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Market Concentration, Bank Characteristics, Macroeconomic Conditions, and Indonesian Islamic Bank Financing

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Abstract

As the latest player in the banking market in Indonesia, Islamic banks are not as experienced as their counterpart conventional banks. In addition, the types of Islamic bank financing (loans) are different from conventional bank loans. Our work investigates the determinants of Islamic bank financing in Indonesia. Our concern variables are market concentration, bank fundamentals, and macroeconomic conditions, including Covid-19. This study examines all Islamic banks in Indonesia from 2015 to 2020 using quarterly data**.** Our data set is 724 observations with unbalanced panel data. We employ the dynamic panel data using the two-step system GMM that is more robust than two-step difference GMM. Market concentration encourages financing. Profitability, bank size, and financing loss provision also enhance financing. However, a high degree of risk aversion and inefficiency reduces financing. Furthermore, Islamic bank financing also depends on macroeconomic conditions. Economic upturns strengthen financing. Strong bank fundamentals, particularly bank size, are the key to success for Islamic bank financing. The results draw an important practical implication. Large Islamic bank is a necessary condition to compete with a conventional bank. Accordingly, the spin off policy of Islamic bank windows to full-fledged Islamic bank should be implemented immediately.

Keywords: bank fundamentals, Islamic bank financing, macroeconomic, condition, market concentration

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INTRODUCTION

Indonesia started the practice of a dual banking system in 1992 through Banking Law No. 7/1992 as Bank Muamalat Indonesia provided its products based on the profit-sharing principle (Trinugroho et al., 2021). The development of Islamic banks has accelerated as the government issued Islamic banking law No 23/2008 (Widarjono et al., 2023). Based on Islamic banking law, Islamic banks in Indonesia are divided into three types of Islamic banks, namely Islamic commercial banks (BUS), Islamic windows (UUS) for which conventional banks provide Islamic banking products and services, and Islamic rural banks (BPRS). As of 2022, there are 12 Islamic commercial banks, 20 Islamic windows, and 165 Islamic rural banks. Currently, Islamic banking in Indonesia is ranked 10th in the world. More interestingly, the Islamic banking market in Indonesia is imperfect competition because there are some dominant players (Sutrisno & Widarjono, 2022).

The main activity of an Islamic bank, as a financial intermediary, collect funds and disburse funds. The success of Islamic banks in managing their business, therefore, depends on how the bank manages financing activities to generate profitability. Figure 1 shows that the profitability of Islamic banks, as a key performance, is lower than that of conventional banks. Islamic bank financing encompasses profit-loss sharing (PLS) and non-PLS financing. According to empirical bank literature, financing (loan) depends on some factors, including market structure, bank fundamentals, and macroeconomic conditions (Lin & Yang, 2016). The key to the success of Islamic banks in disbursing their funds is highly dependent on bank fundamentals because the market structure and macroeconomic conditions are external factors that cannot be controlled. As the fundamentals of Islamic banks are strong and sound, Islamic banks can optimize their financing so that they can generate high profits and likely repay depositors' funds in a timely manner (Meslier et al., 2020; Caporale et al., 2020).

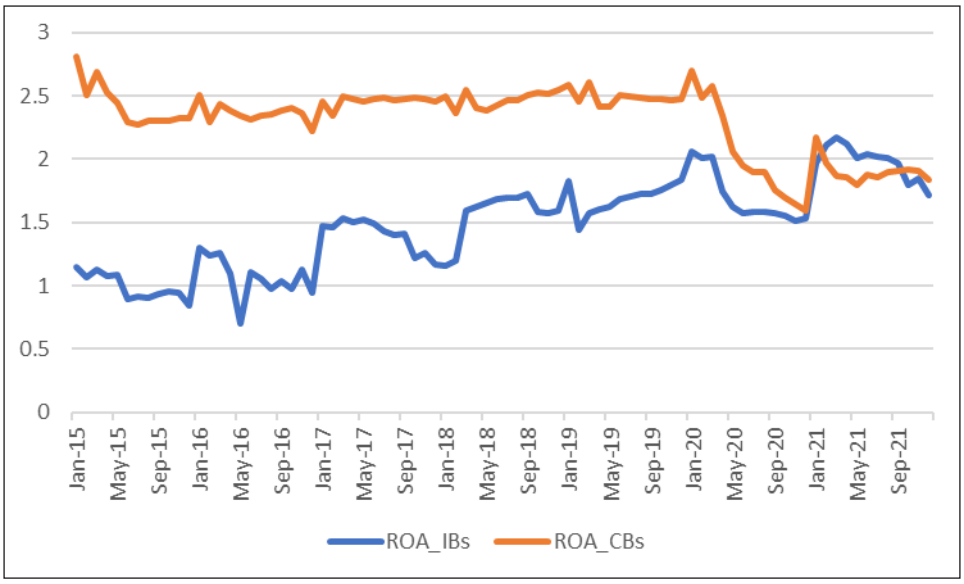

Figure 1. ROA of Islamic Banks and Conventional Banks, 2015-2020

Stein (1998) proposed a basic theory of bank loans as intermediary financing based on the balance sheet model. According to this basic theory, a bank loan relies on bank fundamentals and macroeconomic conditions, consisting of capitalization, bank size, liquidity, domestic output, and inflation. According to conventional banking studies, loan relies on market structure, bank-specific factors, and macroeconomic variables (Lin & Yang, 2016). Similarly, based on Islamic banking literature, Islamic bank financing also depends on competition, bank fundamentals, and macroeconomic conditions (Caporale et al., 2020; Risfandy et al., 2020; Rashid et al., 2020).

A strand of empirical study has investigated the determinants of Islamic bank financing. Islamic bank financing in Malaysia follows the fluctuation of domestic products. However, Islamic bank financing is less responsive to the volatility of GDP (Ibrahim, 2016). Islamic bank financing is also positively linked to domestic product. Economic upturns enhance financing, but economic downturns deteriorate financing (Caporale et al., 2020). Several researches have explored the effect of bank fundamentals on Islamic bank financing. Bank size and total deposit positively affect total financing (Zulkhibri & Sukmana, 2017; Rashid et al., 2020) and Islamic financing rate as the cost of borrowing money in an Islamic bank negatively affects financing (Zulkhibri & Sukmana, 2017).

PLS and non-PLS financing are two different types of financing in Islamic banks (Widarjono, 2021). PLS financing is financing based on a profit-sharing contract (ex-post scheme), while non-PLS is financing based on the fixed cost concept (ex-ante scheme). Because of differences in the concept of payment, numerous researches separately investigated the two types of financing. Financing is greatly influenced by bank size and deposits (Zulkhibri & Sukmana, 2017). Moreover, Meslier et al. (2020) documented that bank size and Shariah supervisory board influence PLS financing. Šeho et al. (2020) investigate non-PLS financing, consisting of sale-based and lease-based financing. Non-PLS financing is clearly affected by bank size. More interestingly, non-PLS as debt financing is negatively affected by the interest rate of conventional banks in a dual banking system.

Several studies have been conducted on Islamic banking in Indonesia. Risfandy et al. (2020) are interested in investigating PLS financing, providing that PLS financing in Islamic banking in Indonesia is higher compared to other countries. This study uses data from 9 Islamic commercial banks from January 2009 to December 2014. The results show that low competition and strong bank fundamentals encourage PLS financing. However, the influence of competition on PLS financing decreases when bank stability increases. Ibrahim et al. (2022) also examine PLS financing by including religiosity variables other than macro and bank-specific variables using aggregate data from January 2009 to December 2019. The findings indicate that PLS financing is influenced by bank size and risk-sharing deposits. Remarkably, PLS financing is interest-rate-free. Furthermore, *Mudharabah* financing is positively associated with the rate of return and Islamic bank age (Muhammad & Nugraheni, 2021).

Our study examines market concentration, bank fundamentals, and macroeconomic conditions, including Covid-19 in determining Islamic bank financing in Indonesia. Our study contributes to the empirical literature on Islamic banking in numerous ways. First, we involve a market concentration in influencing Islamic bank financing. Given that the Islamic banking market in Indonesia is imperfect competition, the study by incorporating market concentration in determining Islamic banking financing in Indonesia is very important. Our study measures market concentration using the Herfindahl–Hirschman index (Azmi et al., 2019). Herfindahl–Hirschman index (HHI) is measured based on total assets and deposits to produce robust results (Hamid, 2017). Second, our research also incorporates the Covid-19 outbreak. It has

led the Indonesian economy to experience low economic growth. Consequently, the economic slump clearly affects financing. Nonetheless, only some prior research has investigated this issue, specifically Islamic banks in Indonesia.

METHOD

This study investigates all Islamic banks in Indonesia, consisting of 12 Islamic commercial banks and 22 Islamic windows. The period of research starts from 2015 to 2020, utilizing quarterly data. Accordingly, our data set is unbalanced panel data with 724 observations. Two types of data are used, namely Islamic bank-specific data and macroeconomic data, namely GDP. GDP is quarterly GDP at constant market prices. The data comes from two sources. First, quarterly financial data from each Islamic bank is obtained from the financial services authority, which provides balance sheets and profit and loss reports. Meanwhile, quarterly GDP data comes from the Central Bureau of Statistics (BPS).

Our study applies the dynamic panel regression approach in examining Islamic bank financing in Indonesia. We follow existing empirical literature in which financing in Islamic banks relies on market structure, bank fundamentals, and macroeconomic variables (Risfandy et al., 2020; Šeho et al., 2020). Our dynamic panel regression is:

$$\mathrm{Fin}_{it} = \delta_0 + \delta_1 \mathrm{Fin}_{it-1} + \delta_2 \mathrm{HHI}_{it} + \delta_3 \mathrm{ROA}_{it} + \delta_4 \mathrm{Lasset}_{it} + \delta_5 \mathrm{CAR}_{it} + \delta_6 \mathrm{CIR}_{it} + \delta_7 \mathrm{FLP}_{it} + \delta_8 \mathrm{LGDP}_{it} + \delta_9 \mathrm{Covid}_{it} + e_{it} \quad \text{.....(1)}$$

Where FIN is total financing, HHI is the Herfindahl–Hirschman index (HHI), measuring market concentration, return on assets (ROA) is a proxy of profitability, assets represent Islamic bank size, Capital adequacy ratio (CAR) represents equity, cost to income ratio (CIR) indicates cost efficiency, financing loss provision (FLP) indicate financing risk, GDP measures domestic output, and Covid-19 indicate the economic shock. Total financing as a dependent variable is measured by two methods, namely, the log of total financing and the ratio of total financing to total assets (Meslier et al., 2020; Muhammad & Nugraheni, 2021). The Herfindahl–Hirschman index (HHI) and the concentration ratio (CR) are commonly used to measure market concentration (Claessens & Laeven, 2004; Berger et al., 2009; Saif-Alyousfi et al., 2020). HHI and CR are calculated based on assets and deposits to generate robust

results (Hamid, 2017). Our study employs HHI as a proxy of market concentration. CR is utilized for robustness checks.

According to equation (1), financing in Islamic banks is influenced by market concentration, bank fundamentals, macroeconomic conditions, and Covid-19. High competition is indicated by a low HHI, while a high HHI indicates high concentration (Kasman & Kasman, 2015; Rizvi et al., 2020). The high competition results in low financing, but low competition causes high Islamic bank financing because of low financing risk (Risfandy et al., 2020). We expect that market concentration has a positive effect on Islamic bank financing.

The first bank fundamental is profitability, as computed by the return on assets (ROA). Profitability indicates the bank's capability to manage its financing well (Sutrisno & Widarjono, 2022). The main justification for the bank to disburse their financing in various forms of financing portfolios is profitability. Banks with high profitability indicate that they have strong fundamentals and sound banks. As a result, they likely take more expansive financing in an effort to get high income and profitability (Risfandy et al., 2020). We predict that profitability has a positive impact on Islamic bank financing.

Bank size is commonly measured by total assets. Operating efficiency closely links to economies of scale and it is related to large bank size (Ibrahim et al., 2017). High operating efficiency reduces intermediation costs so it can foster Islamic banks to disburse more financing to produce high income and profitability. Large bank size likely supports financing. Our work predicts that bank size positively affects Islamic bank financing.

The capital adequacy ratio (CAR) measures an Islamic bank's capital. It is the ratio of own capital to risk-weighted assets. The Financial service authority, as a policy maker in the Indonesian banking Industry, set up the lowest CAR of 8% (Widarjono et al., 2020). The purpose of a minimum bank's capital is to anticipate losses because of excessive financing and poor risk management (Bougatef & Korbi, 2019). High CAR indicates that the bank faces high financing risk and low CAR implies that they encounter low financing risk. Therefore, CAR represents the degree of risk aversion (Trinugroho et al., 2018). We hypothesize that CAR negatively influences Islamic bank financing.

The income-cost ratio (CIR) is widely used to measure operating efficiency (Widarjono et al., 2023). The banks with higher CIR indicate that they are less efficient

in running their business because they have to spend more expenditure to get per unit income (Risfandy et al., 2022). Accordingly, operating efficiency supports them to disburse financing, but inefficiency likely discourages financing. For that reason, our study expects that operating efficiency strengthens Islamic bank financing.

Every Islamic bank likely encounters bad financing which is mostly from PLS financing (Warninda et al., 2019). Islamic banks provide extra funds to anticipate these financing defaults. The fund for this purpose is called financing loss provision (FLP) in Islamic banks. FLP is the ratio of financing loss provision to total financing. FLP indicates the level of financing risk (Widarjono et al., 2022). The banks with high FLP indicate that they face high financing defaults. Therefore, the high FLP leads them to lower financing due to the high financing risk. Our work expects that FLP has a negative impact on financing.

Islamic bank financing is also affected by macroeconomic conditions. We employ GDP to measure macroeconomic conditions. Economic booms encourage banks to disburse more financing, but economic slowdowns discourage financing. Our research predicts that GDP positively influences bank financing. Furthermore, this study includes Covid-19 as an external shock. Covid-19 lowers GDP because it leads to aggregate supply and demand shocks due to the lockdown policy. The reduction in GDP causes the bank to disburse less financing (Alabbad & Schertler, 2022). We expect that Islamic bank financing is negatively related to Covid-19.

RESULT AND DISCUSSION

Table 1 displays summary statistics consisting of mean, standard deviation, minimum, and maximum. The maximum and minimum of the financing were IDR 98.79 Trillion and 0.1 Trillion, respectively, with a variation financing of IDR 16.63 Trillion and an average financing of IDR 10.64 Trillion. This financing suggests that Islamic bank financing varies among Islamic banks. The second measurement of financing (Fin) also reinforces the fact that there is a disparity in financing among Islamic banks. It is not surprising since asset disparity also exists among Islamic banks. Financing is positively associated with bank size. Large Islamic banks can disburse more financing than small Islamic banks.

Table 1. Summary Statistics

Variable	Mean	Std. dev.	Min	Max
Tfin	10.6405	16.6351	0.0001	98.7947
Fin	0.7402	0.1893	0.0001	1.2572
HHIA	0.1035	0.0300	0.0899	0.2247
HHID	0.1121	0.0309	0.0933	0.2349
Asset	13.3768	20.0313	0.2584	126.9000
CAR	0.2472	0.2695	0.1016	3.4643
CIR	0.8524	0.1719	0.1684	2.1740
FLP	0.0222	0.0238	0.0000	0.2995
GDP	2552.4260	167.0857	2158.0400	2818.8130
Covid	0.1409	0.3481	0.0000	1.0000

Figure 2 presents the trend of Islamic bank financing. Islamic bank financing encompasses PLS financing and non-PLS financing. PLS financings consist of *Mudharabah* (profit sharing) and *Musyarakah* (joint venture). Non-PLS financings comprise *Murabahah* (margin), *Istisna* (contract), *Ijarah* (leasing), and *Qard* (altruïsm). Total financing displays a positive trend. More interestingly, the growth of PLS financing is faster than the growth of non-PLS financing. PLS financings are fair contracts since payment is not fixed cost and is more flexible for bank customers (Risfandy, 2018).

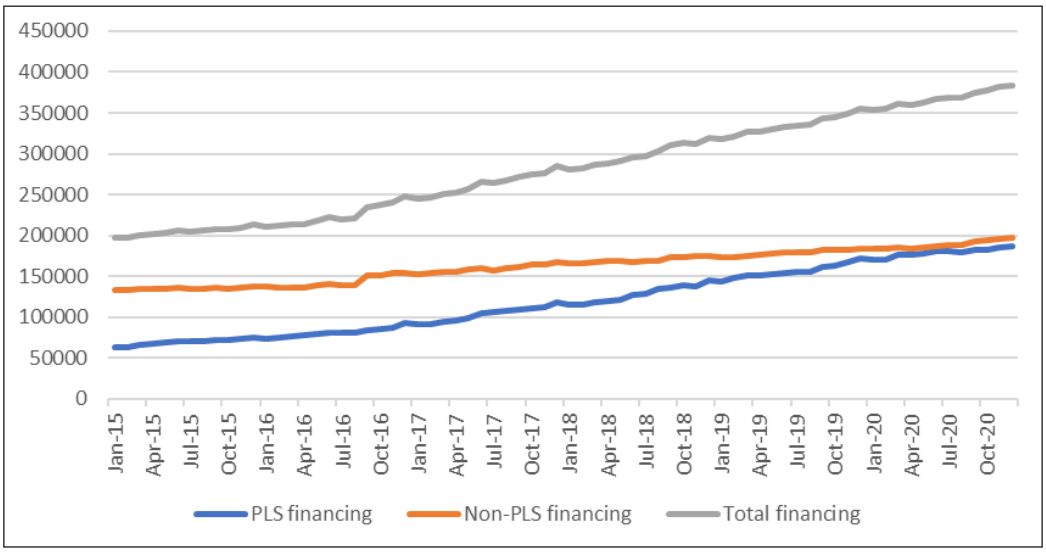

Figure 2. Islamic Bank Financing 2015-2020

Main Results

Firstly, we estimate the coefficient of correlation to guarantee no multicollinearity problem among the explanatory variables. The multicollinearity is found as the coefficient of correlation between the explanatory variables is > 0.85. Multicollinearity generates less robust estimators. Table 2 presents the coefficient of correlations. Overall, no multicollinearity is found.

Table 2. Correlation Matrix

	Ltfin	**Fin**	**HHIA**	**HHID**	**Lasset**	**CAR**	**CIR**	**LLP**	**LGDP**
Ltfin	1								
Fin	0.5619	1							
HHIA	0.1046	0.2111	1						
HHID	0.1015	0.2194	0.9974	1					
Lasset	0.9087	0.3364	0.0741	0.0659	1				
CAR	-0.5295	-0.4424	-0.0719	-0.0763	-0.2363	1			
CIR	0.1669	0.1748	0.1576	0.1584	0.2299	0.1070	1		
FLP	0.0593	0.2956	0.0122	0.0177	-0.0156	-0.0285	0.3906	1	
LGDP	0.0026	-0.1852	-0.6194	-0.6497	0.0752	0.1136	-0.0993	-0.1155	1
Covid	-0.0004	-0.1583	-0.1635	-0.2067	0.0776	0.0788	0.0141	-0.0427	0.2940

Table 3 shows the determinants of Islamic bank financing. We employ the system GMM which generates a more robust estimator than the difference-GMM to estimate the dynamic panel regression as the equation (1) (Blundell & Bond, 1998). The first measurement of the dependent variable is total financing in terms of the natural logarithm (TFIN), and the second one is financing divided by total asset (FIN). Models (1) and (3) employ market concentration measured using total asset (HHIA), and Models (2) and (4) utilize market concentration calculated using total deposit (HHID). Before discussing the results, we evaluate the dynamic panel regression to guarantee that the dynamic panel is applicable. First, we check the validity of instruments in the two-step system GMM. The number of banks exceeds the instruments and the Hansen test is also rejected, meaning that our instruments are valid. Second, the autocorrelation problem is not found according to the Arellano-Bond test (AR) using AR (2). Third, the lag of financing, Dep (-1) is positive and significant for all models, suggesting that Islamic bank financing is persistent over time. These findings indicate that the current financing is obviously affected by the previous financing and support the dynamic panel regression. Our results confirm the

existing Islamic bank literature, such as Meslier et al. (2020) and Šeho et al. (2020).

Table 3 displays the results of the main regression without incorporating Covid-19. The market concentration (HHI) is positive and significant for all models. Profitability (ROA) is positive and significant and remains unchanged for each model. Asset as a measurement of bank size is positive and significant for all models. CAR indicating risk aversion is negative and significant for all models. CIR measuring operating efficiency is negative and significant and is consistent across models. Financing risk measured by FLP positively affects financing, but these results do not fit with our hypothesis. Lastly, GDP does not affect financing.

Table 3. Main Results

	TFIN		FIN	
Variable	(1)	(2)	(3)	(4)
Dep (-1)	0.7849***	0.7829***	0.5869***	0.5692***
	(0.0109)	(0.0108)	(0.0378)	(0.0380)
HHIA	0.8698***	-	0.9405***	-
	(0.1072)	-	(0.0992)	-
HHID	-	0.9235***	-	0.9635***
	-	(0.1087)	-	(0.1008)
ROA	0.4853**	0.4822**	0.6406***	0.6541***
	(0.2497)	(0.2503)	(0.1519)	(0.1589)
Lasset	0.2228***	0.2250***	0.0109***	0.0116***
	(0.0122)	(0.0121)	(0.0040)	(0.0042)
CAR	-0.7676***	-0.7708***	-0.1453***	-0.1499***
	(0.0184)	(0.0179)	(0.0148)	(0.0149)
CIR	-0.0832***	-0.0845***	0.1003***	0.0992***
	(0.0271)	(0.0269)	(0.0252)	(0.0262)
FLP	1.1164***	1.1301***	0.9309***	0.9831***
	(0.1645)	(0.1647)	(0.1894)	(0.2006)
LGDP	0.0097	0.0414	-0.0079	0.0096
	(0.0404)	(0.0398)	(0.0295)	(0.0304)
Cons.	-0.1943	-0.6760	0.0620	-0.2014
	(0.5980)	(0.5886)	(0.4355)	(0.4451)
No. Obs.	690	690	690	690
No. Instruments	31	31	31	31
No. Banks	34	34	34	34
AR (1)	0.140	0.140	0.009	0.009
AR (2)	0.324	0.323	0.711	0.763
Hansen (p-value)	0.110	0.112	0.180	0.174

The standard error is presented in parentheses. *, **, and *** indicate significant at α=10%, α=5%, and α=1%, respectively.

The analysis begins with market structure. HHI is positive and significant, using the different measurements of dependent variables, namely TFIN and FIN, and utilizing different measurements of market concentration based on total assets (HHIA) as well as total deposits (HHID). Accordingly, market concentration strongly affects Islamic bank financing. These findings indicate that high market concentration encourages banks to channel more funds due to low market competition. Our result confirms the study by Risfandy et al. (2020) for PLS financing in the cases of 9 Islamic commercial banks in Indonesia in 2009-2014. Islamic banks get involved more in non-PLS financing in low-competition markets because non-PLS financing is less risky than PLS financing (Ibrahim & Alam, 2018).

Bank fundamentals have a strong effect on Islamic bank financing. Starting with profitability, ROA has a positive effect on financing. High profitability encourages banks to increase financing. Banks with high profits show a strong performance but banks with low profits indicate low performance. Banks with high profits imply that their bankruptcy rate is low because they have a strong balance sheet. This condition allows banks to disburse more financing to generate profits (Kim & Sohn, 2017). On the customer side, they favor taking funds from Islamic banks that perform well. Sudarsono and Ash Shiddiqi (2022) found that profitability positively affects *Murabaha* financing which is the biggest portion of the financing in Islamic banks in Indonesia.

The next fundamental bank is bank size. Assets positively influence financing, implying that greater assets encourage banks to increase financing. Two reasons likely happen. First, banks with large assets have a bigger ability to disburse their financing. Second, they also generate economies of scale to reduce the cost of intermediation (Naseri et al., 2020). Banks with low costs of intermediation attract customers to borrow money from them, thereby encouraging higher financing. These results are in line with a study using aggregate data on PLS financing in 16 countries (Meslier et al., 2020) and total financing (Alsyahrin et al., 2018) and PLS financing (Ibrahim et al., 2022) for case in Indonesian Islamic banking.

CAR negatively affects financing. CAR illustrates the bank's ability to protect a decrease in assets due to bank losses. CAR is affected by the allocation of funds to assets based on the respective risk level and the bank's ability to make a profit. High CAR indicates that the bank is facing high financing risk. High financing risk causes Islamic banks to not get involved in expanding their financing. This finding is also

consistent with *Mudharabah* financing because this type of financing is the riskiest financing in Islamic bank financing (Muhammad & Nugraheni, 2021).

The CIR negatively influences financing, meaning that high efficiency encourages banks to increase financing and vice versa, low efficiency reduces financing. Efficiency shows the bank's ability to generate income at low costs. Efficiency will thus reduce the intermediation cost. The low price of Islamic bank products then causes them to expand financing to increase revenue and profits. The existing empirical study documented that efficiency encourages Islamic banks to disburse more PLS financing in the case of Islamic commercial banks in Indonesia (Risfandy et al., 2020).

Financing is positively associated with financing loss provision FLP, but these results do not fit our hypothesis. The two plausible reasons explain this finding. First, Islamic banks get involved in financing even though it is high risk. They are the latest participants in the banking system, so they expand their financing to contend with conventional banks. Second, they take an expansive strategy since the non-performing financing is low, 4% of total financing, which is lower than the maximum threshold of 5%.

The Covid-19 Effect

At the beginning of 2020, the Covid-19 outbreak hit all the world, including Indonesia. Covid-19 has reduced economic growth. We incorporate Covid-19 as an external shock to explore the impact of Covid-19 on Islamic bank financing. Table 4 presents the dynamic panel regression with the Covid-19 outbreak. HHI, ROA, and asset are positive and significant, following our hypothesis. As expected, CAR and CIR are negative and significant. FLP positively affects financing but it does not fit with our hypothesis. These findings confirm our findings without Covid-19. The Covid-19 outbreak is negative and significant for all models. In addition, GDP positively affects financing, confirming the study of Ibrahim (2016).

The Covid-19 outbreak negatively influences Islamic bank financing, implying that Covid-19 lowers Islamic bank financing. Covid-19 led to an economic growth decrease, and it caused negative economic growth in the third quarter of 2020. The slowdown in economic growth comes from demand and supply shocks. On the one hand, Covid-19 lowers purchasing power and then deteriorates aggregate consumption. On the other hand, due to the lockdown, production was not optimal

so domestic production decreased. As a result, Covid-19 has caused the banking industry, including Islamic banks, to be unable to disburse their funds properly into the business sector. A study by Alabbad and Schertler (2022) shows that Covid-19 has reduced Islamic bank performance.

Table 4. Impact of Covid-19

	TFIN		FIN	
Variable	(1)	(2)	(3)	(4)
Dep (-1)	0.7955***	0.7948***	0.5924***	0.5862***
	(0.0110)	(0.0108)	(0.0369)	(0.0367)
HHI_A	0.8630***	-	0.8601***	-
	(0.0977)	-	(0.0804)	-
HHI_D	-	0.8822***	-	0.8513***
	-	(0.0988)	-	(0.0803)
ROA	0.4108*	0.4077*	0.5057***	0.5096***
	(0.2500)	(0.2504)	(0.1353)	(0.1375)
Lasset	0.2124***	0.2131***	0.0109***	0.0112***
	(0.0120)	(0.0118)	(0.0038)	(0.0039)
CAR	-0.7424***	-0.7435***	-0.1385***	-0.1402***
	(0.0194)	(0.0187)	(0.0144)	(0.0143)
CIR	-0.0948***	-0.0961***	0.0886***	0.0886***
	(0.0291)	(0.0289)	(0.0234)	(0.0232)
LLP	1.0318***	1.0384***	0.7305***	0.7476***
	(0.1690)	(0.1691)	(0.1721)	(0.1751)
LGDP	0.0586**	0.0759***	0.0453*	0.0538**
	(0.0272)	(0.0274)	(0.0282)	(0.0288)
Covid	-0.0451***	-0.0421***	-0.0362***	-0.0336***
	(0.0058)	(0.0058)	(0.0054)	(0.0053)
Cons.	-0.8998**	-1.1645***	-0.6970*	-0.8290*
	(0.4094)	(0.4137)	(0.4024)	(0.4105)
No. Obs.	690	690	690	690
No. Instruments	32	32	32	32
No. Banks	34	34	34	34
AR (1)	0.139	0.139	0.008	0.008
AR (2)	0.354	0.351	0.727	0.749
Hansen (p-value)	0.106	0.107	0.141	0.139

The standard error is presented in parentheses. *, **, and *** indicate significant at α=10%, α=5%, and α=1%, respectively.

Robustness Tests

This paper conducts a robustness check using alternative measurements of market concentration. Market concentration is measured using a concentration ratio (Risfandy et al., 2022; Rakshit & Bardhan, 2022). The concentration ratio (CR) is measured by the total assets of the 4 largest Islamic banks (CR4A) and the total deposits of the 4 largest Islamic banks (CR4D). The results of the robustness test are shown in Table 5. Model 1 and model 3 utilize CR4A while model 2 and model 4 employ CR4D. The results indicate that the concentration ratio using both total assets and total deposits has a positive effect on financing in all models, meaning that market concentration considerably encourages Islamic bank financing. These results are consistent with market concentration measured by the previous HHI.

Moving to fundamental banks, ROA, assets, and FLP have a positive effect on financing in all models. The high profitability, large banks, and the large financing loss provision increase financing. CAR and CIR have a negative effect on financing in all models. Banks with a high degree of risk aversion and low operating inefficiency have lower financing. Finally, turning to macroeconomic variables, GDP has a positive effect on financing, and Covid-19 has a negative effect on financing. These findings indicate that economic upturns encourage high financing. The findings of bank fundamentals and macroeconomic conditions are consistent with previous findings using HHI.

Table 5. Robustness Checks

	TFIN		FIN	
Variable	(1)	(2)	(3)	(4)
Dep (-1)	0.7957***	0.7953***	0.5901***	0.5914***
	(0.0111)	(0.0109)	(0.0370)	(0.0365)
CR4A	0.3419***	-	0.3363***	-
	(0.0393)	-	(0.0312)	-
CR4D	-	0.3645***	-	0.3497***
	-	(0.0416)	-	(0.0329)
ROA	0.4010*	0.4012*	0.5104***	0.5051***
	(0.2523)	(0.2499)	(0.1362)	(0.1355)
Lasset	0.2122***	0.2127***	0.0111***	0.0110***
	(0.0121)	(0.0119)	(0.0039)	(0.0038)
CAR	-0.7417***	-0.7422***	-0.1393***	-0.1386***
	(0.0198)	(0.0192)	(0.0144)	(0.0143)

	TFIN		FIN	
Variable	(1)	(2)	(3)	(4)
CIR	-0.0938***	-0.0946***	0.0902***	0.0890***
	(0.0288)	(0.0283)	(0.0231)	(0.0229)
LLP	1.0192***	1.0252***	0.7357***	0.7335***
	(0.1686)	(0.1687)	(0.1720)	(0.1721)
LGDP	0.1089***	0.1279***	0.0910***	0.1052***
	(0.0297)	(0.0299)	(0.0304)	(0.0305)
Covid-19	-0.0442***	-0.0383***	-0.0355***	-0.0298***
	(0.0059)	(0.0059)	(0.0054)	(0.0051)
Cons.	-1.7351***	-2.0352***	-1.4622***	-1.6835***
	(0.4499)	(0.4547)	(0.4438)	(0.4452)
No. Obs.	690	690	690	690
No. Instruments	32	32	32	32
No. Banks	34	34	34	34
AR (1)	0.138	0.139	0.008	0.008
AR (2)	0.353	0.352	0.758	0.775
Hansen (p-value)	0.107	0.108	0.143	0.140

The standard error is presented in parentheses. *, **, and *** indicate significant at α=10%, α=5%, and α=1%, respectively.

CONCLUSION

Our study aims to explore the effect of market concentration, Islamic bank fundamentals, and macroeconomic conditions on the financing of Indonesian Islamic banks. Our work employs dynamic panel regression. The results indicate that high market concentration supports financing. Profitability, bank size, and financing loss provision promote financing, while high-risk aversion and low operating efficiency hinder financing. Economic upturns support financing, and Covid-19 reduces financing.

Some important implications can be inferred from these results. Strong bank fundamentals encourage Islamic bank financing. Profitability and bank size increase financing but inefficiency reduces financing. High profitability and efficiency can be achieved provided that an Islamic bank is a large bank. However, Islamic banks in Indonesia have not been able to achieve economies of scale because most Islamic banks are small banks. This fact is reinforced that the prices of Islamic bank financing products are more expensive than those of conventional banks due to small banks. Large Islamic banks are thus a necessary condition for good and sound Islamic banks

because large Islamic banks can benefit from low cost and efficient management because of economies of scale. For that reason, the spin-off policy of the Islamic bank window to a full-fledged Islamic bank should be implemented soon following the road map of the Indonesian Financial Service Authority.

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