarjono

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Best regards,

Ms. Vivian Lu

Section Managing Editor

Email: vivian.lu@mdpi.com

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To: vivian.lu@mdpi.com

21 September 2022 at 22:43

Dear, Ms Vivian Lu

Thank you for the information, I am happy to wait for good news from you about my paper, I hope the quality of my paper is in accordance with your journal standards

Best regard,

Sutrisno

[Quoted text hidden]

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Is Profit-Loss Sharing Financing Matter for Islamic Bank's Profitability?: The Indonesian case

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Abstract

Financing is the main source of Islamic bank income as financial intermediary which will contribute to the bank's profitability. There are two financing schemes, namely profit-loss sharing financing and non-profit-loss sharing financing. The main purpose of this study is to analyze the impact of profit-loss sharing financing on the Islamic bank's profitability. We employ 31 Islamic commercial banks in Indonesia using quarterly data and spanning from 2016:1 to 2020:4. Dynamic panel regression using the two-step system GMM is applied. The results showed that profit-loss sharing financing has a negative effect on profitability, suggesting that profit-loss financing discourage the Islamic bank performance. While some control variables such as size and liquidity risk positively influence on profitability and low efficiency and financing quality negatively affect profitability. These findings have an important implication for Islamic banks. Islamic banks must conduct a tight monitoring for PLS financing in order to this ex-post ante scheme can encourage the performance of Islamic banks.

Keyword: Islamic bank, Profitability, profit sharing financing, Indonesia

JEL Classification: Code: G21; G24; G28

1. Introduction

The primary source of income for Islamic banks as financial intermediary is financing where the high financing leads to high income and in turn generates more profit. Two financing schemes provided by Islamic banks are profit-loss sharing (PLS) and non-PLS (NPLS) Financing. PLS financing is the main core of Islamic bank. However, Islamic banks prefer NPLS financing such as Murabahah (margin scheme) where Murabahah financing is similar to the debt-like financing. Islamic banks across the world have a preference to provide debt-like financing due to low risk than PLS financing with high financing risk (Warninda et al., 2019; Šeho et al., 2020). Indeed, Islamic banks in Indonesia also provide more financing on NPLS financing compared to PLS financing. The average NPLS financing was 80.84% of total financing while the PLS financing was only 11.91% of total financing during 2016-2020.

There are several reasons why the PLS financing is minor financing. First, PLS contracts have complex procedures because Islamic banks must know in detail the characteristics of customers (Abedifar et al., 2013). Second, PLS contracts also cause high transaction costs because Islamic banks must carry out well controlling and monitoring (Louhichi & Boujelbene, 2016). Third, the PLS contract also poses a high financing risk due to agency problems, causing asymmetric information and moral hazard (Beck et al., 2013). However, PLS contract is a kind of fair contract between Islamic bank and customer due to ex-post ante principle. Profits and losses will be shared according to the agreement so that this type of contract is expected to appeal to more customers to borrow money from Islamic banks (Risfandy et al., 2019).

Based on the above facts, this study investigates whether PLS financing, which stem from the main principle of Islamic banks, could harm, or enhance Islamic banks performance. More exactly, our study explores whether PLS financing deteriorates or strengthens the Islamic bank's profitability in Indonesia. Our empirical study is important since PLS financing is not the main choice financing for Islamic banks. The selection of Indonesian Islamic banks is because the market share of Islamic banks in Indonesia is small but PLS financing is the largest financing compared to other countries.

This study will contribute to the existing empirical study in some ways. First, although PLS financing is the core business of Islamic banks, research on the role of PLS financing on Islamic bank profits has not been widely carried out. Several studies examine the effect of PLS financing on non-performing financing (Alandejani & Asutay, 2017; Warninda et al., 2019; Widarjono et al., 2020). Second, PLS financing is the core business of Islamic banks, so this finding is expected to be important information for Islamic banks and policy makers in managing PLS financing.

2. Literature Review and Hypothesis Development

Financing schemes and profitability

Islamic banks, in addition to having the goal of providing usury-free banking services to the public, must also be oriented to seek profit as in conventional banks, so that Islamic banking can grow and develop with other Islamic financial institutions (OJK, 2020). Profitability is the company's ability to generate profits, which can be measured by several formulations such as return on assets (ROA), return on equity (ROE), return on investment (ROI) and profit margin (PM) (Van Horn & Wachowicz, 2013). Profitability is widely proxied by ROA, because ROA shows the ability to earn profits with all assets owned. Profitability is very important for the company because it is an indicator of management performance that can affect the value of the company. Profitability shows the company is developing and growing, which allows the company to pay larger dividends (Ahmed, 2015).

Sanmugram & Zahari (2009) revealed that financing in Islamic banks can be grouped into natural certainty contracts (NCC) and natural uncertainty contracts (NUC). NCC is a financing contract with a definite amount and time of return. The NCC comprises NPLS scheme such Murabahah contract because there is certainty about the amount and time of return, and this financing is low risk and very easy to calculate. Meanwhile, NUC is a financing contract for which there is no certainty about the amount and time of payment because it depends on the benefits obtained by the customer. The NUC is PLS scheme where the financing installments depend on the customer's profits which will be given in the form of profit sharing. The number of installments may not be determined at the beginning of the agreement, what may be determined at the beginning is the ratio or profit-sharing portion.

An Islamic bank in applying financing contract prefers NPLS which have low risk and are easier to process. According to financing data, the portion of NPLS is much higher, which is more than 80% on average compared to PLS which averages less than 20%. Accordingly, the amount of financing provided through NPLS contracts has a positive effect on profitability due to low risk and easy to implement (Warninda, 2014; Belkhaoui et al., 2020). By contrast, Equity financing may result in different impact on profitability. Mudharabah contract leads to high impaired financing and then lower profitability because it causes agency problem due to moral hazard and asymmetric information (Azmat et al., 2015; Widarjono et al., 2020) However, PLS contracts can increase profitability if Islam bank can monitor and manage well both Musyarakah and Mudharabah contracts (Čihák & Hesse, 2010); (Danlami et al., 2022). Thus, the hypotheses can be expressed as:

H₁: PLS has either negative or positive effect on Islamic bank's profitability

Market share

One theory that describes the link between bank's profitability and market structure is relative market power hypothesis (RMP). The RMP proposes that the profitability of bank relies on the market share (Smirlock, 1985). The large market share can generate various products to capitalize market power and then can determine the high price and leads to high profits. Some previous studies documented that that bank profitability is associated with high market share (Mirzaei et al., 2013; Sahile et al., 2015); Hamid, 2017). Accordingly, the third hypothesis can be stated as follow:

H₂: market share has a positive impact on Islamic bank's profitability.

Bank size and profitability

Bank size (SIZE) is the size of a bank that can be measured by total assets (Petria et al., 2015; Javaid & Alalawi, 2018; Lohano & Kashif, 2019). Banks with large sizes have a greater opportunity to diversify their portfolios, so they tend to generate higher profitability. With large assets, they have a great opportunity to provide financing. Bank management is required to manage assets effectively and efficiently so that they can contribute to profitability. This positive influence is possible because bank management can provide financing with prudent principles (Lohano & Kashif, 2019). Size, then, positively link to profitability of Islamic bank (Zarrouk et al., 2016) and conventional bank (Jaouad & Lahsen, 2018) in their research on conventional banking found a significant and positive effect between Size and profitability. Therefore, the proposed hypothesis is:

H₃: SIZE has a positive effect on Islamic bank's profitability

Capital and profitability

Capital for banks is very important, therefore the government regulates bank capital by setting a capital adequacy ratio (CAR) which is a comparison between equity and risk-weighted assets (Schoon, 2016). The Financial Services Authority (FSA) in Indonesia sets a minimum CAR limit of 8%. Bank capital is very important because the function of capital is as a reserve to cover bank losses. In addition, the amount of bank capital can also be used for financing so that the higher the CAR will be able to increase profitability. Several results of research conducted on Islamic banks show a positive influence between CAR and profitability (Javaid & Alalawi, 2018; Hossain & Khalid, 2018). Similar findings are found in conventional banking (Durguti et al., 2020; Oleiwi et al., 2019; and Lohano & Kashif, 2019). Therefore, the hypothesis can be formulated as follows:

H₄: CAR has a positive effect on Islamic bank's profitability

Liquidity risk and profitability

Liquidity problems in Islamic banks are more complicated than those of conventional banks because the instrument for placing funds for Islamic banks is limited (Islam, Farooq, & Ahmad, 2017). Liquidity, apart from preparing funds to be used as reserves in case of withdrawal of funds from customers at any time, also relates to the bank's commitment to providing funds for financing. In this study, liquidity is measured by the financing to deposit ratio (FDR), namely the amount of financing provided by Islamic banks compared to customer deposits. The greater the FDR, the higher the financing and the higher the financing can increase income which will ultimately increase profitability. The results of research on Islamic banks show a positive and significant effect between FDR and profitability (Widarjono et al.,

2020); The same results were found from the results of research conducted on conventional banks (Sofyan, 2019; Koroleva et al., 2021; Thus, the formulation of the hypothesis is:

H₅: FDR has a positive effect on Islamic bank's profitability

Efficiency and profitability

In operating, bank management is required to manage so that there is no waste that can lead to inefficiency. Bank profitability can be achieved if management is able to operate efficiently, so that efficiency becomes one of the elements that make up profitability. Efficiency is measured by comparison of operating expense with operating income (OEIR). The lower the OEIR, the more efficient it will be and will be able to increase profitability, because profit is derived from operating income minus operating costs (Hossain & Khalid, 2018). Operational costs must be reduced in such a way that it cannot be greater than operating income so that the bank can make a profit. Several studies found a negative effect between OEIR and profitability (Javaid & Alalawi, 2018; Al-Harbi, 2019). The formulation of the hypothesis is as follows:

H₆: OEIR has a negative effect on Islamic bank's profitability

Financing risk and profitability

Islamic banking operating income comes from the financing provided, the greater the financing provided, the greater the opportunity to earn a large income, to increase profits. However, financing may result in a considerable risk if the financing selection process does not use the precautionary principle (Schoon, 2016). This financing risk of the Islamic banks is considered to measure risk-taking behaviour. Our study employs the ratio of financing loss provisions to total financing to which this ratio measures Islamic banks' financing quality. High financing provision indicates an inability of borrowers to fulfil their financing obligation in a timely manner. The existing studies documented a negative influence between financing quality and profitability for Islamic bank (Sutrisno & Widarjono, 2018) and for conventional bank (Lohano & Kashif, 2019; Durguti et al., 2020; Koroleva et al., 2021). Based on the results of theoretical studies and the findings of previous researchers, the following hypotheses can be formulated:

H₇: FLP has a negative effect on Islamic bank's profitability

Covid-19 and profitability

The Covid-19 has had an impact on all economy sectors, including the Islamic banking sector. The existence of covid-19 has caused social restrictions so that it disrupts the production of goods and services in the small, medium, and large industrial sectors. As a result, Indonesia's GDP in the third quarter of 2020 grew by minus 3.49%. As a result, Islamic banks experience excess liquidity due to limited disbursement of funds. In addition, the decline in the production of goods and services will also increase non-performing financing of Islamic banks. Thus, the impact of covid on profitability can be written in the following hypothesis as:

H₈: Covid-19 has a negative effect on Islamic bank's profitability

3. Method and Data

3.1. Research Method

According to the existing literature, our study applies panel data model, which is a combination of time series and cross section data. The dynamic panel data regression is employed to explore the effect of PLS financing on Islamic bank's profitability as follows:

$$ROA_{it} = \phi_0 + \phi_1 ROA_{it-1} + \phi_2 PLS_{it} + \phi_3 MS_{it} + \phi_4 SIZE_{it} + \phi_5 CAR_{it} + \phi_6 FDR_{it} + \phi_7 OEIR_{it} + \phi_8 FLP_{it} + \phi_9 COVID_{it} + e_{it} \quad (1)$$

Where ROA is return on asset, PLS is profit loss sharing financing, NPLS is non-profit loss sharing financing. Control variables consist of market share, banks size, capital adequacy ratio, financing to deposit ratio, operating cost to income ratio, financing loss provision. Table 1 shows variables and its measurement.

Table 1: Variables and Its measurement

Variables	Symbol	Measurement
Return on Assets	ROA	Earning After Tax/Total Assets
Profit Sharing Financing	PLS	1. (Musyarakah+Mudharabah)/asset 2. (Musyarkah + Mudharabah)/financing
Market Share	MS	Total asset of an Islamic bank/total asset of all Islamic banks
Bank Size	SIZE	Ln Total Assets
Capital Adequacy Ratio	CAR	Equity/Assets weighted risk
Financing to Deposit Ratio	FDR	Total financing/Third party fund
Operating expense to Income Ratio	OEIR	Operating expense/operating income
Financing loss provision	FLP	Financing loss provision/total financing
Covid-19	COVID	Dummy variable

Our study uses GMM method to estimate the dynamic panel regression in equation (1) due to a relationship between CAR and profit which leads to endogeneity problem and obviously produces an inefficient estimator. Two approaches are widely to estimate the GMM method, consisting of the difference GMM method (Arellano & Bond, 1991) and the system GMM (Arellano & Bover, 1995). Each method is to solve the endogeneity problem in the dynamic panel regression. We apply the system GMM system because of unbiased and efficient estimators (Blundell and Bond (1998)). The system GMM method uses the variable instrument so the validity of the instruments is checked using Hansen test for over-identifying test. The coefficients of regression are efficient and consistent as the second-order autocorrelation correlations is not found using the The Arellano-Bond AR(2) test.

3.2. Data

This study covers 31 Islamic banks, consisting of Islamic commercial banks and Islamic window banks. The observation period was for four years 2016 – 2020 with quarterly data, so that 642 observation were obtained with the balanced panel data. The data is obtained from the website of the Financial Services Authority (FSA) which can be freely accessed by the public (www.ojk.go.id).

4. Results and Discussion

4.1. Descriptive statistics

Table 3 below shows an overview of research data obtained from 31 IBs with quarterly data for 2016-2020. The descriptive statistics of variables show that the profitability has a maximum value of 13.52% and a minimum of -10.77% with an average of 1.99% and standard deviation of 2.54. These results indicate that IB suffered large losses, but another IB experienced large profits. Islamic bank provides PLS and non PLS financings where PLS

financing should be the core financing of Islamic banks. However, on average, non PLS financings are higher than those PLS financing. More interestingly, some Islamic banks do not provide PLS financing because the risk of this financing is very high (Widarjono et al., 2022). On average, market share of Islamic banks was 3.2 but with high standard deviation (4.571). These findings indicate that size of Islamic bank varies but one of Islamic bank dominates the market with high asset by 127 IDR trillion and market share by 22.664%.

Equity has a minimum value of 10.16% and a maximum of 88.65% with an average of 21.393%, meaning that the CAR of all RBs is above the minimum FSA requirement of 15%. The FDR on average was 1101.455% with maximum of 338.52%, implying that Islamic banks is very aggressive to providing financing since they are a latest player in Indonesian banking system. However, aggressive strategy of Islamic banks is manageable since the FDR range set by the FSA are 85%-110%. The average of Islamic bank operating efficiency (OEIR) was 84.79% with minimum value of 16.84% and a maximum of 217.4%. Financing loan provision, on average, 2.149% with minimum by 0.01% and maximum by 13.990. The low FLP indicate that Islamic banks face low financing risk. The data show that non-performing financing (NPF) for all Islamic bank under the period of study was 3.75% which is under maximum value of 5%.

Table 2 descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
ROA	1.996	2.544	-10.770	13.580
PLS (IDR trillion)	4.313	6.719	0.000	30.500
MS	3.200	4.571	0.155	22.664
Asset (IDR trillion)	14.200	20.500	0.498	127.000
CAR	21.393	6.317	10.160	88.650
FDR	101.455	32.723	0.470	338.520
OEIR	84.790	14.034	16.840	217.400
FLP	2.149	1.883	0.010	13.990

Table 4 shows the coefficient of correlation among variables both dependent and independent variables. The highest coefficient of correlation score 0.962, which is the correlation between the ratio of PLS financing to total financing (PLSF) and the ratio of PLS financing to total asset (PLSA). However, all coefficients of correlation exhibit results of less than 0.85. The findings imply that possible multicollinearity problem is not found so all explanatory variables can be used to estimate the dependent variable. The highest correlation among PLSF and PLSA does not lead to any major problems of multicollinearity since each variable is regressed separately.

Table 3 Correlation matrix

	ROA	PLSF	PLSA	MS	Size	CAR	FDR	OEIR
ROA	1							
PLSF	-0.293	1						
PLSA	-0.288	0.962	1					
MS	-0.138	-0.004	0.022	1				
Size	-0.151	0.156	0.174	0.822	1			
CAR	0.342	-0.115	-0.138	-0.294	-0.181	1		
FDR	0.368	-0.013	0.067	-0.277	-0.347	0.114	1	
OEIR	-0.589	0.199	0.216	0.203	0.298	-0.383	-0.151	1
FLP	-0.335	-0.053	0.033	-0.013	0.003	-0.128	0.018	0.326

4.2. Empirical Results and Discussion

Table 5 presents the empirical findings of dynamic panel regression with two system GMM where PLS financing is calculated by the ratio of PLS financing to total financing. Model 1 show the results without covid effect and model 2 include covid effect. Model 1 and model 2 generate the same results. The diagnostic tests for all estimation are shown in the bottom part of table 5. The number of instruments is less than the number of Islam banks and our instruments are also valid using the Hansen diagnostic test. The Arellano-Bond test for AR (2) to check autocorrelation problem confirms that estimated coefficients of regression are consistent.

Our findings show that all the coefficient of the lagged ROA (ROA(-1)) are statistically significant, affirming that the model specification is dynamic model so te dynamic panel regression is better method to estimate profitability of Indonesian Islamic bank instead of static panel regression, namely pooled, fixed and random effect. The findings imply that, to some extent, profitability of Indonesian Islamic banks is persistent. This indicates that Islamic banks that produce higher profits in the preceding quarter may have experience of higher profits in the present quarter.

Table 4 ROA-PLS relationship: ratio of PLS financing to total financing

Variables	Model 1:	Model 2:
	Without covid effect	With covid effect
ROA (-1)	0.4484** (0.0130)	0.4476** (0.0100)
PLS	-0.0092** (0.0170)	-0.0099*** (0.0080)
MS	-0.0375 (0.1310)	-0.0450 (0.1780)
Size	0.2616* (0.0790)	0.3001** (0.0490)
CAR	0.0035 (0.4380)	0.0071 (0.3850)
FDR	0.0159*** (0.0025)	0.0162*** (0.0015)
OEIR	-0.0525*** (0.0025)	-0.0512*** (0.0035)
FLP	-0.1351*** (0.0265)	-0.1348*** (0.0150)
Covid	-	-0.2284 (0.1170)
Constant	0.4587 (0.8830)	-0.2676 (0.9210)
No of observations	589	589
No of banks	31	31
Hansen p-value	0.530	0.489
AR (2) p-value	0.224	0.239

Note: The parentheses show p-value. *** p < 0.01, ** p < 0.05 and *p < 0.1

The effect of PLS financing contracts on profitability, as our main concern, shows that the coefficient of PLS is negative and statistically significant. These findings imply that

probability of Islamic banks can be deteriorated by increasing PLS financing and a fall in PLS financing enhances Islamic banks' profitability. Our result is consistent with the existing empirical research using static panel regression such as Risfandy (2018), Kuswara et al (2019), Roziq & Sukarno (2021). This finding is in accordance with the practice of Islamic bank financing where Islamic banks prefer the non-equity financing contracts such as Murabahah financing to which Islamic banks experience low financing risk for this type of contract (Čihák & Hesse, 2010; Widarjono et al., 2022). By contrast, equity financing generates high risk financing because of agency problem and moral hazard (Azmat, 2015). Equity financing causes high non-performing financing and further decrease the Islamic bank's profitability (Kabir et al., 2015).

The second hypothesis indicates that variable of market share (MS) is negative and statistically insignificant. Islamic banks cannot capitalize their market power through their market share in charging the high price to produce supernormal profit due to their limited financing. The findings imply that market share has no influential effect on profitability and fails to confirm the hypothesis of relative market power (RMP). Our findings confirm the existing empirical study where Islamic rural banks in Indonesia with imperfect competition market also fail to exercise profitability through their market share (Widarjono et al., 2020).

Variable of Islamic bank size, which is measured by total asset, is positive and significant. These results indicate that the higher the size of the Islamic bank is the higher the profitability. This finding is a reasonable because large Islamic banks have a greater potential to earn income than small Islamic banks due to of economies of scale (Ibrahim & Rizvi, 2017; Trinugroho et al., 2017). Bank management must work hard in managing and controlling assets to avoid inefficiency so increase income which in turn increases profitability. Several studies have also found that SIZE has a positive effect on profitability (Petria et al., 2015; Istiqomaha et al., 2021).

The third hypothesis show that CAR is not statistically significant for all models, indicating that CAR has no effect on profitability. This could be due to the lack of effective capital management, as indicated by the average CAR of 21.393%. High CAR indicates that bank management cannot use equity to be channeled as financing. This result is in accordance with the results of research from Sudarsono, Afriadi, & Sucinigtias (2021) which found that CAR had no effect on profitability. CAR that is too high is also increasingly inefficient so that it actually reduces profitability, as the results of research from several studies that found a negative and significant effect between CAR and profitability (Setiawan, 2021; Durguti et al., 2020; Irwan, 2017; dan Said & Ali, 2016).

Liquidity risk as measured by FDR is positive and statistically significant, suggesting that FDR positively affects profitability. Thus, a rise in financing enhances Islamic bank's profitability and a fall in financing lower Islamic bank's profitability. As a latest player in the banking sectors and a large number of Muslim consumers in Indonesia, Islamic banks carry out an aggressive policy in channeling their funds. The aggressiveness of Islamic banks can be seen from the high average FDR of 101.455%. The high disbursement of funds and low non-performing financing lead to high incomes and further increase the profits of Islamic banks in Indonesia. Our finding confirms the existing empirical study such as Zarrouk et al (2016) and Danlami et al (2022).

The level of bank efficiency (OEIR) is negative and statistically significant, meaning that high operating efficiency enriches the profitability. The magnitude of the OEIR indicates the greater the bank's operating costs, so that the higher the OEIR will reduce the bank's profit, because the profit is derived from the bank's operating income minus the bank's operating costs. Therefore, bank management must be able to manage operating costs efficiently so as to reduce OEIR. Javaid & Alalawi (2018) and Setiawan (2021) who examined Islamic banks also found a negative effect between operating efficiency and profitability. Likewise in conventional

banks, operating efficiency also has a negative effect on profitability (Al-Harbi, 2019; Sofyan, 2019; Lohano & Kashif, 2019; Durguti et al., 2020).

Financing loss provision (FLP) is negative and statistically significant, meaning that FPL has a negative effect on profitability. The high FLP indicates high non-performing financing (NPF) then it lowers profitability due to low financing quality (Widarjono, et al., 2022). The NPF shows the amount of non-performing financing, which is calculated as costs and of course will reduce profits. NPF for Islamic banks needs serious attention because it is directly related to bank income. Aggressive strategy of financing disbursement may result in high income but at same time also generate high financing default (Hamid & Ibrahim, 2021). These results are in accordance with the results conducted by Lohano & Kashif (2019) and Istiqomaha et al (2021), which found a significant and negative effect between low financing quality and profitability.

Covid-19 is negative sign but not statistically significant, meaning that the covid-19 pandemic does not affect profitability of Islamic bank. The plausible reason is that covid-19 is temporary, not permanent shock. Covid occurred in March 2020 in Indonesia, but economic growth in the second quarter was still positive. The impact of covid 19 happened in the third quarter of 2020 where economic growth in Indonesia experienced negative growth in the that quarter but economic growth returned to positive in the following quarters.

4.3. Robustness Checks

Our study carries out robustness check to examine whether our findings are strong. We measure our main independent variable PLS with another measurement. The ratio of PLS financing to total asset is a proxy for PLS financing following the previous research such as Alam and Parinduri (2017) and Risfandy et al (2019). Tabel 6 presents the results with model 3 without covid and model 4 with covid effect. The bottom part of table 6 exhibits the diagnostic test for dynamic panel regression. The instruments are valid since the number of objects exceeds the number instrument and we fail to reject the Hansen test. Our estimated coefficients of regression are also consistent due to rejecting autocorrelation problem using AR (2). More importantly, profitability of Indonesian Islamic banks is persistent since the current profitability is associated with preceding profitability due to significant of the lagged profitability.

Our results produce the similar results using ratio of PLS financing to total financing. High PLS financings lowers profitability. Large Islamic banks can capitalize their size to earn greater income and profitability. High financing disbursement (FDR) also strengthens profitability, but low-quality financing (FLP) decreases profitability. Low operating efficiency also reduces the profitability. However, model 3 shows that covid-19 negatively affect the profitability of Indonesian Islamic banks, meaning that covid-19 deteriorates the profitability because economic growth was downturn after covid-19. Economic growth has not experienced a negative growth, but economic growth was lower during the pandemic since the fourth of 2020.

Table 5 ROA- PLS relationship: ratio of PLS financing to total asset

Variables	Model 3: Without covid effect	Model 4: With covid effect
ROA (-1)	0.4350** (0.0140)	0.4421*** (0.0070)
PLS	-0.0132*** (0.0050)	-0.0138*** (0.0040)
MS	-0.0325 (0.1505)	-0.0406 (0.2120)

Size	0.2514*	0.2859**
	(0.0820)	(0.0450)
CAR	0.0035	0.0090
	(0.4395)	(0.3635)
FDR	0.0171***	0.0160***
	(0.0010)	(0.0010)
OEIR	-0.0539***	-0.0538***
	(0.0015)	(0.0025)
FLP	-0.1245**	-0.1131**
	(0.0420)	(0.0330)
Covid	-0.6109	-0.2685*
	(0.8420)	(0.0630)
Constant	-	0.1338
	-	(0.9580)
No of observations	589	589
No of banks	31	31
Hansen p-value	0.548	0.464
AR (-2) p-value	0.241	0.251

Note: The parentheses show the p-value. *** p < 0.01, ** p < 0.05 and *p < 0.1

5. Conclusions, implications, and limitations

The main purpose of the study is to find answers why PLS financing schemes are not main financing contract in Islamic banks. Based on the results of the hypothesis test, it is found that PLS financing negatively affects profitability, meaning that Islamic commercial banks in Indonesia prefer NPLS financing with fixed income such as Murabahah financing in disbursing their fund to get higher profit. Other findings show that some control variables such as size and liquidity risk enhance the profitability. Meanwhile, low operating efficiency and low financing quality worsen profitability.

The results of this study are expected to be used by the management of Islamic banks in managing their banks to increase their profitability through their financing. PLS financing does impair Islamic bank's profitability but it must be pursued to become the core business of Islamic banks. These financing need the tight monitoring to encourage profitability. The empirical literature shows that PLS financing increases profits in the case of large Islamic banks. In addition, other empirical studies also show that Musyarakah financing shows reverse U-shape effect on non-performing financing, meaning that Musyarakah financing at a certain level clearly reduce non-performing financing so that it can encourage Islamic bank's profitability.

PLS financing consists of Musyarakah and Mudharabah financing. Musyarkah and Mudharabah financing yield obviously different financing risk where the latter is riskier than those the former. However, this study does not distinguish between Musyarakah and Mudarabah financing. Accordingly, the further study is needed to know for which PLS financing contract enhance profitability.

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Profit-Loss Sharing Financing and Profitability of Indonesian Islamic Banks

By Sutrisno Sutrisno

Abstract

The primary source of Islamic bank to generate income is financing, which then contributes to the bank's profitability. There are two financing schemes, namely profit-loss sharing and non-profit-loss sharing financing. The main purpose of this study is to analyze the impact of profit-loss sharing financing on the Islamic bank's profitability. We employ Islamic banks in Indonesia using quarterly data and spanning from 2016:1 to 2020:4. The two-step system GMM is applied to estimate dynamic panel regression. The findings reveal that profit-loss sharing financing has a negative influence on profitability, suggesting that profit-loss financing discourages Islamic bank performance. While some control variables such as size and liquidity risk positively influence profitability and low efficiency and financing quality negatively affect profitability. These findings have an important implication for Islamic banks. Islamic banks must conduct tight monitoring for PLS financing so this ex-post ante scheme can encourage the Islamic banks' profitability.

Public Interest Statement

Indonesia, the biggest Muslim country, has practiced Islamic banking since 1992. Islamic banks offer two types of financing contracts, namely profit-loss sharing (PLS) financing and non-profit-loss sharing (NPLS) financing. However, in practice, Islamic banks around the world, including in Indonesia, prefer NPLS financing because it is less risky. Interestingly, PLS financing in Indonesian Islamic banking is the highest in the world. Therefore, it is interesting to study why Islamic banks do not like to disburse financing in the form of PLS contracts. The findings confirm that PLS financing reduces the profitability of Islamic banks in Indonesia.

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Keywords: Islamic bank, profitability, profit-loss sharing financing, Indonesia

JEL Classification: Code: G20; G21; G24

1. Introduction

In banking system, profits are obtained mostly from income in the form of interest income for conventional banks and income from financing for Islamic banks. Thus, for Islamic banks, the main income is the financing disbursement. Two financing schemes provided by banks are profit-loss sharing (PLS) and non-profit-loss sharing (NPLS) schemes. The PLS schemes comprise Mudharabah and Musyarakah. Mudharabah financing is financing where the Islamic bank provides all the cash needed by the customer while the customer provides the project and its management. Musyarakah financing is frequently called equity financing, where the bank provides funds in the form of equity participation and the bank is allowed to participate in management (Schoon, 2016).

NPLS schemes consist of Murabahah, Isthisna, Salam, Ijarah, and Qardh. Murabahah financing is financing where the bank will buy the assets needed by the customer and then the asset is sold to the customer by adding a profit margin according to the agreement. Salam is a contract in which the Islamic bank provides some goods on a future date fully paid at the time of contract. Isthisna is a contract in which the Islamic bank provides some goods on a future date paid at an agreed method of payment. Ijarah is the selling of benefits or use or services for a fixed price. Qard is a loan in which the borrower is required to repay the amount borrowed without any additional cost.

In addition to operating in accordance with sharia, Islamic banks (IB) must also be profit-oriented because the company needs to earn sufficient profit for growth and continuity. To make a profit, IBs need to earn income from their operations. The primary source of income

for Islamic banks is financing where the greater the financing is the greater the earning potential and the greater the potential for profit. PLS financing is the main core of Islamic banks and is expected to replace debt-like financing such as profit margin financing or Murabahah. Nevertheless, Islamic banks across the world have a preference to provide debt-like financing due to low risk than PLS financing with high financing risk (Warninda et al., 2019; Šeho et al., 2020). Islamic banks in Indonesia also provide more financing on NPLS financing compared to PLS financing. Table 1 shows that the average NPLS financing is 80.84% of total financing, while the PLS financing is only 11.91% of total financing during 2016-2020.

Table 1 Islamic bank financing in Indonesia (IDR trillion)

Year	PLS financing	%	NPLS financing	%	Total Financing
2016	65.860	14.93	375.138	85.07	440.998
2017	58.405	12.40	412.606	87.60	471.011
2018	46.161	6.88	624.445	93.12	670.606
2019	58.404	11.05	470.209	88.95	528.613
2020	80.707	16.53	407.403	83.57	488.110
Average	61.907	11.91	457.960	88.09	519.868

Source: Indonesian Financial Service Authority (Otoritas Jasa Keuangan)

There are several reasons why the PLS financing is minor financing. First, PLS contracts have complex procedures because Islamic banks must know in detail the characteristics of customers (Abedifar et al., 2013). Second, PLS contracts also cause high transaction costs because Islamic banks must carry out well controlling and monitoring (Louhichi & Boujelbene, 2016). Third, the PLS contracts also pose a high financing risk due to agency problems, causing asymmetric information and moral hazard (Beck et al., 2013). However, a PLS contracts generate a fair contract between an Islamic bank and a customer because of the ex-post ante principle. Profits and losses will be shared according to the agreement so this type of contract is expected to appeal to more customers to borrow money from Islamic banks (Risfandy et al., 2019).

According to the above facts, this study investigates whether PLS financing, which stems from the main principle of Islamic bank, could harm or enhance Islamic bank's performance. More exactly, our study explores whether PLS financing deteriorates or strengthens the Islamic bank's profitability in Indonesia. Our empirical study is important since PLS financing is not the main choice of financing for Islamic banks. The selection of Indonesian Islamic banks is because PLS financing is the largest financing compared to other countries even though market share of Indonesia Islamic banks is small.

Our paper will contribute to the existing empirical study in some ways. First, although PLS financing is the core business of Islamic banks, research on the role of PLS financing on Islamic bank profits has not been widely carried out. Several studies examine the effect of PLS financing on non-performing financing (Alandejani & Asutay, 2017; Warninda et al., 2019; Widarjo et al., 2020). Second, PLS financing is the core business of Islamic banks, so this finding is expected to be important information for Islamic banks and policymakers in managing PLS financing.

2. Literature Review and Hypothesis Development

Financing schemes and profitability

Islamic bank, in addition to having the goal of providing usury-free banking services to the public, must also be oriented to seek profit as in conventional bank so that Islamic bank can grow and develop with other Islamic financial institutions. Profitability is the company's ability

to generate profits, which can be measured by several formulations such as return on assets (ROA), return on equity (ROE), return on investment (ROI) and profit margin (PM) (Van Horn & Wachowicz, 2013). Profitability is widely proxied by ROA because ROA shows the ability to earn profits with all assets owned. Profitability is very important for the company because it is an indicator of management performance that can affect the value of the company. Profitability indicates that the company is developing and growing, which allows the company to pay larger dividends (Ahmed, 2015).

Sanmiam and Zahari (2009) revealed that financing in Islamic banks could be grouped into natural certainty contracts (NCC) and natural uncertainty contracts (NUC). NCC is a financing contract with a definite amount and time of return. The NCC comprises NPLS schemes such as Murabahah contract because there is certainty about the amount and time of return, and this financing is low risk and very easy to calculate. Meanwhile, NUC is a financing contract for which there is no certainty about the amount and time of payment because it depends on the benefits obtained by the customer. The NUC is a PLS scheme where the financing instalments depend on the customer's profits which will be given in the form of profit sharing. The number of instalments may not be determined at the beginning of the agreement. What may be determined at the beginning is the ratio or profit-sharing portion.

An Islamic bank in applying financing contract prefers NPLS which have low risk and are easier to process. According to financing data, the portion of NPLS is much higher, which is more than 80% on average compared to PLS, which averages less than 20% in Indonesia. Accordingly, the amount of financing provided through NPLS contracts has a positive effect on profitability due to its low risk and easy to implement (Warninda, 2014; Belkhaoui et al., 2020). By contrast, Equity financing may result in a different impact on profitability. Mudharabah contract leads to high impaired financing and then lower profitability because it causes agency problems due to moral hazard and asymmetric information (Azmat et al., 2015; Widarjono et al., 2020). However, PLS contracts can increase profitability if Islam bank can monitor and manage well both Musyarakah and Mudharabah contracts (Čihák & Hesse, 2010; Danlami et al., 2022). Thus, the hypotheses can be expressed:

H1: PLS financing has either negative or positive effect on Islamic bank's profitability

Market share

One theory that describes the link between bank's profitability and market structure is the relative market power (RMP) hypothesis. The RMP states that the profitability of a bank relies on the market share (Smirlock, 1985). The large market share can generate various products to capitalize market power and then can determine the high price and leads to high profits. Some previous studies documented that bank profitability is associated with high market share (Mirzaei et al., 2013; Sahile et al., 2015; Hamid, 2017). Accordingly, the third hypothesis can be stated as follow:

H2: market share has a positive impact on Islamic bank's profitability.

Bank size and profitability

Bank size (SIZE) is the size of a bank that can be measured by total assets (Petria et al., 2015; Javaid & Alalawi, 2018; Lohano & Kashif, 2019). Banks with large sizes have greater opportunity to diversify their portfolios, so they tend to generate higher profitability. With large assets, they have a great opportunity to provide financing. Bank management is required to manage assets effectively and efficiently so that they can contribute to profitability. This positive influence is possible because bank management can provide financing with prudent principles (Lohano & Kashif, 2019). Then, size is positively linked to the profitability of

Islamic banks (Zarrouk et al., 2016) and conventional banks (Jaouad & Lahsen, 2018). Therefore, the proposed hypothesis is:

H₃: SIZE has a positive effect on Islamic bank's profitability

Capital and profitability

Capital for banks is very important, so the government regulates bank capital by setting a capital adequacy ratio (CAR) which is a comparison between equity and risk-weighted assets (Schoon, 2016). The Financial Services Authority (FSA) in Indonesia sets a minimum CAR limit of 8%. Bank capital is very important because the function of capital is as a reserve to cover bank losses. In addition, the amount of bank capital can also be used for financing so that the higher the CAR will be able to increase profitability. Several studies conducted on Islamic banks show a positive influence between CAR and profitability (Javaid & Alalawi, 2018; Hossain & Khalid, 2018). Similar findings are found in conventional banking (Durguti et al., 2020; Oleiwi et al., 2019; Lohano & Kashif, 2019). Therefore, the hypothesis can be formulated as follows:

H₄: CAR has a positive effect on Islamic bank's profitability

Liquidity risk and profitability

Liquidity problems in Islamic banks are more complicated than those of conventional banks because the instrument for placing funds for Islamic banks is limited (Islam et al., 2017). Liquidity, apart from preparing funds to be used as reserves in case of withdrawal of funds from customers at any time, also relates to the bank's commitment to providing funds for financing. In this study, liquidity is measured by the financing to deposit ratio (FDR), which is the amount of financing provided by Islamic banks compared to customer deposits. The greater the FDR is the higher the financing and the higher the financing can increase income which will ultimately increase profitability. The results of research on Islamic banks show a positive and significant effect between FDR and profitability (Widarjono et al., 2020); The same results were found in the conventional banks (Sofyan, 2019; Koroleva et al., 2021); Thus, the formulation of the hypothesis is:

H₅: FDR has a positive effect on Islamic bank's profitability

Efficiency and profitability

Bank management is required to manage well their operating cost so that there is no waste that can lead to inefficiency. Bank profitability can be achieved if management can operate efficiently so that efficiency becomes one of the elements that make up profitability. Efficiency is measured by the comparison of operating expenses with operating income (OEIR). The lower the OEIR, the more efficient it will be and will be able to increase profitability because profit is derived from operating income minus operating costs (Hossain & Khalid, 2018). Operational costs must be reduced in such a way that they cannot be greater than operating income so that the bank can make a profit. Several studies found a negative effect between OEIR and profitability (Javaid & Alalawi, 2018; Al-Harbi, 2019). The formulation of the hypothesis is as follows:

H₇: OEIR has a negative effect on Islamic bank's profitability

Financing risk and profitability

Islamic bank operating income comes from the financing disbursement. The greater the financing provided is the greater the opportunity to earn a large income to increase profits. However, financing may result in a high financing risk if the financing selection process does not use the precautionary principle (Schoon, 2016). This financing of the Islamic banks is considered to measure risk-taking behaviour. Our study employs the ratio of financing loss provisions to total financing (FLP) to which this FLP measures Islamic banks' financing quality. High financing provision indicates an inability of borrowers to fulfil their financing obligation in a timely manner. The existing literature documented a negative influence between financing quality and profitability for Islamic banks (Sutrisno & Widarjono, 2018) and for the conventional bank (Lohano & Kashif, 2019; Durguti et al., 2020; Koroleva et al., 2021). Based on the theoretical studies and the previous findings, the following hypotheses can be formulated:

H7: FLP negatively influences Islamic bank's profitability

Covid-19 and profitability

Covid-19 has had an impact on all economic sectors, including the Islamic banking sector. The existence of covid-19 has caused social restrictions so that it disrupts the production of goods and services for the small, medium, and large firm. As a result, GDP in the third quarter of 2020 grew by minus 3.49% in Indonesia. Consequently, Islamic banks experience excess liquidity due to limited disbursement of funds. In addition, the decline in the production of goods and services will also increase the non-performing financing of Islamic banks. Thus, the impact of covid on profitability can be written in the following hypothesis:

H8: Covid-19 has a negative effect on Islamic bank's profitability

3. Research Method

According to the existing literature, our study applies a panel data model, which is a combination of time series and cross-section data. The dynamic panel data regression is employed to explore the effect of PLS financing on Islamic bank's profitability as follows (Zarrouk et al., 2016):

$$ROA_{it} = \phi_0 + \phi_1 ROA_{it-1} + \phi_2 PLS_{it} + \phi_3 MS_{it} + \phi_4 SIZE_{it} + \phi_5 CAR_{it} + \phi_6 FDR_{it} + \phi_7 OEIR_{it} + \phi_8 FLP_{it} + \phi_9 COVID_{it} + e_{it} \quad (1)$$

Where ROA is the return on assets, PLS is profit loss sharing financing. Control variables include market share, bank size, capital adequacy ratio, financing to deposit ratio, operating cost to income ratio, and financing loss provision. Table 2 shows variables and their measurement.

Table 2: Variables and their measurement

Variables	Symbol	Measurement
Return on Assets	ROA	Earning After Tax/Total Assets
Profit Sharing Financing	PLS	1. (Musyarakah+Mudharabah)/Asset 2. (Musyarakah + Mudharabah)/Financing
Market Share	MS	Asset/total asset of the market
Bank Size	SIZE	Ln Total Assets
Capital Adequacy Ratio	CAR	Equity/Assets weighted risk

Financing to Deposit Ratio	FDR	Total financing/Third party fund
Operating expense to Income Ratio	OEIR	Operating expense/operating income
Financing loss provision	FLP	Financing loss provision/total financing
Covid-19	COVID	Dummy variable

Our study uses the GMM method to estimate the dynamic panel regression in equation (1). Two approaches are widely applied to estimate the GMM method, consisting of the difference GMM method (Arellano & Bond, 1991) and the system GMM (Arellano & Bover, 1995). Both methods solve the endogeneity problem in the dynamic panel regression. We apply the system GMM system because it generates an unbiased and efficient estimators (Blundell & Bond (1998). The system GMM method uses the variable instrument, so the validity of the instruments is checked using the Hansen test for over-identifying test. The coefficients of regression are efficient and consistent as the second-order autocorrelation correlations is not found using the Arellano-Bowman AR(2) test.

This study covers 31 Islamic banks, comprising Islamic commercial banks and Islamic window banks. The observation period is for four years, 2017 – 2020, with quarterly data so that 620 observations are obtained with the balanced panel data. The data is extracted from the website of the Financial Services Authority (FSA), which can be freely accessed by the public (www.ojk.go.id).

4. Result and Discussion

Descriptive statistics

Table 3 presents an overview of research data obtained from 31 IBs with quarterly data for 2016-2020. The descriptive statistics of variables show that the profitability has a maximum value of 13.52% and a minimum of -10.77% with an average of 1.99% and a standard deviation of 2.54. These results indicate that IB suffered large losses, but another IB experienced large profits. Islamic bank provides PLS and NPLS financing where PLS financing should be the core financing of Islamic banks. However, on average, PLS financing are lower than those of NPLS financing. More interestingly, some Islamic banks do not provide PLS financing because the risk of this financing is very high. On average, the market share of Islamic banks was 3.2 but with a high standard deviation (4.571). These findings indicate that the size of Islamic banks varies but one of the Islamic banks dominates the market with high assets of 127 IDR trillion and a market share of 22.664%.

Equity has a minimum value of 10.16% and a maximum of 88.65% with an average of 21.393%, meaning that the CAR of all RBs is above the minimum FSA requirement of 15%. The FDR, on average, was 1101.455% with a maximum of 338.52%, implying that Islamic banks are very aggressive in providing financing since they are the latest player in the Indonesian banking system. However, the aggressive strategy of Islamic banks is manageable since the FDR range set by the FSA was 85%-110%. The average Islamic bank operating efficiency (OEIR) was 84.79%, with a minimum value of 16.84% and a maximum of 217.4%. Financing loan provision, on average, was 2.149%, with a minimum of 0.01% and a maximum of 11.990%. The low FLP indicate that Islamic banks face low financing risk. The data show that non-performing financing (NPF) for all Islamic banks during the study period was 3.75%, which is under the maximum value of 5%.

Table 3 descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
ROA	1.996	2.544	-10.770	13.580
PLS (IDR trillion)	4.313	6.719	0.000	30.500

MS	3.200	4.571	0.155	22.664
Asset (IDR trillion)	14.200	20.500	0.498	127.000
CAR	21.393	6.317	10.160	88.650
FDR	101.455	32.723	0.470	338.520
OEIR	84.790	14.034	16.840	217.400
FLP	2.149	1.883	0.010	13.990

Table 4 displays the coefficient of correlation among variables both dependent and independent variables. The highest coefficient of correlation was 0.962, which is the correlation between the ratio of PLS financing to total financing (PLSF) and the ratio of PLS financing to the total asset (PLSA). However, all coefficients of correlation exhibit less than 0.85. The findings imply that a possible multicollinearity problem is not found so all explanatory variables can be used to estimate the dependent variable. The highest correlation between PLSF and PLSA does not lead to any major problems of multicollinearity since each variable is regressed separately.

Table 4 Correlation matrix

	ROA	PLSF	PLSA	MS	Size	CAR	FDR	OEIR
ROA	1							
PLSF	-0.293	1						
PLSA	-0.288	0.962	1					
MS	-0.138	-0.004	0.022	1				
Size	-0.151	0.156	0.174	0.822	1			
CAR	0.342	-0.115	-0.138	-0.294	-0.181	1		
FDR	0.368	-0.013	0.067	-0.277	-0.347	0.114	1	
OEIR	-0.589	0.199	0.216	0.203	0.298	-0.383	-0.151	1
FLP	-0.335	-0.053	0.033	-0.013	0.003	-0.128	0.018	0.326

Empirical Results

Table 5 presents the empirical findings of dynamic panel regression with two systems GMM where PLS financing is calculated by the ratio of PLS financing to total financing. Model 1 shows the results of no covid effect and model 2 include the covid effect. Model 1 and 2 generate the same results. The diagnostic tests for all estimations are shown in the bottom part of table 5. The number of instruments is less than the number of Islamic banks and our instruments are also valid using the Hansen diagnostic test. The Arellano-Bond test for AR (2) to check the autocorrelation problem confirms that estimated coefficients of regression are consistent.

Our findings show that all the coefficients of the lagged ROA (ROA(-1)) are statistically significant, affirming that the model specification is the dynamic model. The dynamic panel regression is a better method to examine the Islamic banks' profitability in Indonesia instead of static panel regression, namely pooled, fixed, and random effect. The findings imply that, to some extent, the profitability of Indonesian Islamic banks is persistent. This obviously confirms that Islamic banks producing high profits in the preceding quarter also experience high profits in the present quarter.

Table 5 ROA-PLS financing relationship: ratio of PLS financing to total financing

Variables	Model 1:	Model 2:
	Without covid effect	With covid effect
ROA (-1)	0.4484**	0.4476**

	(0.0130)	(0.0100)
PLS	-0.0092**	-0.0099***
	(0.0170)	(0.0080)
MS	-0.0375	-0.0450
	(0.1310)	(0.1780)
Size	0.2616*	0.3001**
	(0.0790)	(0.0490)
CAR	0.0035	0.0071
	(0.4380)	(0.3850)
FDR	0.0159***	0.0162***
	(0.0025)	(0.0015)
OEIR	-0.0525***	-0.0512***
	(0.0025)	(0.0035)
FLP	-0.1351***	-0.1348***
	(0.0265)	(0.0150)
Covid	-	-0.2284
	-	(0.1170)
Constant	0.4587	-0.2676
	(0.8830)	(0.9210)
No of observations	589	589
No of banks	31	31
No of Instruments	28	29
Hansen p-value	0.530	0.489
AR (2) p-value	0.224	0.239

Note: The parentheses show the p-value. *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$

The effect of PLS financing on profitability, as our main concern, shows that the coefficient of PLS is negative and statistically significant. These findings imply that the probability of Islamic banks can be deteriorated by increasing PLS financing and a fall in PLS financing enhances Islamic banks' profitability. Our result is consistent with the existing empirical research using static panel regression such as Risfandy (2018), Kuswara et al. (2019), Roziq and Sukarno (2021). These findings are in accordance with the practice of Islamic bank financing where Islamic banks prefer the non-equity financing contracts such as Murabahah financing to which Islamic banks experience low financing risk for this type of contract (Čihák & Hesse, 2010; Widarjono et al., 2022). By contrast, equity financing generates high risk financing because of agency problems and moral hazards (Azmat, 2015). Equity financing causes high NPF and further decreases the Islamic bank's profitability (Kabir et al., 2015).

The second hypothesis indicates that the variable of market share (MS) is negative and statistically insignificant. Islamic banks cannot capitalize their market power through their market share by charging a high price to produce supernormal profit due to their limited financing. The findings imply that MS has no effect on profitability and fails to confirm the hypothesis of relative market power (RMP). Our findings affirm the existing empirical study where Islamic rural banks in Indonesia with an imperfect competition market also fail to exercise profitability through the market share (Widarjono et al., 2020).

The variable of Islamic bank size, which is measured by total asset, is positive and significant. This result indicates that the higher the size of the Islamic bank is the higher the profitability. This finding is reasonable because large Islamic banks have a greater potential to earn income than small Islamic banks due to economies of scale (Ibrahim & Rizvi, 2017; Trinugroho et al., 2017). Bank management must work hard in managing and controlling assets

to avoid inefficiency so increase income which in turn increases profitability. Several studies have also found that SIZE has a positive effect on profitability (Petria et al., 2015; Istiqomaha et al., 2021).

The third hypothesis reveals that CAR is not statistically significant for all models, indicating that CAR has no effect on profitability. This could be due to the lack of effective capital management, as indicated by the average CAR of 21.393%. High CAR indicates that bank management cannot use equity to be channeled as financing. This findings is in accordance with the study conducted by Sudarsono et al. (2021) who found that CAR has no effect on profitability. Excessive CAR generates increasingly inefficient, so it actually reduces profitability. Several studies found a negative and significant effect between CAR and profitability (Setiawan, 2021; Durguti et al., 2020; Irwan, 2017; dan Said & Ali, 2016).

Liquidity risk as measured by FDR is positive and statistically significant, suggesting that FDR positively affects profitability. Thus, a rise in financing enhances Islamic bank's profitability and a fall in financing lower Islamic bank's profitability. As the latest player in the banking sector and a large number of Muslim consumers in Indonesia, Islamic banks carry out an aggressive policy in channeling their funds. The aggressiveness of Islamic banks can be seen in the high average FDR of 101.455%. The high disbursement of funds and low NPF lead to high income and further increase the profits of Islamic banks in Indonesia. Our finding confirms the existing empirical study such as Arrouk et al. (2016) and Danlami et al. (2022).

The level of bank efficiency (OEIR) is negative and statistically significant, implying that high operating efficiency enriches profitability. The magnitude of the OEIR indicates the greater the bank's operating costs, so that the higher the OEIR will reduce the bank's profit, because the profit is derived from the bank's operating income minus the bank's operating costs. Therefore, bank management must be competent to manage operating costs efficiently so as to reduce OEIR. Javaid and Alalawi (2018) and Setiawan (2021) who examined Islamic banks documented a negative effect between operating efficiency and profitability. Similarly, operating efficiency also has a negative effect on profitability in conventional banks (Al-Harbi, 2019; Sofyan, 2019; Lohano & Kashif, 2019; Durguti et al., 2020).

Financing loss provision (FLP) is negative and statistically significant, meaning that FPL has a negative effect on profitability. The high FLP indicates high NPF then it lowers profitability due to low financing quality (Widarjono et al., 2022). The NPF shows the amount of financing default, which is calculated as costs and of course, will reduce profits. NPF for Islamic banks needs serious attention because it is directly related to bank income. Aggressive strategy of financing disbursement may result in high income but it also generates high financing default (Hamid & Ibrahim, 2021). These results are in line with the results conducted by Lohano and Kashif (2019) and Istiqomaha et al. (2021), which found a significant and negative effect between low financing quality and profitability.

Covid-19 has a negative sign but is not statistically significant, meaning that the covid-19 pandemic does not affect the profitability of Islamic bank. The plausible reason is that covid-19 is a temporary, not permanent shock. Covid occurred in March 2020 in Indonesia, but economic growth in the second quarter was still positive. The impact of covid 19 happened in the third quarter of 2020 when economic growth in Indonesia experienced negative growth in that quarter but economic growth returned to positive in the following quarters.

4.2. Robustness Check

Our study carries out a robustness check to examine whether our findings are strong. We measure our main independent variable (PLS) with another measurement. The ratio of PLS financing to the total asset is a proxy for PLS financing following previous research such as Alam and Parinduri (2017) and Risfandy et al. (2019). Tabel 6 presents the results with model 3 without covid and model 4 with covid effect. The bottom part of table 6 exhibits the

diagnostic test for dynamic panel regression. The instruments are valid since the number of objects exceeds the number of instruments and we fail to reject the Hansen test. Our estimated coefficients of regression are also consistent due to rejecting the autocorrelation problems using AR (2). More importantly, the profitability of Indonesian Islamic banks is persistent since the current profitability is associated with preceding profitability due to the significance of the lagged profitability.

Our results produce similar results using the ratio of PLS financing to total financing. High PLS financing lowers profitability. Large Islamic banks can capitalize their size to earn greater income and profitability. High financing disbursement (FDR) also strengthens profitability, but low-quality financing (FLP) decreases profitability. Low operating efficiency also reduces profitability. However, model 3 shows that covid-19 negatively affect the profitability of Indonesian Islamic banks, meaning that covid-19 deteriorates the profitability because economic growth was downturn after covid-19. Economic growth has not experienced negative growth, but economic growth was lower during the pandemic since the fourth of 2020.

Table 6 ROA- PLS financing relationship: ratio of PLS financing to total asset

Variables	Model 3: Without covid effect	Model 4: With covid effect
ROA (-1)	0.4350** (0.0140)	0.4421*** (0.0070)
PLS	-0.0132*** (0.0050)	-0.0138*** (0.0040)
MS	-0.0325 (0.1505)	-0.0406 (0.2120)
Size	0.2514* (0.0820)	0.2859** (0.0450)
CAR	0.0035 (0.4395)	0.0090 (0.3635)
FDR	0.0171*** (0.0010)	0.0160*** (0.0010)
OEIR	-0.0539*** (0.0015)	-0.0538*** (0.0025)
FLP	-0.1245** (0.0420)	-0.1131** (0.0330)
Covid	-0.6109 (0.8420)	-0.2685* (0.0630)
Constant	-	0.1338 (0.9580)
No of observations	589	589
No of banks	31	31
No of Instruments	28	29
Hansen p-value	0.548	0.464
AR (-2) p-value	0.241	0.251

Note: The parentheses show the p-value. *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$

5. Conclusion

The main purpose of the study is to find answers to why PLS financing schemes are not the main financing contract in Islamic banks. Based on the results, it is found that PLS financing negatively affects profitability, meaning that Islamic commercial banks in Indonesia prefer NPLS financing with fixed income such as Murabahah financing in disbursing their fund to get higher profit. Other findings show that some control variables such as size and liquidity risk enhance profitability. Meanwhile, low operating efficiency and low financing quality worsen profitability.

The results are expected to be used by the Islamic banks in managing their financing to increase their profitability. PLS financing does impair Islamic bank's profitability but it must be pursued to become the core business of Islamic banks. This financing needs tight monitoring to encourage profitability. The empirical literature shows that PLS financing increases profits in the case of large Islamic banks (Čihák & Hesse, 2010). In addition, other empirical studies also show that Musyarakah financing leads to a reverse U-shape effect on NPF, meaning that Musyarakah financing at a certain level clearly reduces NPF so that it can encourage Islamic bank's profitability (Warninda et al., 2019).

PLS financing consists of Musyarakah and Mudharabah financing. Musyarakah and Mudharabah financing yield obviously different financing risks where the latter is riskier than those of the former. However, this study does not distinguish between Musyarakah and Mudharabah financing. Accordingly, further study is needed to know which PLS financing contract enhances profitability.

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Sutrisno Drs. MM. <863110102@uii.ac.id>

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2 messages

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24 October 2022 at 09:43

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To: Sutrisno Sutrisno <sutrisno@uii.ac.id>

Cc: Agus Widarjono <agus.widarjono@uii.ac.id>, Risks Editorial Office <risks@mdpi.com>

Dear Dr. Sutrisno,

We sent a revision request for the following manuscript on 19 October 2022.

Manuscript ID: risks-1950456

Type of manuscript: Article

Title: Is Profit-Loss Sharing Financing Matter for Islamic Bank's

Profitability?: The Indonesian case

Authors: Sutrisno Sutrisno *, Agus Widarjono

Received: 19 September 2022

E-mails: sutrisno@uii.ac.id, agus.widarjono@uii.ac.id

May we kindly ask you to update us on the progress of your revisions? If you have finished your revisions, please upload the revised version together with your responses to the reviewers as soon as possible.

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To: vivian.lu@mdpi.com

24 October 2022 at 10:02

Thank you for the reminder, I will send the revised results according to the reviewer's request today

[Quoted text hidden]

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Dr. Drs. Sutrisno, MM, CSA
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Dear Dr. Sutrisno,

Thank you very much for resubmitting the modified version of the following manuscript:

Manuscript ID: risks-1950456

Type of manuscript: Article

Title: Is Profit-Loss Sharing Financing Matter for Islamic Bank's Profitability?: The Indonesian case

Authors: Sutrisno Sutrisno *, Agus Widarjono

Received: 19 September 2022

E-mails: sutrisno@uii.ac.id, agus.widarjono@uii.ac.idhttps://susy.mdpi.com/user/manuscripts/review_info/5f5b708f1dc339c5eaf4a2dceae8bbd5

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Dear Dr. Sutrisno,

Thank you very much for providing the revised version of your paper:

Manuscript ID: risks-1950456

Type of manuscript: Article

Title: Is Profit-Loss Sharing Financing Matter for Islamic Bank's

Profitability?: The Indonesian case

Authors: Sutrisno Sutrisno *, Agus Widarjono

Received: 19 September 2022

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RESPONSE TO REVIEWER 1 COMMENTS

Thank you for your helpful comments. We are also so thankful to the reviewer for the valuable comments.

I and all my co-authors have now revised the paper and taken account of all your suggestions. It is my hope that the revised paper has done justice to your constructive comments. The followings are the changes that we have made in light of your suggestions:

Comment 1:

This study does not compare PLS and Non-PLS financing. It is appropriated to highlight non-PLS, if this study examines both, the PLS and non-PLS (see section introduction). If, the author (s) need to add non-PLS, the literature review shall highlight the previous studies that shown non-PLS increase the positive impact to the bank performance.

- **Response 1:** Thanks for the valuable comments.
This study analyzes only PLS financing, excluding Non-PLS. We improve the introduction by rewriting the first paragraph to show that this study focuses on PLS financing.

Comment 2

To reduce self citation

- **Response 2:** Thanks for the valuable comments.
We try our best to delete some self-citations. Now, this paper has three self-citations, instead of 5 self-citations.

Comment 3:

To add more justification and support citation about result of negative performance, it is suggested that the author (s) add good governance as mediator or other control variable.

- **Response 3:** Thanks for the valuable comments.
We explain in detail why PLS has a negative effect on profits in the discussion section (paragraph 3 in the section 4.2, page 8)

Comment 4:

Conclusion shall conclude the paper and rise the future direction. It needs to be re-written. For example, need to add implication, and the below sentence is not appropriated in the conclusion section, besides it needs support citation for the statement

- **Response 4:** Thanks for the valuable comments.
We have rewritten the conclusion. We also added some citations to support our statement.

We also welcome any new observations from you that could improve our paper. We hope to hear from you at your earliest.

Regards,
Corresponding Author

RESPONSE TO REVIEWER 2 COMMENTS

Thank you for your helpful comments. We are also so thankful to the reviewer for the valuable comments.

I and all my co-authors have now revised the paper and taken account of all your suggestions. It is my hope that the revised paper has done justice to your constructive comments. The followings are the changes that we have made in light of your suggestions:

Comment 1:

At the end of introduction, put briefly information about all chapters in the article.

- **Response 1:** Thanks for the valuable comments.
We have written structure of this paper at the end of introduction

Comment 2:

In the methodology part, I recommend describe bank sector in Indonesia: concentration, competitiveness, types of banks (due to the main services), and show on the graph main variables, over analysed period as a time series (variables).

- **Response 2:** Thanks for the valuable comments.
We highlight the trend of Islamic bank Indonesia in the method section. Meanwhile, main variables of this study are described in the descriptive statistic in section 4.1

Comment 3:

The title of the Table 2: Table 2. Descriptive statistics.

- **Response 3:** Thanks for the valuable comments.
We have revised the Table 2

Comment 4:

Line 140: (Sofyan, 2019; Koroleva et al., 2021).

- **Response 4:** Thanks for the valuable comments.
We have revised those citation in the body text.

We also welcome any new observations from you that could improve our paper. We hope to hear from you at your earliest.

Regards,
Corresponding Author

Is Profit-Loss Sharing Financing Matter for Islamic Bank's Profitability?: The Indonesian case

Sutrisno, Sutrisno^{1*} and Agus Widarjono²

^{1*}Corresponding Author. Department of Management, Faculty of Business and Economics, Universitas Islam Indonesia, Yogyakarta, Indonesia. Email: sutrisno@uii.ac.id

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Abstract

Financing is the main source of Islamic bank income as a financial intermediary which will contribute to the bank's profitability. There are two financing schemes, namely profit-loss sharing financing and non-profit-loss sharing financing. The main purpose of this study is to analyze the impact of profit-loss sharing financing on the Islamic bank's profitability. We employ 31 Islamic commercial banks in Indonesia using quarterly data and spanning from 2016:1 to 2020:4. Dynamic panel regression using the two-step system GMM is applied. The results showed that profit-loss sharing financing has a negative effect on profitability, suggesting that profit-loss financing discourages Islamic bank performance. While some control variables such as size and liquidity risk positively influence profitability and low efficiency and financing quality negatively affect profitability. These findings have an important implication for Islamic banks. Islamic banks must conduct tight monitoring for PLS financing in order to this ex-post scheme can encourage the performance of Islamic banks.

Keywords: Islamic bank, profitability, profit-sharing financing, Indonesia

JEL Classification: Code: G21; G24; G28

1. Introduction

The primary source of income for Islamic banks as a financial intermediary is financing where the high financing leads to high income and in turn, generates more profit. Two financing schemes provided by Islamic banks are profit-loss sharing (PLS) and non-PLS (NPLS) Financing. PLS financing is the main core of Islamic banks. PLS financing or equity financing consists of Musyarakah and Mudharabah. Mudharabah is a contract between the Islamic bank and its customer whereby the later can mobilize the funds from the former for its business activity within Islamic guidelines. Profits are shared between the two parties according to a mutually agreed ratio. Musyarakah is a contract between an Islamic bank and its customers for which both parties provide capital and both may be active in managing the venture. Profit and Losses are shared on the basis of how much capital has been contributed. However, Islamic banks around the world have less preference for providing PLS financing due to high risk (Warninda et al., 2019; Šeho et al., 2020). Indeed, the average PLS financing in Indonesian Islamic banks is relatively small, around 11.91% of total financing during 2016-2020.

There are several reasons why PLS financing is minor financing. First, PLS contracts have complex procedures because Islamic banks must know in detail the characteristics of customers (Abedifar et al., 2013). Second, PLS contracts also cause high transaction costs because Islamic banks must carry out well controlling and monitoring (Louhichi & Boujelbene, 2016). Third, the PLS contract also poses a high financing risk due to agency problems, causing asymmetric information and moral hazard (Beck et al., 2013). However, the PLS contract is a kind of fair contract between an Islamic bank and a customer due to the ex-post principle.

Profits and losses will be shared according to the agreement, so this type of contract is expected to appeal to more customers to borrow money from Islamic banks (Risfandy et al., 2019).

Based on the above facts, this study investigates whether PLS financing, which stems from the main principle of Islamic banks, could harm, or enhance Islamic bank's performance. More exactly, our study explores whether PLS financing deteriorates or strengthens the Islamic bank's profitability in Indonesia. Our empirical study is important since PLS financing is not the main choice financing for Islamic banks. The selection of Indonesian Islamic banks is because the market share of Islamic banks in Indonesia is small but PLS financing is the largest financing compared to other countries.

This study will contribute to the existing empirical study in some ways. First, although PLS financing is the core business of Islamic banks, research on the role of PLS financing on Islamic bank profits has not been widely carried out. Several studies examine the effect of PLS financing on non-performing financing (Alandejani & Asutay, 2017; Warninda et al., 2019). Second, PLS financing is the core business of Islamic banks, so this finding is expected to be important information for Islamic banks and policymakers in managing PLS financing.

The rest of the paper is organized as follows. Section 2 highlights the previous studies and develops hypothesis. The next section presents method and data. Section 4 provides the findings and discussion. The last section discusses the conclusion, implication, and limitations.

2. Literature Review and Hypothesis Development

Financing schemes and profitability

Islamic banks, in addition to having the goal of providing usury-free banking services to the public, must also be oriented to seek profit as in conventional banks so that Islamic banking can grow and develop with other Islamic financial institutions (OJK, 2020). Profitability is the company's ability to generate profits, which can be measured by several formulations such as return on assets (ROA), return on equity (ROE), return on investment (ROI) and profit margin (PM) (Van Horn & Wachowicz, 2013). Profitability is widely proxied by ROA, because ROA shows the ability to earn profits with all assets owned. Profitability is very important for the company because it is an indicator of management performance that can affect the value of the company. Profitability shows the company is developing and growing, which allows the company to pay larger dividends (Ahmed, 2015).

Sanmugram & Zahari (2009) revealed that financing in Islamic banks can be grouped into natural certainty contracts (NCC) and natural uncertainty contracts (NUC). NCC is a financing contract with a definite amount and time of return. The NCC comprises an NPLS scheme such Murabahah contract because there is certainty about the amount and time of return, and this financing is low risk and very easy to calculate. Meanwhile, NUC is a financing contract for which there is no certainty about the amount and time of payment because it depends on the benefits obtained by the customer. The NUC is a PLS scheme where the financing installments depend on the customer's profits which will be given in the form of profit sharing. The number of installments may not be determined at the beginning of the agreement. What may be determined at the beginning is the ratio or profit-sharing portion.

An Islamic bank prefers NPLS which have low risk and are easier to process. According to financing data, the portion of NPLS is much higher, which is more than 80% on average, compared to PLS which averages less than 20%. Accordingly, the amount of financing provided through NPLS contracts has a positive effect on profitability due to low risk and easy to implementation (Warninda, 2014; Belkhaoui et al., 2020). By contrast, Equity financing may result in a different impact on profitability. Mudharabah contract leads to highly impaired financing and then lower profitability because it causes agency problems due to moral hazard and asymmetric information (Azmat et al., 2015). However, PLS contracts can increase profitability if Islam bank can monitor and manage well both Musyarakah and Mudharabah

contracts (Čihák & Hesse, 2010; Danlami et al., 2022). Thus, the hypotheses can be expressed as:

H₁: PLS has either a negative or positive effect on Islamic bank's profitability

Market share

One theory that describes the link between bank's profitability and market structure is the relative market power hypothesis (RMP). The RMP proposes that the profitability of a bank relies on the market share (Smirlock, 1985). The large market share can generate various products to capitalize on market power and then can determine the high price and lead to high profits. Some previous studies documented that bank profitability is associated with high market share (Mirzaei et al., 2013; Sahile et al., 2015; Hamid, 2017). Accordingly, the third hypothesis can be stated as follow:

H₂: market share has a positive impact on Islamic bank's profitability.

Bank size and profitability

Bank size (SIZE) is the size of a bank that can be measured by total assets (Petria et al., 2015; Javaid & Alalawi, 2018; Lohano & Kashif, 2019). Banks with large sizes have a greater opportunity to diversify their portfolios, so they tend to generate higher profitability. With large assets, they have a great opportunity to provide financing. Bank management is required to manage assets effectively and efficiently so that they can contribute to profitability. This positive influence is possible because bank management can provide financing with prudent principles (Lohano & Kashif, 2019). Size, then, positively linked to the profitability of Islamic banks (Zarrouk et al., 2016) and conventional banks (Jaouad & Lahsen, 2018) in their research on conventional banking found a significant and positive effect between size and profitability. Therefore, the proposed hypothesis is:

H₃: SIZE has a positive effect on Islamic bank's profitability

Capital and profitability

Capital for banks is very important. Therefore the government regulates bank capital by setting a capital adequacy ratio (CAR) which is a comparison between equity and risk-weighted assets (Schoon, 2016). The Financial Services Authority (FSA) in Indonesia sets a minimum CAR limit of 8%. Bank capital is very important because the function of capital is as a reserve to cover bank losses. In addition, the amount of bank capital can also be used for financing so that the higher the CAR will be able to increase profitability. Several results of research conducted on Islamic banks show a positive influence between CAR and profitability (Javaid & Alalawi, 2018; Hossain & Khalid, 2018). Similar findings are found in conventional banking (Durguti et al., 2020; Oleiwi et al., 2019; Lohano & Kashif, 2019). Therefore, the hypothesis can be formulated as follows:

H₄: CAR has a positive effect on Islamic bank's profitability

Liquidity risk and profitability

Liquidity problems in Islamic banks are more complicated than those of conventional banks because the instrument for placing funds for Islamic banks is limited (Islam, Farooq, & Ahmad, 2017). Liquidity, apart from preparing funds to be used as reserves in case of withdrawal of funds from customers at any time, also relates to the bank's commitment to providing funds for financing. In this study, liquidity is measured by the financing to deposit

ratio (FDR), namely the amount of financing provided by Islamic banks compared to customer deposits. The greater the FDR, the higher the financing and the higher the financing can increase income which will ultimately increase profitability. The results of research on Islamic banks show a positive and significant effect between FDR and profitability (Widarjono et al., 2020). The same results were found from the results of research conducted on conventional banks (Sofyan, 2019; Koroleva et al., 2021). Thus, the formulation of the hypothesis is:

H₅: FDR has a positive effect on Islamic bank's profitability

Efficiency and profitability

In operating, bank management is required to manage so that there is no waste that can lead to inefficiency. Bank profitability can be achieved if management can operate efficiently so efficiency becomes one of the elements that make up profitability. Efficiency is measured by the comparison of operating expenses with operating income (OEIR). The lower the OEIR, the more efficient it will be and will be able to increase profitability because profit is derived from operating income minus operating costs (Hossain & Khalid, 2018). Operational costs must be reduced in such a way that they cannot be greater than operating income so that the bank can make a profit. Several studies found a negative effect between OEIR and profitability (Javaid & Alalawi, 2018; Al-Harbi, 2019). The formulation of the hypothesis is as follows:

H₆: OEIR has a negative effect on Islamic bank's profitability

Financing risk and profitability

Islamic banking operating income comes from the financing provided, the greater the financing provided, the greater the opportunity to earn a large income, to increase profits. However, financing may result in a considerable risk if the financing selection process does not use the precautionary principle (Schoon, 2016). This financing risk of the Islamic banks is considered to measure risk-taking behaviour. Our study employs the ratio of financing loss provisions to total financing, to which this ratio measures Islamic banks' financing quality. High financing provision indicates an inability of borrowers to fulfill their financing obligation in a timely manner. The existing studies documented a negative influence between financing quality and profitability for Islamic banks (Sutrisno & Widarjono, 2018) and conventional banks (Lohano & Kashif, 2019; Durguti et al., 2020; Koroleva et al., 2021). Based on the results of theoretical studies and the findings of previous researchers, the following hypotheses can be formulated:

H₇: FLP has a negative effect on Islamic bank's profitability

Covid-19 and profitability

The Covid-19 has had an impact on all economic sectors, including the Islamic banking sector. The existence of covid-19 has caused social restrictions so that it disrupts the production of goods and services in the small, medium, and large industrial sectors. As a result, Indonesia's GDP in the third quarter of 2020 grew by minus 3.49%. As a result, Islamic banks experience excess liquidity due to limited disbursement of funds. In addition, the decline in the production of goods and services will also increase non-performing financing of Islamic banks. Thus, the impact of covid on profitability can be written in the following hypothesis as:

H₈: Covid-19 has a negative effect on Islamic bank's profitability

3. Method and Data

Islamic banks in Indonesia are classified into a large and small Islamic banks. The large Islamic banks consist of Islamic commercial banks and Islamic bank windows. The latter is a conventional bank that runs both Islamic banks as well as conventional banks. On the other hand, small Islamic banks are rural Islamic bank that operates in regional areas. Islamic banks in Indonesia offer two types of financing, encompassing the profit loss sharing (PLS) scheme and the non-profit loss sharing (NPLS) scheme with Islamic contracts. PLS financing consists of two, namely Mudharabah and Musyarakah. Non PLS comprises Murabaha, Qardh, Istisna, Ijarah, and Salam.

There were 12 Islamic commercial banks and some conventional banks that open 22 Islamic bank windows in 2021. Four Islamic banks encompassing Bank Syariah Mandiri (BSM), Bank Muamalat Indonesia (BMI), Bank BRI Syariah and Bank BNI Syariah, dominate the market share of Islamic commercial banks. In 2021, BSM, BRI Syariah, BNI Syariah merged to Bank Syariah Indonesia (BSI). The concentration ratio of the four largest Islamic banks (CR-4) in 2021 was 48.85%. Accordingly, the market of Islamic banks is an imperfect market and close to the oligopoly market.

3.1. Research Method

According to the existing literature, our study applies a panel data model, which is a combination of time series and cross-section data. The dynamic panel data regression is employed to explore the effect of PLS financing on Islamic bank's profitability as follows:

$$ROA_{it} = \phi_0 + \phi_1 ROA_{it-1} + \phi_2 PLS_{it} + \phi_3 MS_{it} + \phi_4 SIZE_{it} + \phi_5 CAR_{it} + \phi_6 FDR_{it} + \phi_7 OEIR_{it} + \phi_8 FLP_{it} + \phi_9 COVID_{it} + e_{it} \quad (1)$$

Where ROA is the return on asset, PLS is profit loss sharing financing, NPLS is non-profit loss sharing financing. Control variables consist of market share, bank size, capital adequacy ratio, financing to deposit ratio, operating cost to income ratio, and financing loss provision. Table 1 shows variables and their measurement.

Table 1: Variables and measurement

Variables	Symbol	Measurement
Return on Assets	ROA	Earning After Tax/Total Assets
Profit Sharing Financing	PLS	1. (Musyarakah+Mudharabah)/asset 2. (Musyarakah + Mudharabah)/financing
Market Share	MS	Total asset of an Islamic bank/total asset of all Islamic banks
Bank Size	SIZE	Ln Total Assets
Capital Adequacy Ratio	CAR	Equity/Assets weighted risk
Financing to Deposit Ratio	FDR	Total financing/Third party fund
Operating expense to Income Ratio	OEIR	Operating expense/operating income
Financing loss provision	FLP	Financing loss provision/total financing
Covid-19	COVID	Dummy variable

Our study uses the GMM method to estimate the dynamic panel regression in equation (1) due to a relationship between CAR and profit, which leads to an endogeneity problem and obviously produces an inefficient estimator. Two approaches are widely used to estimate the GMM method, consisting of the difference GMM method (Arellano & Bond, 1991) and the

system GMM (Arellano & Bover, 1995). Each method is to solve the endogeneity problem in the dynamic panel regression. We apply the system GMM system because of unbiased and efficient estimators (Blundell and Bond (1998). The system GMM method uses the variable instrument so the validity of the instruments is checked using the Hansen test for over-identifying test. The coefficients of regression are efficient and consistent as the second-order autocorrelation correlations are not found using the Arellano-Bond AR(2) test.

3.2. Data

This study covers 31 Islamic banks, consisting of Islamic commercial banks and Islamic window banks. The observation period was for four years, 2016 – 2020, with quarterly data, so 642 observations were obtained with the balanced panel data. The data is obtained from the website of the Financial Services Authority (FSA), which can be freely accessed by the public (www.ojk.go.id).

4. Results and Discussion

4.1. Descriptive statistics

Table 3 below shows an overview of research data obtained from 31 IBs with quarterly data for 2016-2020. The descriptive statistics of variables show that the profitability has a maximum value of 13.52% and a minimum of -10.77% with an average of 1.99% and a standard deviation of 2.54. These results indicate that IB suffered large losses, but another IB experienced large profits. Islamic bank provides PLS and NPLS financings where PLS financing should be the core financing of Islamic banks. However, on average, NPLS financings are higher than those PLS financing. More interestingly, some Islamic banks do not provide PLS financing because the risk of this financing is very high. On average, the market share of Islamic banks was 3.2 but with a high standard deviation (4.571). These findings indicate that the size of Islamic banks varies but one Islamic bank dominates the market with high assets by 127 IDR trillion and a market share of 22.664%.

Equity has a minimum value of 10.16% and a maximum of 88.65% with an average of 21.393%, meaning that the CAR of all RBs is above the minimum FSA requirement of 15%. The FDR on average was 1101.455% with a maximum of 338.52%, implying that Islamic banks are very aggressive in providing financing since they are the latest player in the Indonesian banking system. However, the aggressive strategy of Islamic banks is manageable since the FDR range set by the FSA is 85%-110%. The average Islamic bank operating efficiency (OEIR) was 84.79% with a minimum value of 16.84% and a maximum of 217.4%. Financing loan provision, on average, is 2.149%, with a minimum of 0.01% and a maximum of 13.990. The low FLP indicates that Islamic banks face low financing risk. The data show that non-performing financing (NPF) for all Islamic banks during the period of study was 3.75% which is under the maximum value of 5%.

Table 2. Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
ROA	1.996	2.544	-10.770	13.580
PLS (IDR trillion)	4.313	6.719	0.000	30.500
MS	3.200	4.571	0.155	22.664
Asset (IDR trillion)	14.200	20.500	0.498	127.000
CAR	21.393	6.317	10.160	88.650
FDR	101.455	32.723	0.470	338.520
OEIR	84.790	14.034	16.840	217.400
FLP	2.149	1.883	0.010	13.990

Table 4 shows the coefficient of correlation among variables both dependent and independent variables. The highest coefficient of correlation score 0.962, which is the correlation between the ratio of PLS financing to total financing (PLSF) and the ratio of PLS financing to the total asset (PLSA). However, all coefficients of correlation exhibit results of less than 0.85. The findings imply that a possible multicollinearity problem is not found so all explanatory variables can be used to estimate the dependent variable. The highest correlation between PLSF and PLSA does not lead to any major problems of multicollinearity since each variable is regressed separately.

Table 3. Correlation matrix

	ROA	PLSF	PLSA	MS	Size	CAR	FDR	OEIR
ROA	1							
PLSF	-0.293	1						
PLSA	-0.288	0.962	1					
MS	-0.138	-0.004	0.022	1				
Size	-0.151	0.156	0.174	0.822	1			
CAR	0.342	-0.115	-0.138	-0.294	-0.181	1		
FDR	0.368	-0.013	0.067	-0.277	-0.347	0.114	1	
OEIR	-0.589	0.199	0.216	0.203	0.298	-0.383	-0.151	1
FLP	-0.335	-0.053	0.033	-0.013	0.003	-0.128	0.018	0.326

4.2. Empirical Results and Discussion

Table 5 presents the empirical findings of dynamic panel regression with two systems GMM where PLS financing is calculated by the ratio of PLS financing to total financing. Model 1 shows without covid effect and model 2 include covid effect. Model 1 and 2 generate the same results. The diagnostic tests for all estimations are shown in the bottom part of table 5. The number of instruments is less than the number of Islam banks and our instruments are also valid using the Hansen diagnostic test. The Arellano-Bond test for AR (2) to check autocorrelation problem confirms that the estimated coefficients of regression are consistent.

Our findings show that all the coefficients of the lagged ROA (ROA(-1)) are statistically significant, affirming that the model specification is the dynamic model so the dynamic panel regression is the better method to estimate the profitability of Indonesian Islamic banks instead of static panel regression, namely pooled, fixed and random effect. The findings imply that, to some extent, the profitability of Indonesian Islamic banks is persistent. This indicates that Islamic banks that produce higher profits in the preceding quarter may have experienced higher profits in the present quarter.

Table 4. ROA-PLS relationship: ratio of PLS financing to total financing

Variables	Model 1:	Model 2:
	Without covid effect	With covid effect
ROA (-1)	0.4484** (0.0130)	0.4476** (0.0100)
PLS	-0.0092** (0.0170)	-0.0099*** (0.0080)
MS	-0.0375 (0.1310)	-0.0450 (0.1780)
Size	0.2616* (0.0790)	0.3001** (0.0490)

CAR	0.0035 (0.4380)	0.0071 (0.3850)
FDR	0.0159*** (0.0025)	0.0162*** (0.0015)
OEIR	-0.0525*** (0.0025)	-0.0512*** (0.0035)
FLP	-0.1351*** (0.0265)	-0.1348*** (0.0150)
Covid	- -	-0.2284 (0.1170)
Constant	0.4587 (0.8830)	-0.2676 (0.9210)
No of observations	589	589
No of banks	31	31
Hansen p-value	0.530	0.489
AR (2) p-value	0.224	0.239

Note: The parentheses show p-value. *** p < 0.01, ** p < 0.05 and *p < 0.1

The effect of PLS financing contracts on profitability, as our main concern, shows that the coefficient of PLS is negative and statistically significant. These findings imply that the probability of Islamic banks can be deteriorated by increasing PLS financing and a fall in PLS financing enhances Islamic banks' profitability. Our result is consistent with the existing empirical research using static panel regression, such as Risfandy (2018), Kuswara et al. (2019), and Roziq & Sukarno (2021). This finding is in accordance with the practice of Islamic bank financing, where Islamic banks prefer non-equity financing contracts such as Murabahah financing to which Islamic banks experience low financing risk for this type of contracts (Čihák & Hesse, 2010; Widarjono et al., 2022). By contrast, equity financing generates high risk financing because of agency problems and moral hazards (Azmat, 2015). Without good governance, businesspersons have less effort into their business, and they may likely hide the actual profit and then may report lower profits to the Islamic banks (Abdul-Rahman et al., 2014; Risfandy, 2018). Accordingly, equity financing causes high non-performing financing and further decreases the Islamic bank's profitability (Kabir et al., 2015). However, PLS financing can boost profits when Indonesian Islamic banks can carry out good governance by conducting good selection and monitoring and this type of financing is preferred by customers due to a fair contract and flexibility in payments (Risfandy et al., 2019).

The second hypothesis indicates that the market share (MS) is negative and statistically insignificant. Islamic banks cannot capitalize on their market power through their market share by charging high prices to produce supernormal profits due to their limited financing. The findings imply that market share has no influential effect on profitability and fails to confirm the hypothesis of relative market power (RMP). Our findings confirm the existing empirical study where Islamic rural banks in Indonesia with an imperfect competition market also fail to exercise profitability through their market share (Widarjono et al., 2020).

Islamic bank size, which is measured by total assets, is positive and significant. These results indicate that the higher the size of the Islamic bank is, the higher the profitability. This finding is reasonable because large Islamic banks have a greater potential to earn income than small Islamic banks due to economies of scale (Ibrahim & Rizvi, 2017; Trinugroho et al., 2017). Bank management must work hard in managing and controlling assets to avoid inefficiency so increase income which in turn increases profitability. Several studies have also

found that SIZE has a positive effect on profitability (Petria et al., 2015; Istiqomaha et al., 2021).

The third hypothesis shows that CAR is not statistically significant for all models, indicating that CAR has no effect on profitability. This could be due to the lack of effective capital management, as indicated by the average CAR of 21.393%. High CAR indicates that bank management cannot use equity to be channeled as financing. This result is in accordance with the results from Sudarsono et al. (2021), who found that CAR had no effect on profitability. CAR that is too high is also increasingly inefficient so that it actually reduces profitability, as the results of research from several studies found a negative and significant effect between CAR and profitability (Setiawan, 2021; Durguti et al., 2020; Irwan, 2017; dan Said & Ali, 2016).

Liquidity risk as measured by FDR is positive and statistically significant, suggesting that FDR positively affects profitability. Thus, a rise in financing enhances Islamic bank's profitability and a fall in financing lower Islamic bank's profitability. As the latest player in the banking sector and a large number of Muslim consumers in Indonesia, Islamic banks carry out an aggressive policy in channeling their funds. The aggressiveness of Islamic banks can be seen from the high average FDR of 101.455%. The high disbursement of funds and low non-performing financing lead to high incomes and further increase the profits of Islamic banks in Indonesia. Our finding confirms the existing empirical study such as Zarrouk et al. (2016) and Danlami et al. (2022).

The level of bank efficiency (OEIR) is negative and statistically significant, meaning that high operating efficiency enriches profitability. The magnitude of the OEIR indicates the high operating costs as the higher OEIR will reduce profitability because the profit is derived from the operating income minus the operating costs. Therefore, bank management must be able to manage operating costs efficiently so as to reduce OEIR. Javaid and Alalawi (2018) and Setiawan (2021) who examined Islamic banks, also found a negative effect between operating efficiency and profitability. Likewise in conventional banks, operating efficiency also has a negative effect on profitability (Al-Harbi, 2019; Sofyan, 2019; Lohano & Kashif, 2019; Durguti et al., 2020).

Financing loss provision (FLP) is negative and statistically significant, meaning that FPL has a negative effect on profitability. The high FLP indicates high non-performing financing (NPF) then it lowers profitability due to low financing quality (Widarjono et al., 2022). The NPF shows the amount of non-performing financing, which is calculated as costs and, of course, will reduce profits. NPF for Islamic banks needs serious attention because it is directly related to bank income. Aggressive strategy of financing disbursement may result in high income but at the same time also generate high financing default (Hamid & Ibrahim, 2021). These results are in accordance with the results conducted by Lohano & Kashif (2019) and Istiqomaha et al. (2021), which found a significant and negative effect between low financing quality and profitability.

Covid-19 is a negative sign but not statistically significant, meaning that the covid-19 pandemic does not affect the profitability of Islamic banks. The plausible reason is that covid-19 is a temporary, not permanent shock. Covid occurred in March 2020 in Indonesia, but economic growth in the second quarter was still positive. The impact of covid 19 happened in the third quarter of 2020 when economic growth in Indonesia experienced negative growth in that quarter but economic growth returned to positive in the following quarters.

4.3. Robustness Checks

Our study carries out a robustness check to examine whether our findings are strong. We measure PLS with another measurement. The ratio of PLS financing to the total asset is a proxy for PLS financing following previous research such as Alam and Parinduri (2017) and

Risfandy et al. (2019). Table 6 presents the results with model 3 without covid and model 4 with the covid effect. The bottom part of table 6 exhibits the diagnostic test for dynamic panel regression. The instruments are valid since the number of objects exceeds the number of instrument and we fail to reject the Hansen test. Our estimated coefficients of regression are also consistent due to rejecting autocorrelation problem using AR (2). More importantly, the profitability of Indonesian Islamic banks is persistent since the current profitability is associated with preceding profitability due to the significant of the lagged profitability.

Our results produce similar results using the ratio of PLS financing to total financing. High PLS financings lower profitability. Large Islamic banks can capitalize on their size to earn higher income and profitability. High financing disbursement (FDR) also strengthens profitability, but low-quality financing (FLP) decreases profitability. Low operating efficiency also reduces profitability. However, model 3 shows that covid-19 negatively affects the profitability of Indonesian Islamic banks, meaning that covid-19 deteriorates the profitability because economic growth was downturn after covid-19. Economic growth has not experienced negative growth, but economic growth was lower during the pandemic since the fourth of 2020.

Table 5. ROA- PLS relationship: ratio of PLS financing to total asset

Variables	Model 3:	Model 4:
	Without covid effect	With covid effect
ROA (-1)	0.4350** (0.0140)	0.4421*** (0.0070)
PLS	-0.0132*** (0.0050)	-0.0138*** (0.0040)
MS	-0.0325 (0.1505)	-0.0406 (0.2120)
Size	0.2514* (0.0820)	0.2859** (0.0450)
CAR	0.0035 (0.4395)	0.0090 (0.3635)
FDR	0.0171*** (0.0010)	0.0160*** (0.0010)
OEIR	-0.0539*** (0.0015)	-0.0538*** (0.0025)
FLP	-0.1245** (0.0420)	-0.1131** (0.0330)
Covid	-0.6109 (0.8420)	-0.2685* (0.0630)
Constant	-	0.1338 (0.9580)
No of observations	589	589
No of banks	31	31
Hansen p-value	0.548	0.464
AR (-2) p-value	0.241	0.251

Note: The parentheses show the p-value. *** p < 0.01, ** p < 0.05 and *p < 0.1

5. Conclusions, implications, and limitations

Our results found that PLS financing negatively affects profitability, meaning that Islamic commercial banks in Indonesia prefer NPLS financing with fixed income such as Murabahah financing, in disbursing their fund to get higher profit. Our findings also highlight that some control variables, such as size and liquidity risk, enhance profitability. Meanwhile, low operating efficiency and low financing quality worsen profitability.

The results of this study are expected to be used by the management of Islamic banks in managing their banks to increase their profitability through their financing. PLS financing does impair Islamic bank's profitability but it must be pursued to become the core business of Islamic banks. These financings need tight monitoring to encourage profitability. The empirical literature shows that PLS financing increases profits in the case of large Islamic banks (Čihák & Hesse, 2010; Ibrahim & Rizvi, 2017). In addition, other empirical studies also show that Musyarakah financing leads reverse U-shape effect on non-performing financing, meaning that Musyarakah financing at a certain level clearly reduces non-performing financing so that it can encourage Islamic bank's profitability (Warninda et al., 2019).

PLS financing consists of Musyarakah and Mudharabah financing. Musyarkah and Mudharabah financing yield obviously different financing risks where the latter is riskier than those the former. However, this study does not distinguish between Musyarakah and Mudarabah financing. Accordingly, further study is needed to know which PLS financing contract enhances profitability.

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Article

Is Profit–Loss-Sharing Financing Matter for Islamic Bank’s Profitability? The Indonesian Case

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Abstract: Financing is the main source of Islamic bank income as a financial intermediary that will contribute to the bank’s profitability. There are two financing schemes, namely profit–loss-sharing financing and non-profit–loss-sharing financing. The main purpose of this study is to analyze the impact of profit–loss-sharing financing on the Islamic bank’s profitability. We employ 31 Islamic commercial banks in Indonesia using quarterly data and spanning from 2016:Q1 to 2020:Q4. Dynamic panel regression using the two-step system GMM is applied. The results showed that profit–loss-sharing financing has a negative effect on profitability, suggesting that profit–loss financing discourages Islamic bank performance. Meanwhile, some control variables such as size and liquidity risk positively influence profitability and low efficiency, and financing quality negatively affects profitability. These findings have an important implication for Islamic banks. Islamic banks must conduct tight monitoring for PLS financing so that this ex-post scheme can encourage the performance of Islamic banks.

Keywords: Islamic bank; profitability; profit-sharing financing; Indonesia

JEL Classification: G21; G24; G28

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1. Introduction

The primary source of income for Islamic banks as a financial intermediary is financing, where the high financing leads to high income and in turn generates more profit. Two financing schemes provided by Islamic banks are profit–loss-sharing (PLS) and non-PLS (NPLS) financing. PLS financing is the main course of Islamic banks. PLS financing or equity financing consists of Musyarakah and Mudharabah. Mudharabah is a contract between the Islamic bank and its customer, whereby the latter can mobilize the funds from the former for its business activity within Islamic guidelines. Profits are shared between the two parties according to a mutually agreed ratio. Musyarakah is a contract between an Islamic bank and its customers, for which both parties provide capital and both may be active in managing the venture. Profit and losses are shared on the basis of how much capital has been contributed. However, Islamic banks around the world have less preference for providing PLS financing due to high risk (Warninda et al. 2019; Šeho et al. 2020). Indeed, the average PLS financing in Indonesian Islamic banks is relatively small, at around 11.91% of total financing during 2016–2020.

There are several reasons why PLS financing is minor financing. First, PLS contracts have complex procedures, because Islamic banks must know in detail the characteristics of customers (Abedifar et al. 2013). Second, PLS contracts also cause high transaction costs because Islamic banks must carry out well controlling and monitoring (Louhichi and Boujelbene 2016). Third, the PLS contract also poses a high financing risk due to agency

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problems, causing asymmetric information and moral hazards (Beck et al. 2013). However, the PLS contract is a kind of fair contract between an Islamic bank and a customer due to the ex-post principle. Profits and losses will be shared according to the agreement, so this type of contract is expected to appeal to more customers to borrow money from Islamic banks (Risfandy et al. 2019).

Based on the above facts, this study investigates whether PLS financing, which stems from the main principle of Islamic banks, could harm or enhance the Islamic bank's performance. More exactly, our study explores whether PLS financing deteriorates or strengthens the Islamic bank's profitability in Indonesia. Our empirical study is important, since PLS financing is not the main choice of financing for Islamic banks. The selection of Indonesian Islamic banks is because the market share of Islamic banks in Indonesia is small, but PLS financing is the largest financing compared to other countries.

This study will contribute to the existing empirical study in some ways. First, although PLS financing is the core business of Islamic banks, research on the role of PLS financing on Islamic bank profits has not been widely carried out. Several studies examine the effect of PLS financing on nonperforming financing (Alandejani and Asutay 2017; Warninda et al. 2019). Second, PLS financing is the core business of Islamic banks, so this finding is expected to be important information for Islamic banks and policymakers in managing PLS financing.

The rest of the paper is organized as follows. Section 2 highlights the previous studies and develops the hypothesis. Section 3 presents the method and data. Section 4 provides the findings and discussion. Section 5 discusses the conclusion, implication, and limitations.

2. Literature Review and Hypothesis Development

2.1. Financing Schemes and Profitability

Islamic banks, in addition to having the goal of providing usury-free banking services to the public, must also be oriented to seeking profit, as in conventional banks, so that Islamic banking can grow and develop with other Islamic financial institutions (OJK 2020). Profitability is the company's ability to generate profits, which can be measured by several formulations such as return on assets (ROA), return on equity (ROE), return on investment (ROI), and profit margin (PM) (Van Horn and Wachowicz 2013). Profitability is widely proxied by ROA, because ROA shows the ability to earn profits with all assets owned. Profitability is very important for the company because it is an indicator of management performance that can affect the value of the company. Profitability shows the company is developing and growing, which allows the company to pay larger dividends (Ahmed 2015).

Sanmugram and Zahari (2009) revealed that financing in Islamic banks can be grouped into natural certainty contracts (NCC) and natural uncertainty contracts (NUC). NCC is a financing contract with a definite amount and time of return. The NCC comprises an NPLS scheme such as the Murabahah contract, because there is certainty about the amount and time of return, and this financing is low-risk and very easy to calculate. Meanwhile, NUC is a financing contract for which there is no certainty about the amount and time of payment because it depends on the benefits obtained by the customer. The NUC is a PLS scheme in which the financing installments depend on the customer's profits, which will be given in the form of profit sharing. The number of installments may not be determined at the beginning of the agreement. What may be determined at the beginning is the ratio or profit-sharing portion.

An Islamic bank prefers NPLS which are low-risk and easier to process. According to financing data, the portion of NPLS is much higher, which is more than 80% on average, compared to PLS, which averages less than 20%. Accordingly, the amount of financing provided through NPLS contracts has a positive effect on profitability due to low risk and ease of implementation (Warninda 2014; Belkhaoui et al. 2020). By contrast, equity

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financing may result in a different impact on profitability. The Mudharabah contract leads to highly impaired financing and then lower profitability because it causes agency problems due to moral hazards and asymmetric information (Azmat et al. 2015). However, PLS contracts can increase profitability if an Islamic bank can monitor and manage well both the Musyarakah and Mudharabah contracts (Čihák and Hesse 2010; Danlami et al. 2022). Thus, the hypotheses can be expressed as:

H1. *PLS has either a negative or positive effect on the Islamic bank's profitability.*

2.2. Market Share

One theory that describes the link between a bank's profitability and market structure is the relative market power hypothesis (RMP). The RMP proposes that the profitability of a bank relies on the market share (Smirlock 1985). The large market share can generate various products to capitalize on market power and then can determine the high price and lead to high profits. Some previous studies documented that bank profitability is associated with high market share (Mirzaei et al. 2013; Sahile et al. 2015; Hamid 2017). Accordingly, the third hypothesis can be stated as follows:

H2. *Market share has a positive impact on the Islamic bank's profitability.*

2.3. Bank Size and Profitability

Bank size (SIZE) is the size of a bank that can be measured by total assets (Petria et al. 2015; Javaid and Alalawi 2018; Lohano and Kashif 2019). Banks with large sizes have a greater opportunity to diversify their portfolios, so they tend to generate higher profitability. With large assets, they have a great opportunity to provide financing. Bank management is required to manage assets effectively and efficiently so that they can contribute to profitability. This positive influence is possible because bank management can provide financing with prudent principles (Lohano and Kashif 2019). Size, therefore, is positively linked to the profitability of Islamic banks (Zarrouk et al. 2016) and conventional banks, and Jaouad and Lahsen (2018), in their research on conventional banking, found a significant and positive effect between size and profitability. Therefore, the proposed hypothesis is:

H3. *SIZE has a positive effect on the Islamic bank's profitability.*

2.4. Capital and Profitability

Capital for banks is very important. Therefore, the government regulates bank capital by setting a capital adequacy ratio (CAR), which is a comparison between equity and risk-weighted assets (Schoon 2016). The Financial Services Authority (FSA) in Indonesia sets a minimum CAR limit of 8%. Bank capital is very important, because capital functions as a reserve to cover bank losses. In addition, the amount of bank capital can also be used for financing so that the higher CAR will be able to increase profitability. Several results of research conducted on Islamic banks show a positive influence between CAR and profitability (Javaid and Alalawi 2018; Hossain and Khalid 2018). Similar findings are found in conventional banking (Durguti et al. 2020; Oleiwi et al. 2019; Lohano and Kashif 2019). Therefore, the hypothesis can be formulated as follows:

H4. *CAR has a positive effect on the Islamic bank's profitability.*

2.5. Liquidity Risk and Profitability

Liquidity problems in Islamic banks are more complicated than those of conventional banks, because the instrument for placing funds for Islamic banks is limited (Islam et al. 2017). Liquidity, apart from preparing funds to be used as reserves in the case of

withdrawal of funds from customers at any time, also relates to the bank's commitment to providing funds for financing. In this study, liquidity is measured by the financing-to-deposit ratio (FDR), namely the amount of financing provided by Islamic banks compared to customer deposits. The greater the FDR, the higher the financing and the higher the financing can increase income, which will ultimately increase profitability. The results of research on Islamic banks show a positive and significant effect between FDR and profitability (Widarjono et al. 2020). The same results were found from the results of research conducted on conventional banks (Sofyan 2019; Koroleva et al. 2021). Thus, the formulation of the hypothesis is:

H5. *FDR has a positive effect on the Islamic bank's profitability.*

2.6. Efficiency and Profitability

In operating, bank management is required to manage so that there is no waste that can lead to inefficiency. Bank profitability can be achieved if management can operate efficiently, so efficiency becomes one of the elements that make up profitability. Efficiency is measured by the comparison of operating expenses with operating income (OEIR). The lower the OEIR, the more efficient it will be and will be able to increase profitability, because profit is derived from operating income minus operating costs (Hossain and Khalid 2018). Operational costs must be reduced in such a way that they cannot be greater than operating income so that the bank can make a profit. Several studies found a negative effect between OEIR and profitability (Javaid and Alalawi 2018; Al-Harbi 2019). The formulation of the hypothesis is as follows:

H6. *OEIR has a negative effect on the Islamic bank's profitability.*

2.7. Financing Risk and Profitability

Islamic banking operating income comes from the financing provided; the greater the financing provided, the greater the opportunity to earn a large income and to increase profits. However, financing may result in a considerable risk if the financing selection process does not use the precautionary principle (Schoon 2016). This financing risk of the Islamic banks is considered to measure risk-taking behavior. Our study employs the ratio of financing loss provisions to total financing, to which this ratio measures Islamic banks' financing quality. High financing provision indicates an inability of borrowers to fulfill their financing obligation in a timely manner. The existing studies documented a negative influence between financing quality and profitability for Islamic banks (Sutrisno and Widarjono 2018) and conventional banks (Lohano and Kashif 2019; Durguti et al. 2020; Koroleva et al. 2021). Based on the results of theoretical studies and the findings of previous researchers, the following hypotheses can be formulated:

H7. *FLP has a negative effect on the Islamic bank's profitability.*

2.8. COVID-19 and Profitability

The COVID-19 pandemic has had an impact on all economic sectors, including the Islamic banking sector. The existence of COVID-19 has caused social restrictions that disrupt the production of goods and services in the small, medium, and large industrial sectors. As a result, Indonesia's GDP in the third quarter of 2020 grew by minus 3.49%. As a result, Islamic banks experience excess liquidity due to limited disbursement of funds. In addition, the decline in the production of goods and services will also increase nonperforming financing of Islamic banks. Thus, the impact of COVID on profitability can be written in the following hypothesis as:

H8. *COVID-19 has a negative effect on the Islamic bank's profitability.*

34. Method and Data

Islamic banks in Indonesia are classified into a large and small Islamic banks. The large Islamic banks consist of Islamic commercial banks and Islamic bank windows. The latter is a conventional bank that runs both Islamic banks as well as conventional banks. On the other hand, small Islamic banks are rural Islamic banks that operate in regional areas. Islamic banks in Indonesia offer two types of financing, encompassing the profit-loss-sharing (PLS) scheme and the non-profit-loss-sharing (NPLS) scheme with Islamic contracts. PLS financing consists of two contracts, namely Mudharabah and Musyarakah. Non-PLS comprises Murabaha, Qardh, Istisna, Ijarah, and Salam.

There were 12 Islamic commercial banks and some conventional banks that opened 22 Islamic bank windows in 2021. Four Islamic banks encompassing Bank Syariah Mandiri (BSM), Bank Muamalat Indonesia (BMI), Bank BRI Syariah, and Bank BNI Syariah dominate the market share of Islamic commercial banks. In 2021, BSM, BRI Syariah, and BNI Syariah merged into Bank Syariah Indonesia (BSI). The concentration ratio of the four largest Islamic banks (CR-4) in 2021 was 48.85%. Accordingly, the market of Islamic banks is an imperfect market and close to the oligopoly market.

34.1. Research Method

According to the existing literature, our study applied a panel data model, which is a combination of time series and cross-section data. The dynamic panel data regression employed to explore the effect of PLS financing on Islamic bank profitability is as follows:

$$ROA_{it} = \phi_0 + \phi_1 ROA_{it-1} + \phi_2 PLS_{it} + \phi_3 MS_{it} + \phi_4 SIZE_{it} + \phi_5 CAR_{it} + \phi_6 FDR_{it} + \phi_7 OEIR_{it} + \phi_8 FLP_{it} + \phi_9 COVID_{it} + e_{it} \quad (1)$$

where ROA is the return on asset, PLS is profit-loss-sharing financing, and NPLS is non-profit-loss-sharing financing. Control variables consist of market share, bank size, capital adequacy ratio, financing-to-deposit ratio, operating cost-to-income ratio, and financing loss provision. Table 1 shows variables and their measurement.

Table 1. Variables and measurement.

Variables	Symbol	Measurement
Return on Assets	ROA	Earning After Tax/Total Assets
Profit-Sharing Financing	PLS	(Musyarakah+Mudharabah)/asset (Musyarakah + Mudharabah)/financing
Market Share	MS	Total asset of an Islamic bank/total asset of all Islamic banks
Bank Size	SIZE	Ln Total Assets
Capital Adequacy Ratio	CAR	Equity/Assets weighted risk
Financing-to-Deposit Ratio	FDR	Total financing/Third party fund
Operating expense to Income Ratio	OEIR	Operating expense/operating income
Financing loss provision	FLP	Financing loss provision/total financing
COVID-19	COVID	Dummy variable

Our study used the GMM method to estimate the dynamic panel regression in equation (1) due to a relationship between CAR and profit, which leads to an endogeneity problem and obviously produces an inefficient estimator. Two approaches are widely used to estimate the GMM method, consisting of the difference GMM method (Arellano and Bond 1991) and the system GMM (Arellano and Bover 1995). Each method is intended to solve the endogeneity problem in the dynamic panel regression. We applied the system GMM method because of un-bias and efficient estimators (Blundell and Bond 1998). The system GMM method uses the variable instrument; thus, the validity of the instruments was checked using the Hansen test for overidentifying test. The coefficients of regression

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are efficient and consistent, as the second-order autocorrelation correlations are not found using the Arellano–Bond AR (2) test.

3.4.2. Data

This study covered 31 Islamic banks, consisting of Islamic commercial banks and Islamic window banks. The observation period was for four years, 2016–2020, with quarterly data; thus, 642 observations were obtained with the balanced panel data. The data was obtained from the website of the Financial Services Authority (FSA), which can be freely accessed by the public (www.ojk.go.id; accessed on [30 April 2022](#)).

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4. Results and Discussion

4.1. Descriptive Statistics

Table 2 below shows an overview of research data obtained from 31 IBs with quarterly data for 2016–2020. The descriptive statistics of variables show that the profitability has a maximum value of 13.52% and a minimum of −10.77% with an average of 1.99% and a standard deviation of 2.54. These results indicate that IB suffered large losses, but another IB experienced large profits. Islamic bank provides PLS and NPLS financings where PLS financing should be the core financing of Islamic banks. However, on average, NPLS financings are higher than those PLS financing. More interestingly, some Islamic banks do not provide PLS financing because the risk of this financing is very high. On average, the market share of Islamic banks was 3.2 but with a high standard deviation (4.571). These findings indicate that the size of Islamic banks varies, but one Islamic bank dominates the market with high assets by 127 IDR trillion and a market share of 22.664%.

Equity has a minimum value of 10.16% and a maximum of 88.65% with an average of 21.393%, meaning that the CAR of all RBs is above the minimum FSA requirement of 15%. The FDR on average was 1101.455% with a maximum of 338.52%, implying that Islamic banks are very aggressive in providing financing, since they are the latest player in the Indonesian banking system. However, the aggressive strategy of Islamic banks is manageable, since the FDR range set by the FSA is 85–110%. The average Islamic bank operating efficiency (OEIR) was 84.79% with a minimum value of 16.84% and a maximum of 217.4%. Financing loan provision, on average, is 2.149%, with a minimum of 0.01% and a maximum of 13.990. The low FLP indicates that Islamic banks face low financing risk. The data show that nonperforming financing (NPF) for all Islamic banks during the period of study was 3.75%, which is under the maximum value of 5%.

Table 2. Descriptive statistics.

Variable	Mean	Std. Dev.	Min	Max
ROA	1.996	2.544	−10.770	13.580
PLS (IDR trillion)	4.313	6.719	0.000	30.500
MS	3.200	4.571	0.155	22.664
Asset (IDR trillion)	14.200	20.500	0.498	127.000
CAR	21.393	6.317	10.160	88.650
FDR	101.455	32.723	0.470	338.520
OEIR	84.790	14.034	16.840	217.400
FLP	2.149	1.883	0.010	13.990

Table 3 shows the coefficient of correlation among variables. both dependent and independent. The highest coefficient of correlation score is 0.962, which is the correlation between the ratio of PLS financing to total financing (PLSF) and the ratio of PLS financing to the total asset (PLSA). However, all coefficients of correlation exhibit results of less than 0.85. The findings imply that a possible multicollinearity problem is not found, so all explanatory variables can be used to estimate the dependent variable. The highest correlation between PLSF and PLSA does not lead to any major problems of multicollinearity since each variable is regressed separately.

Table 3. Correlation matrix.

	ROA	PLSF	PLSA	MS	Size	CAR	FDR	OEIR
ROA	1							
PLSF	−0.293	1						
PLSA	−0.288	0.962	1					
MS	−0.138	−0.004	0.022	1				
Size	−0.151	0.156	0.174	0.822	1			

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CAR	0.342	-0.115	-0.138	-0.294	-0.181	1		
FDR	0.368	-0.013	0.067	-0.277	-0.347	0.114	1	
OEIR	-0.589	0.199	0.216	0.203	0.298	-0.383	-0.151	1
FLP	-0.335	-0.053	0.033	-0.013	0.003	-0.128	0.018	0.326

4.3.2. Empirical Results and Discussion

Table 45 presents the empirical findings of dynamic panel regression with two systems GMM, in which PLS financing is calculated by the ratio of PLS financing to total financing. Model 1 shows without the COVID effect and model 2 include the COVID effect. Models 1 and 2 generate the same results. The diagnostic tests for all estimations are shown in the bottom part of Table 45. The number of instruments is less than the number of Islamic banks, and our instruments are also valid using the Hansen diagnostic test. The Arellano–Bond test for AR (2), which checks the autocorrelation problem, confirms that the estimated coefficients of regression are consistent.

Our findings show that all the coefficients of the lagged ROA (ROA(-1)) are statistically significant, affirming that the model specification is the dynamic model; thus, the dynamic panel regression is the better method to estimate the profitability of Indonesian Islamic banks instead of static panel regression, namely pooled, fixed, and random effect. The findings imply that, to some extent, the profitability of Indonesian Islamic banks is persistent. This indicates that Islamic banks that produce higher profits in the preceding quarter may have experienced higher profits in the present quarter.

Table 4. ROA-PLS relationship: ratio of PLS financing to total financing.

Variables	Model 1:		Model 2:
	Without COVID Effect		With COVID Effect
ROA (-1)	0.4484 **	(0.0130)	0.4476 ** (0.0100)
PLS	-0.0092 **	(0.0170)	-0.0099 *** (0.0080)
MS	-0.0375	(0.1310)	-0.0450 (0.1780)
Size	0.2616 *	(0.0790)	0.3001 ** (0.0490)
CAR	0.0035	(0.4380)	0.0071 (0.3850)
FDR	0.0159 ***	(0.0025)	0.0162 *** (0.0015)
OEIR	-0.0525 ***	(0.0025)	-0.0512 *** (0.0035)
FLP	-0.1351 ***	(0.0265)	-0.1348 *** (0.0150)
COVID	-	-	-0.2284 (0.1170)
Constant	0.4587	(0.8830)	-0.2676 (0.9210)
No. of observations	589		589
No. of banks	31		31
Hansen <i>p</i> -value	0.530		0.489
AR (2) <i>p</i> -value	0.224		0.239

Note: The parentheses show *p*-value. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

The effect of PLS financing contracts on profitability, as our main concern, shows that the coefficient of PLS is negative and statistically significant. These findings imply that the probability of Islamic banks can be deteriorated by increasing PLS financing, and a fall in PLS financing enhances Islamic banks' profitability. Our result is consistent with the existing empirical research using static panel regression, such as Risfandy (2018), Kuswara et al. (2019), and Roziq and Sukarno (2021). This finding is in accordance with the practice of Islamic bank financing, in which Islamic banks prefer nonequity financing contracts such as Murabahah financing; Islamic banks experience low financing risk for these types of contracts (Čihák and Hesse 2010; Widarjono et al. 2022). By contrast, equity financing generates high risk financing because of agency problems and moral hazards (Azmat 2015). Without good governance, businesspersons put less effort into their business, and they may likely hide the actual profit and report lower profits to the Islamic banks (Abdul-Rahman et al. 2014; Risfandy 2018). Accordingly, equity financing causes high nonperforming financing and further decreases the Islamic bank's profitability (Kabir et al. 2015). However, PLS financing can boost profits when Indonesian Islamic banks carry out good governance by conducting good selection and monitoring, and this type of financing is preferred by customers due to a fair contract and flexibility in payments (Risfandy et al. 2019).

The second hypothesis indicates that the market share (MS) is negative and statistically insignificant. Islamic banks cannot capitalize on their market power through their market share by charging high prices to produce supernormal profits due to their limited financing. The findings imply that market share has no influential effect on profitability and fail to confirm the hypothesis of relative market power (RMP). Our findings confirm the existing empirical study in which Islamic rural banks in Indonesia with an imperfect competition market also fail to exercise profitability through their market share (Widarjono et al. 2020).

Islamic bank size, which is measured by total assets, is positive and significant. These results indicate that the larger the size of the Islamic bank, the higher the profitability. This finding is reasonable, because large Islamic banks have a greater potential to earn income than small Islamic banks due to economies of scale (Ibrahim and Rizvi 2017; Trinugroho et al. 2017). Bank management must work hard in managing and controlling assets to avoid inefficiency, increasing income which in turn increases profitability. Several studies have also found that SIZE has a positive effect on profitability (Petria et al. 2015; Istiqomaha et al. 2021).

The third hypothesis shows that CAR is not statistically significant for all models, indicating that CAR has no effect on profitability. This could be due to the lack of effective capital management, as indicated by the average CAR of 21.393%. High CAR indicates that bank management cannot use equity to be channeled as financing. This result is in accordance with the results from Sudarsono et al. (2021), who found that CAR had no effect on profitability. CAR that is too high is also increasingly inefficient, and thus it actually reduces profitability, as the results of research from several studies found a negative and significant effect between CAR and profitability (Setiawan 2021; Durguti et al. 2020; Irwan 2017; dan Said and Ali 2016).

Liquidity risk as measured by FDR is positive and statistically significant, suggesting that FDR positively affects profitability. Thus, a rise in financing enhances the Islamic bank's profitability, and a fall in financing lowers the Islamic bank's profitability. As the latest player in the banking sector, and with a large number of Muslim consumers in Indonesia, Islamic banks carry out an aggressive policy in channeling their funds. The aggressiveness of Islamic banks can be seen from the high average FDR of 101.455%. The high disbursement of funds and low nonperforming financing lead to high incomes and further increase the profits of Islamic banks in Indonesia. Our finding confirms the existing empirical studies, such as those by Zarrouk et al. (2016) and Danlami et al. (2022).

The level of bank efficiency (OEIR) is negative and statistically significant, meaning that high operating efficiency enriches profitability. The magnitude of the OEIR indicates

the high operating costs; the higher OEIR will reduce profitability because the profit is derived from the operating income minus the operating costs. Therefore, bank management must be able to manage operating costs efficiently so as to reduce OEIR. Javaid and Alalawi (2018) and Setiawan (2021), who examined Islamic banks, also found a negative effect between operating efficiency and profitability. Likewise, in conventional banks, operating efficiency also has a negative effect on profitability (Al-Harbi 2019; Sofyan 2019; Lohano and Kashif 2019; Durguti et al. 2020).

Financing loss provision (FLP) is negative and statistically significant, meaning that FPL has a negative effect on profitability. The high FLP indicates high nonperforming financing (NPF), and then it lowers profitability due to low financing quality (Widarjono et al. 2022). The NPF shows the amount of nonperforming financing, which is calculated as costs and, of course, will reduce profits. NPF for Islamic banks needs serious attention because it is directly related to bank income. An aggressive strategy of financing disbursement may result in high income but at the same time also generate a high financing default (Hamid and Ibrahim 2021). These results are in accordance with the results conducted by Lohano and Kashif (2019) and Istiqomaha et al. (2021), who found a significant and negative effect between low financing quality and profitability.

COVID-19 is a negative sign but not statistically significant, meaning that the COVID-19 pandemic does not affect the profitability of Islamic banks. The plausible reason is that COVID-19 is a temporary, not permanent, shock. COVID occurred in March 2020 in Indonesia, but economic growth in the second quarter was still positive. The impact of COVID-19 happened in the third quarter of 2020, when economic growth in Indonesia experienced negative growth, but economic growth returned to positive figures in the following quarters.

4.3. Robustness Checks

Our study carries out a robustness check to examine whether our findings are strong. We measure PLS with another measurement. The ratio of PLS financing to the total asset is a proxy for PLS financing, following previous research such as that by Alam and Parinduri (2017) and Risfandy et al. (2019). Table 56 presents the results with model 3 without COVID and model 4 with the COVID effect. The bottom part of Table 56 exhibits the diagnostic test for dynamic panel regression. The instruments are valid since the number of objects exceeds the number of instruments, and we fail to reject the Hansen test. Our estimated coefficients of regression are also consistent due to rejecting the autocorrelation problem using AR (2). More importantly, the profitability of Indonesian Islamic banks is persistent, since the current profitability is associated with preceding profitability due to the significance of the lagged profitability.

Our results produce similar results using the ratio of PLS financing to total financing. High PLS financings lower profitability. Large Islamic banks can capitalize on their size to earn higher income and profitability. High financing disbursement (FDR) also strengthens profitability, but low-quality financing (FLP) decreases profitability. Low operating efficiency also reduces profitability. However, model 3 shows that COVID-19 negatively affects the profitability of Indonesian Islamic banks, meaning that COVID-19 deteriorates the profitability because economic growth saw a downturn after COVID-19. Economic growth has not experienced negative growth, but economic growth was lower during the pandemic since the fourth of 2020.

Table 5. ROA-PLS relationship: ratio of PLS financing to total asset.

Variables	Model 3:	Model 4:
	Without COVID Effect	With COVID Effect
ROA (-1)	0.4350 ** (0.0140)	0.4421 *** (0.0070)
PLS	-0.0132 ***	-0.0138 ***

	(0.0050)	(0.0040)
MS	-0.0325	-0.0406
	(0.1505)	(0.2120)
Size	0.2514 *	0.2859 **
	(0.0820)	(0.0450)
CAR	0.0035	0.0090
	(0.4395)	(0.3635)
FDR	0.0171 ***	0.0160 ***
	(0.0010)	(0.0010)
OEIR	-0.0539 ***	-0.0538 ***
	(0.0015)	(0.0025)
FLP	-0.1245 **	-0.1131 **
	(0.0420)	(0.0330)
COVID	-0.6109	-0.2685 *
	(0.8420)	(0.0630)
Constant	-	0.1338
	-	(0.9580)
No. of observations	589	589
No. of banks	31	31
Hansen p-value	0.548	0.464
AR (-2) p-value	0.241	0.251

Note: The parentheses show the p-value. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

4. Method and Data

Islamic banks in Indonesia are classified into a large and small Islamic banks. The large Islamic banks consist of Islamic commercial banks and Islamic bank windows. The latter is a conventional bank that runs both Islamic banks as well as conventional banks. On the other hand, small Islamic banks are rural Islamic banks that operate in regional areas. Islamic banks in Indonesia offer two types of financing, encompassing the profit-loss sharing (PLS) scheme and the non-profit-loss sharing (NPLS) scheme with Islamic contracts. PLS financing consists of two contracts, namely Mudharabah and Mucyarakah. Non-PLS comprises Murabaha, Qardh, Istisna, Ijarah, and Salam.

There were 12 Islamic commercial banks and some conventional banks that opened 22 Islamic bank windows in 2021. Four Islamic banks encompassing Bank Syariah Mandiri (BSM), Bank Muamalat Indonesia (BMD), Bank BRI Syariah, and Bank BNI Syariah dominate the market share of Islamic commercial banks. In 2021, BSM, BRI Syariah, and BNI Syariah merged into Bank Syariah Indonesia (BSI). The concentration ratio of the four largest Islamic banks (CR 4) in 2021 was 48.85%. Accordingly, the market of Islamic banks is an imperfect market and close to the oligopoly market.

4.1. Research Method

According to the existing literature, our study applied a panel data model, which is a combination of time series and cross-section data. The dynamic panel data regression employed to explore the effect of PLS financing on Islamic bank profitability is as follows:

$$ROA_{it} = \phi_0 + \phi_1 ROA_{it-1} + \phi_2 PLS_{it} + \phi_3 MS_{it} + \phi_4 SIZE_{it} + \phi_5 CAR_{it} + \phi_6 FDR_{it} + \phi_7 OEIR_{it} + \phi_8 FLP_{it} + \phi_9 COVID_{it} + e_{it} \quad (\Leftrightarrow)$$

where ROA is the return on asset, PLS is profit-loss sharing financing, and NPLS is non-profit-loss sharing financing. Control variables consist of market share, bank size, capital adequacy ratio, financing-to-deposit ratio, operating cost-to-income ratio, and financing loss provision. Table 1 shows variables and their measurement.

Table 1. Variables and measurement.

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Variables	Symbol	Measurement
Return on Assets	ROA	Earning After Tax/Total Assets
Profit Sharing Financing	PLS	(Musyarakah+Mudharabah)/asset
Market Share	MS	Total asset of an Islamic bank/total asset of all Islamic banks
Bank Size	SIZE	Ln Total Assets
Capital Adequacy Ratio	CAR	Equity/Assets weighted risk
Financing to Deposit Ratio	FDR	Total financing/Third party fund
Operating expense to Income Ratio	OQIR	Operating expense/operating income
Financing loss provision	FLP	Financing loss provision/total financing
COVID-19	COVID	Dummy variable

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Our study used the GMM method to estimate the dynamic panel regression in equation (1) due to a relationship between CAR and profit, which leads to an endogeneity problem and obviously produces an inefficient estimator. Two approaches are widely used to estimate the GMM method, consisting of the difference GMM method (Arellano and Bond 1991) and the system GMM (Arellano and Bover 1995). Each method is intended to solve the endogeneity problem in the dynamic panel regression. We applied the system GMM method because of unbiased and efficient estimators (Blundell and Bond 1998). The system GMM method uses the variable instrument, thus, the validity of the instruments was checked using the Hansen test for overidentifying test. The coefficients of regression are efficient and consistent, as the second-order autocorrelation correlations are not found using the Arellano–Bond AR (2) test.

4.2. Data

This study covered 31 Islamic banks, consisting of Islamic commercial banks and Islamic window banks. The observation period was for four years, 2016–2020, with quarterly data; thus, 642 observations were obtained with the balanced panel data. The data was obtained from the website of the Financial Services Authority (FSA), which can be freely accessed by the public (www.ojke.go.id; accessed on 1 January 2020).

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5. Conclusions, Implications, and Limitations

Our results found that PLS financing negatively affects profitability, meaning that Islamic commercial banks in Indonesia prefer NPLS financing with fixed income, such as Murabahah financing, in disbursing their funds to get higher profit. Our findings also highlight that some control variables, such as size and liquidity risk, enhance profitability. Meanwhile, low operating efficiency and low financing quality worsen profitability.

The results of this study are expected to be used by the management of Islamic banks in managing their banks to increase their profitability through their financing. PLS financing does impair the Islamic bank's profitability, but it must be pursued to become the core business of Islamic banks. These financings need tight monitoring to encourage profitability. The empirical literature shows that PLS financing increases profits in the case of large Islamic banks (Čihák and Hesse 2010; Ibrahim and Rizvi 2017). In addition, other empirical studies also show that Musyarakah financing leads to a reverse U-shape effect on nonperforming financing, meaning that Musyarakah financing at a certain level clearly reduces nonperforming financing so that it can encourage the Islamic bank's profitability (Warninda et al. 2019).

PLS financing consists of Musyarakah and Mudharabah financing. Musyarkah and Mudharabah financing yield obviously different financing risks, in which the latter is riskier than those the former. However, this study does not distinguish between Musyarakah and Mudarabah financing. Accordingly, further study is needed to know which PLS financing contract enhances profitability.

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Is Profit–Loss-Sharing Financing Matter for Islamic Bank’s Profitability? The Indonesian Case

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Abstract: Financing is the main source of Islamic bank income as a financial intermediary that will contribute to the bank’s profitability. There are two financing schemes, namely profit–loss-sharing financing and non-profit–loss-sharing financing. The main purpose of this study is to analyze the impact of profit–loss-sharing financing on the Islamic bank’s profitability. We employ 31 Islamic commercial banks in Indonesia using quarterly data and spanning from 2016 Q1 to 2020 Q4. Dynamic panel regression using the two-step system GMM is applied. The results showed that profit–loss-sharing financing has a negative effect on profitability, suggesting that profit–loss financing discourages Islamic bank performance. Meanwhile, some control variables such as size and liquidity risk positively influence profitability and low efficiency, and financing quality negatively affects profitability. These findings have an important implication for Islamic banks. Islamic banks must conduct tight monitoring for PLS financing so that this ex-post scheme can encourage the performance of Islamic banks.

Keywords: Islamic bank; profitability; profit-sharing financing; Indonesia

JEL Classification: G21; G24; G28

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1. Introduction

The primary source of income for Islamic banks as a financial intermediary is financing, where the high financing leads to high income and in turn generates more profit. Two financing schemes provided by Islamic banks are profit–loss-sharing (PLS) and non-PLS (NPLS) financing. PLS financing is the main course of Islamic banks. PLS financing or equity financing consists of Musyarakah and Mudharabah. Mudharabah is a contract between the Islamic bank and its customer, whereby the latter can mobilize the funds from the former for its business activity within Islamic guidelines. Profits are shared between the two parties according to a mutually agreed ratio. Musyarakah is a contract between an Islamic bank and its customers, for which both parties provide capital and both may be active in managing the venture. Profit and losses are shared on the basis of how much capital has been contributed. However, Islamic banks around the world have less preference for providing PLS financing due to high risk (Warninda et al. 2019; Šeho et al. 2020). Indeed, the average PLS financing in Indonesian Islamic banks is relatively small, at around 11.91% of total financing during 2016–2020.

There are several reasons why PLS financing is minor financing. First, PLS contracts have complex procedures, because Islamic banks must know in detail the characteristics of customers (Abedifar et al. 2013). Second, PLS contracts also cause high transaction costs because Islamic banks must carry out well controlling and monitoring (Louhichi and Boujelbene 2016). Third, the PLS contract also poses a high financing risk due to agency

problems, causing asymmetric information and moral hazards (Beck et al. 2013). However, the PLS contract is a kind of fair contract between an Islamic bank and a customer due to the ex-post principle. Profits and losses will be shared according to the agreement, so this type of contract is expected to appeal to more customers to borrow money from Islamic banks (Risfandy et al. 2019).

Based on the above facts, this study investigates whether PLS financing, which stems from the main principle of Islamic banks, could harm or enhance the Islamic bank's performance. More exactly, our study explores whether PLS financing deteriorates or strengthens the Islamic bank's profitability in Indonesia. Our empirical study is important, since PLS financing is not the main choice of financing for Islamic banks. The selection of Indonesian Islamic banks is because the market share of Islamic banks in Indonesia is small, but PLS financing is the largest financing compared to other countries.

This study will contribute to the existing empirical study in some ways. First, although PLS financing is the core business of Islamic banks, research on the role of PLS financing on Islamic bank profits has not been widely carried out. Several studies examine the effect of PLS financing on nonperforming financing (Alandejani and Asutay 2017; Warninda et al. 2019). Second, PLS financing is the core business of Islamic banks, so this finding is expected to be important information for Islamic banks and policymakers in managing PLS financing.

The rest of the paper is organized as follows. Section 2 highlights the previous studies and develops the hypothesis. Section 3 presents the method and data. Section 4 provides the findings and discussion. Section 5 discusses the conclusion, implication, and limitations.

2. Literature Review and Hypothesis Development

2.1. Financing Schemes and Profitability

Islamic banks, in addition to having the goal of providing usury-free banking services to the public, must also be oriented to seeking profit, as in conventional banks, so that Islamic banking can grow and develop with other Islamic financial institutions (OJK 2020). Profitability is the company's ability to generate profits, which can be measured by several formulations such as return on assets (ROA), return on equity (ROE), return on investment (ROI), and profit margin (PM) (Van Horn and Wachowicz 2013). Profitability is widely proxied by ROA, because ROA shows the ability to earn profits with all assets owned. Profitability is very important for the company because it is an indicator of management performance that can affect the value of the company. Profitability shows the company is developing and growing, which allows the company to pay larger dividends (Ahmed 2015).

Sanmugram and Zahari (2009) revealed that financing in Islamic banks can be grouped into natural certainty contracts (NCC) and natural uncertainty contracts (NUC). NCC is a financing contract with a definite amount and time of return. The NCC comprises an NPLS scheme such as the Murabahah contract, because there is certainty about the amount and time of return, and this financing is low-risk and very easy to calculate. Meanwhile, NUC is a financing contract for which there is no certainty about the amount and time of payment because it depends on the benefits obtained by the customer. The NUC is a PLS scheme in which the financing installments depend on the customer's profits, which will be given in the form of profit sharing. The number of installments may not be determined at the beginning of the agreement. What may be determined at the beginning is the ratio or profit-sharing portion.

An Islamic bank prefers NPLS which are low-risk and easier to process. According to financing data, the portion of NPLS is much higher, which is more than 80% on average, compared to PLS, which averages less than 20%. Accordingly, the amount of financing provided through NPLS contracts has a positive effect on profitability due to low risk and ease of implementation (Warninda 2014; Belkhaoui et al. 2020). By contrast, equity

financing may result in a different impact on profitability. The Mudharabah contract leads to highly impaired financing and then lower profitability because it causes agency problems due to moral hazards and asymmetric information (Azmat et al. 2015). However, PLS contracts can increase profitability if an Islamic bank can monitor and manage well both the Musyarakah and Mudharabah contracts (Čihák and Hesse 2010; Danlami et al. 2022). Thus, the hypotheses can be expressed as:

H1. *PLS has either a negative or positive effect on the Islamic bank's profitability.*

2.2. Market Share

One theory that describes the link between a bank's profitability and market structure is the relative market power hypothesis (RMP). The RMP proposes that the profitability of a bank relies on the market share (Smirlock 1985). The large market share can generate various products to capitalize on market power and then can determine the high price and lead to high profits. Some previous studies documented that bank profitability is associated with high market share (Mirzaei et al. 2013; Sahile et al. 2015; Hamid 2017). Accordingly, the third hypothesis can be stated as follows:

H2. *Market share has a positive impact on the Islamic bank's profitability.*

2.3. Bank Size and Profitability

Bank size (SIZE) is the size of a bank that can be measured by total assets (Petria et al. 2015; Javaid and Alalawi 2018; Lohano and Kashif 2019). Banks with large sizes have a greater opportunity to diversify their portfolios, so they tend to generate higher profitability. With large assets, they have a great opportunity to provide financing. Bank management is required to manage assets effectively and efficiently so that they can contribute to profitability. This positive influence is possible because bank management can provide financing with prudent principles (Lohano and Kashif 2019). Size, therefore, is positively linked to the profitability of Islamic banks (Zarrouk et al. 2016) and conventional banks, and Jaouad and Lahsen (2018), in their research on conventional banking, found a significant and positive effect between size and profitability. Therefore, the proposed hypothesis is:

H3. *SIZE has a positive effect on the Islamic bank's profitability.*

2.4. Capital and Profitability

Capital for banks is very important. Therefore, the government regulates bank capital by setting a capital adequacy ratio (CAR), which is a comparison between equity and risk-weighted assets (Schoon 2016). The Financial Services Authority (FSA) in Indonesia sets a minimum CAR limit of 8%. Bank capital is very important, because capital functions as a reserve to cover bank losses. In addition, the amount of bank capital can also be used for financing so that the higher CAR will be able to increase profitability. Several results of research conducted on Islamic banks show a positive influence between CAR and profitability (Javaid and Alalawi 2018; Hossain and Khalid 2018). Similar findings are found in conventional banking (Durguti et al. 2020; Oleiwi et al. 2019; Lohano and Kashif 2019). Therefore, the hypothesis can be formulated as follows:

H4. *CAR has a positive effect on the Islamic bank's profitability.*

2.5. Liquidity Risk and Profitability

Liquidity problems in Islamic banks are more complicated than those of conventional banks, because the instrument for placing funds for Islamic banks is limited (Islam et al. 2017). Liquidity, apart from preparing funds to be used as reserves in the case of

withdrawal of funds from customers at any time, also relates to the bank's commitment to providing funds for financing. In this study, liquidity is measured by the financing-to-deposit ratio (FDR), namely the amount of financing provided by Islamic banks compared to customer deposits. The greater the FDR, the higher the financing and the higher the financing can increase income, which will ultimately increase profitability. The results of research on Islamic banks show a positive and significant effect between FDR and profitability (Widarjono et al. 2020). The same results were found from the results of research conducted on conventional banks (Sofyan 2019; Koroleva et al. 2021). Thus, the formulation of the hypothesis is:

H5. *FDR has a positive effect on the Islamic bank's profitability.*

2.6. Efficiency and Profitability

In operating, bank management is required to manage so that there is no waste that can lead to inefficiency. Bank profitability can be achieved if management can operate efficiently, so efficiency becomes one of the elements that make up profitability. Efficiency is measured by the comparison of operating expenses with operating income (OEIR). The lower the OEIR, the more efficient it will be and will be able to increase profitability, because profit is derived from operating income minus operating costs (Hossain and Khalid 2018). Operational costs must be reduced in such a way that they cannot be greater than operating income so that the bank can make a profit. Several studies found a negative effect between OEIR and profitability (Javaid and Alalawi 2018; Al-Harbi 2019). The formulation of the hypothesis is as follows:

H6. *OEIR has a negative effect on the Islamic bank's profitability.*

2.7. Financing Risk and Profitability

Islamic banking operating income comes from the financing provided; the greater the financing provided, the greater the opportunity to earn a large income and to increase profits. However, financing may result in a considerable risk if the financing selection process does not use the precautionary principle (Schoon 2016). This financing risk of the Islamic banks is considered to measure risk-taking behavior. Our study employs the ratio of financing loss provisions to total financing, to which this ratio measures Islamic banks' financing quality. High financing provision indicates an inability of borrowers to fulfill their financing obligation in a timely manner. The existing studies documented a negative influence between financing quality and profitability for Islamic banks (Sutrisno and Widarjono 2018) and conventional banks (Lohano and Kashif 2019; Durguti et al. 2020; Koroleva et al. 2021). Based on the results of theoretical studies and the findings of previous researchers, the following hypotheses can be formulated:

H7. *FLP has a negative effect on the Islamic bank's profitability.*

2.8. COVID-19 and Profitability

The COVID-19 pandemic has had an impact on all economic sectors, including the Islamic banking sector. The existence of COVID-19 has caused social restrictions that disrupt the production of goods and services in the small, medium, and large industrial sectors. As a result, Indonesia's GDP in the third quarter of 2020 grew by minus 3.49%. As a result, Islamic banks experience excess liquidity due to limited disbursement of funds. In addition, the decline in the production of goods and services will also increase nonperforming financing of Islamic banks. Thus, the impact of COVID on profitability can be written in the following hypothesis as:

H8. *COVID-19 has a negative effect on the Islamic bank's profitability.*

3. Method and Data

Islamic banks in Indonesia are classified into large and small Islamic bank. The large Islamic banks consist of Islamic commercial banks and Islamic bank windows. The latter is a conventional bank that runs both Islamic banks as well as conventional banks. On the other hand, small Islamic banks are rural Islamic banks that operate in regional areas. Islamic banks in Indonesia offer two types of financing, encompassing the profit-loss-sharing (PLS) scheme and the non-profit-loss-sharing (NPLS) scheme with Islamic contracts. PLS financing consists of two contracts, namely Mudharabah and Musyarakah. Non-PLS comprises Murabaha, Qardh, Istisna, Ijarah, and Salam.

There were 12 Islamic commercial banks and some conventional banks that opened 22 Islamic bank windows in 2021. Four Islamic banks encompassing Bank Syariah Mandiri (BSM), Bank Muamalat Indonesia (BMI), Bank BRI Syariah, and Bank BNI Syariah dominate the market share of Islamic commercial banks. In 2021, BSM, BRI Syariah, and BNI Syariah merged into Bank Syariah Indonesia (BSI). The concentration ratio of the four largest Islamic banks (CR-4) in 2021 was 48.85%. Accordingly, the market of Islamic banks is an imperfect market and close to the oligopoly market.

3.1. Research Method

According to the existing literature, our study applied a panel data model, which is a combination of time series and cross-section data. The dynamic panel data regression employed to explore the effect of PLS financing on Islamic bank profitability is as follows:

$$ROA_{it} = \phi_0 + \phi_1 ROA_{it-1} + \phi_2 PLS_{it} + \phi_3 MS_{it} + \phi_4 SIZE_{it} + \phi_5 CAR_{it} + \phi_6 FDR_{it} + \phi_7 OEIR_{it} + \phi_8 FLP_{it} + \phi_9 COVID_{it} + e_{it} \quad (1)$$

where ROA is the return on asset, PLS is profit-loss-sharing financing, and NPLS is non-profit-loss-sharing financing. Control variables consist of market share, bank size, capital adequacy ratio, financing-to-deposit ratio, operating cost-to-income ratio, and financing loss provision. Table 1 shows variables and their measurement.

Table 1. Variables and measurement.

Variables	Symbol	Measurement
Return on Assets	ROA	Earning After Tax/Total Assets
Profit-Sharing Financing	PLS	(Musyarakah+Mudharabah)/asset (Musyarakah + Mudharabah)/financing
Market Share	MS	Total asset of an Islamic bank/total asset of all Islamic banks
Bank Size	SIZE	Ln Total Assets
Capital Adequacy Ratio	CAR	Equity/Assets weighted risk
Financing-to-Deposit Ratio	FDR	Total financing/Third party fund
Operating expense to Income Ratio	OEIR	Operating expense/operating income
Financing loss provision	FLP	Financing loss provision/total financing
COVID-19	COVID	Dummy variable

Our study used the GMM method to estimate the dynamic panel regression in equation (1) due to a relationship between CAR and profit, which leads to an endogeneity problem and obviously produces an inefficient estimator. Two approaches are widely used to estimate the GMM method, consisting of the difference GMM method (Arellano and Bond 1991) and the system GMM (Arellano and Bover 1995). Each method is intended to solve the endogeneity problem in the dynamic panel regression. We applied the system GMM method because of un-bias and efficient estimators (Blundell and Bond 1998). The system GMM method uses the variable instrument; thus, the validity of the instruments was checked using the Hansen test for overidentifying test. The coefficients of regression

are efficient and consistent, as the second-order autocorrelation correlations are not found using the Arellano–Bond AR (2) test.

3.2. Data

This study covered 31 Islamic banks, consisting of Islamic commercial banks and Islamic window banks. The observation period was for four years, 2016–2020, with quarterly data; thus, 642 observations were obtained with the balanced panel data. The data was obtained from the website of the Financial Services Authority (FSA), which can be freely accessed by the public (www.ojk.go.id; accessed on 30 April 2022).

4. Results and Discussion

4.1. Descriptive Statistics

Table 2 below shows an overview of research data obtained from 31 IBs with quarterly data for 2016–2020. The descriptive statistics of variables show that the profitability has a maximum value of 13.52% and a minimum of -10.77% with an average of 1.99% and a standard deviation of 2.54. These results indicate that IB suffered large losses, but another IB experienced large profits. Islamic bank provides PLS and NPLS financings where PLS financing should be the core financing of Islamic banks. However, on average, NPLS financings are higher than those PLS financing. More interestingly, some Islamic banks do not provide PLS financing because the risk of this financing is very high. On average, the market share of Islamic banks was 3.2 but with a high standard deviation (4.571). These findings indicate that the size of Islamic banks varies, but one Islamic bank dominates the market with high assets by 127 IDR trillion and a market share of 22.664%.

Equity has a minimum value of 10.16% and a maximum of 88.65% with an average of 21.393%, meaning that the CAR of all RBs is above the minimum FSA requirement of 15%. The FDR on average was 1101.455% with a maximum of 338.52%, implying that Islamic banks are very aggressive in providing financing, since they are the latest player in the Indonesian banking system. However, the aggressive strategy of Islamic banks is manageable, since the FDR range set by the FSA is 85–110%. The average Islamic bank operating efficiency (OEIR) was 84.79% with a minimum value of 16.84% and a maximum of 217.4%. Financing loan provision, on average, is 2.149%, with a minimum of 0.01% and a maximum of 13.990. The low FLP indicates that Islamic banks face low financing risk. The data show that nonperforming financing (NPF) for all Islamic banks during the period of study was 3.75%, which is under the maximum value of 5%.

Table 2. Descriptive statistics.

Variable	Mean	Std. Dev.	Min	Max
ROA	1.996	2.544	-10.770	13.580
PLS (IDR trillion)	4.313	6.719	0.000	30.500
MS	3.200	4.571	0.155	22.664
Asset (IDR trillion)	14.200	20.500	0.498	127.000
CAR	21.393	6.317	10.160	88.650
FDR	1101.455	32.723	0.470	338.520
OEIR	84.790	14.034	16.840	217.400
FLP	2.149	1.883	0.010	13.990

Table 3 shows the coefficient of correlation among variables, both dependent and independent. The highest coefficient of correlation score is 0.962, which is the correlation between the ratio of PLS financing to total financing (PLSF) and the ratio of PLS financing to the total asset (PLSA). However, all coefficients of correlation exhibit results of less than 0.85. The findings imply that a possible multicollinearity problem is not found, so all explanatory variables can be used to estimate the dependent variable. The highest

correlation between PLSF and PLSA does not lead to any major problems of multicollinearity since each variable is regressed separately.

Table 3. Correlation matrix.

	ROA	PLSF	PLSA	MS	Size	CAR	FDR	OEIR
ROA	1							
PLSF	-0.293	1						
PLSA	-0.288	0.962	1					
MS	-0.138	-0.004	0.022	1				
Size	-0.151	0.156	0.174	0.822	1			
CAR	0.342	-0.115	-0.138	-0.294	-0.181	1		
FDR	0.368	-0.013	0.067	-0.277	-0.347	0.114	1	
OEIR	-0.589	0.199	0.216	0.203	0.298	-0.383	-0.151	1
FLP	-0.335	-0.053	0.033	-0.013	0.003	-0.128	0.018	0.326

4.2. Empirical Results and Discussion

Table 4 presents the empirical findings of dynamic panel regression with two systems GMM, in which PLS financing is calculated by the ratio of PLS financing to total financing. Model 1 shows without the COVID effect and model 2 include the COVID effect. Models 1 and 2 generate the same results. The diagnostic tests for all estimations are shown in the bottom part of Table 4. The number of instruments is less than the number of Islamic banks, and our instruments are also valid using the Hansen diagnostic test. The Arellano–Bond test for AR (2), which checks the autocorrelation problem, confirms that the estimated coefficients of regression are consistent.

Our findings show that all the coefficients of the lagged ROA (ROA(−1)) are statistically significant, affirming that the model specification is the dynamic model; thus, the dynamic panel regression is the better method to estimate the profitability of Indonesian Islamic banks instead of static panel regression, namely pooled, fixed, and random effect. The findings imply that, to some extent, the profitability of Indonesian Islamic banks is persistent. This indicates that Islamic banks that produce higher profits in the preceding quarter may have experienced higher profits in the present quarter.

Table 4. ROA-PLS relationship: ratio of PLS financing to total financing.

Variables	Model 1:	Model 2:
	Without COVID Effect	With COVID Effect
ROA (−1)	0.4484 ** (0.0130)	0.4476 ** (0.0100)
PLS	−0.0092 ** (0.0170)	−0.0099 *** (0.0080)
MS	−0.0375 (0.1310)	−0.0450 (0.1780)
Size	0.2616 * (0.0790)	0.3001 ** (0.0490)
CAR	0.0035 (0.4380)	0.0071 (0.3850)
FDR	0.0159 *** (0.0025)	0.0162 *** (0.0015)
OEIR	−0.0525 *** (0.0025)	−0.0512 *** (0.0035)
FLP	−0.1351 *** (0.0265)	−0.1348 *** (0.0150)

COVID	-	-0.2284
	-	(0.1170)
Constant	0.4587	-0.2676
	(0.8830)	(0.9210)
No. of observations	589	589
No. of banks	31	31
Hansen <i>p</i> -value	0.530	0.489
AR (2) <i>p</i> -value	0.224	0.239

Note: The parentheses show *p*-value. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

The effect of PLS financing contracts on profitability, as our main concern, shows that the coefficient of PLS is negative and statistically significant. These findings imply that the probability of Islamic banks can be deteriorated by increasing PLS financing, and a fall in PLS financing enhances Islamic banks' profitability. Our result is consistent with the existing empirical research using static panel regression, such as Risfandy (2018), Kuswara et al. (2019), and Roziq and Sukarno (2021). This finding is in accordance with the practice of Islamic bank financing, in which Islamic banks prefer nonequity financing contracts such as Murabahah financing; Islamic banks experience low financing risk for these types of contracts (Čihák and Hesse 2010; Widarjono et al. 2022). By contrast, equity financing generates high risk financing because of agency problems and moral hazards (Azmat et al. 2015). Without good governance, businesspersons put less effort into their business, and they may likely hide the actual profit and report lower profits to the Islamic banks (Abdul-Rahman et al. 2014; Risfandy 2018). Accordingly, equity financing causes high nonperforming financing and further decreases the Islamic bank's profitability (Kabir et al. 2015). However, PLS financing can boost profits when Indonesian Islamic banks carry out good governance by conducting good selection and monitoring, and this type of financing is preferred by customers due to a fair contract and flexibility in payments (Risfandy et al. 2019).

The second hypothesis indicates that the market share (MS) is negative and statistically insignificant. Islamic banks cannot capitalize on their market power through their market share by charging high prices to produce supernormal profits due to their limited financing. The findings imply that market share has no influential effect on profitability and fail to confirm the hypothesis of relative market power (RMP). Our findings confirm the existing empirical study in which Islamic rural banks in Indonesia with an imperfect competition market also fail to exercise profitability through their market share (Widarjono et al. 2020).

Islamic bank size, which is measured by total assets, is positive and significant. These results indicate that the larger the size of the Islamic bank, the higher the profitability. This finding is reasonable, because large Islamic banks have a greater potential to earn income than small Islamic banks due to economies of scale (Ibrahim and Rizvi 2017; Trinugroho et al. 2017). Bank management must work hard in managing and controlling assets to avoid inefficiency, increasing income which in turn increases profitability. Several studies have also found that SIZE has a positive effect on profitability (Petria et al. 2015; Istiqomaha et al. 2021).

The third hypothesis shows that CAR is not statistically significant for all models, indicating that CAR has no effect on profitability. This could be due to the lack of effective capital management, as indicated by the average CAR of 21.393%. High CAR indicates that bank management cannot use equity to be channeled as financing. This result is in accordance with the results from Sudarsono et al. (2021), who found that CAR had no effect on profitability. CAR that is too high is also increasingly inefficient, and thus it actually reduces profitability, as the results of research from several studies found a negative and significant effect between CAR and profitability (Setiawan 2021; Durguti et al. 2020; Irwan 2017; dan Said and Ali 2016).

Liquidity risk as measured by FDR is positive and statistically significant, suggesting that FDR positively affects profitability. Thus, a rise in financing enhances the Islamic bank's profitability, and a fall in financing lowers the Islamic bank's profitability. As the latest player in the banking sector, and with a large number of Muslim consumers in Indonesia, Islamic banks carry out an aggressive policy in channeling their funds. The aggressiveness of Islamic banks can be seen from the high average FDR of 101.455%. The high disbursement of funds and low nonperforming financing lead to high incomes and further increase the profits of Islamic banks in Indonesia. Our finding confirms the existing empirical studies, such as those by Zarrouk et al. (2016) and Danlami et al. (2022).

The level of bank efficiency (OEIR) is negative and statistically significant, meaning that high operating efficiency enriches profitability. The magnitude of the OEIR indicates the high operating costs; the higher OEIR will reduce profitability because the profit is derived from the operating income minus the operating costs. Therefore, bank management must be able to manage operating costs efficiently so as to reduce OEIR. Javaid and Alalawi (2018) and Setiawan (2021), who examined Islamic banks, also found a negative effect between operating efficiency and profitability. Likewise, in conventional banks, operating efficiency also has a negative effect on profitability (Al-Harbi 2019; Sofyan 2019; Lohano and Kashif 2019; Durguti et al. 2020).

Financing loss provision (FLP) is negative and statistically significant, meaning that FPL has a negative effect on profitability. The high FLP indicates high nonperforming financing (NPF), and then it lowers profitability due to low financing quality (Widarjono et al. 2022). The NPF shows the amount of nonperforming financing, which is calculated as costs and, of course, will reduce profits. NPF for Islamic banks needs serious attention because it is directly related to bank income. An aggressive strategy of financing disbursement may result in high income but at the same time also generate a high financing default (Hamid and Ibrahim 2021). These results are in accordance with the results conducted by Lohano and Kashif (2019) and Istiqomaha et al. (2021), who found a significant and negative effect between low financing quality and profitability.

COVID-19 is a negative sign but not statistically significant, meaning that the COVID-19 pandemic does not affect the profitability of Islamic banks. The plausible reason is that COVID-19 is a temporary, not permanent, shock. COVID occurred in March 2020 in Indonesia, but economic growth in the second quarter was still positive. The impact of COVID-19 happened in the third quarter of 2020, when economic growth in Indonesia experienced negative growth, but economic growth returned to positive figures in the following quarters.

4.3. Robustness Checks

Our study carries out a robustness check to examine whether our findings are strong. We measure PLS with another measurement. The ratio of PLS financing to the total asset is a proxy for PLS financing, following previous research such as that by Alam and Parinduri (2017) and Risfandy et al. (2019). Table 5 presents the results with model 3 without COVID and model 4 with the COVID effect. The bottom part of Table 5 exhibits the diagnostic test for dynamic panel regression. The instruments are valid since the number of objects exceeds the number of instruments, and we fail to reject the Hansen test. Our estimated coefficients of regression are also consistent due to rejecting the autocorrelation problem using AR (2). More importantly, the profitability of Indonesian Islamic banks is persistent, since the current profitability is associated with preceding profitability due to the significance of the lagged profitability.

Our results produce similar results using the ratio of PLS financing to total financing. High PLS financings lower profitability. Large Islamic banks can capitalize on their size to earn higher income and profitability. High financing disbursement (FDR) also strengthens profitability, but low-quality financing (FLP) decreases profitability. Low operating efficiency also reduces profitability. However, model 3 shows that COVID-19 negatively affects the profitability of Indonesian Islamic banks, meaning that COVID-19 deteriorates

the profitability because economic growth saw a downturn after COVID-19. Economic growth has not experienced negative growth, but economic growth was lower during the pandemic since the fourth of 2020.

Table 5. ROA-PLS relationship: ratio of PLS financing to total asset.

Variables	Model 3:	Model 4:
	Without COVID Effect	With COVID Effect
ROA (-1)	0.4350 ** (0.0140)	0.4421 *** (0.0070)
PLS	-0.0132 *** (0.0050)	-0.0138 *** (0.0040)
MS	-0.0325 (0.1505)	-0.0406 (0.2120)
Size	0.2514 * (0.0820)	0.2859 ** (0.0450)
CAR	0.0035 (0.4395)	0.0090 (0.3635)
FDR	0.0171 *** (0.0010)	0.0160 *** (0.0010)
OEIR	-0.0539 *** (0.0015)	-0.0538 *** (0.0025)
FLP	-0.1245 ** (0.0420)	-0.1131 ** (0.0330)
COVID	-0.6109 (0.8420)	-0.2685 * (0.0630)
Constant	- -	0.1338 (0.9580)
No. of observations	589	589
No. of banks	31	31
Hansen <i>p</i> -value	0.548	0.464
AR (-2) <i>p</i> -value	0.241	0.251

Note: The parentheses show the *p*-value. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

5. Conclusions, Implications, and Limitations

Our results found that PLS financing negatively affects profitability, meaning that Islamic commercial banks in Indonesia prefer NPLS financing with fixed income, such as Murabahah financing, in disbursing their funds to get higher profit. Our findings also highlight that some control variables, such as size and liquidity risk, enhance profitability. Meanwhile, low operating efficiency and low financing quality worsen profitability.

The results of this study are expected to be used by the management of Islamic banks in managing their banks to increase their profitability through their financing. PLS financing does impair the Islamic bank's profitability, but it must be pursued to become the core business of Islamic banks. These financings need tight monitoring to encourage profitability. The empirical literature shows that PLS financing increases profits in the case of large Islamic banks (Čihák and Hesse 2010; Ibrahim and Rizvi 2017). In addition, other empirical studies also show that Musyarakah financing leads to a reverse U-shape effect on nonperforming financing, meaning that Musyarakah financing at a certain level clearly reduces nonperforming financing so that it can encourage the Islamic bank's profitability (Warninda et al. 2019).

PLS financing consists of Musyarakah and Mudharabah financing. Musyarkah and Mudharabah financing yield obviously different financing risks, in which the latter is riskier than those the former. However, this study does not distinguish between Musyarakah

and Mudarabah financing. Accordingly, further study is needed to know which PLS financing contract enhances profitability.

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