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THE SECTORAL FINANCING DIVERSIFICATION AND THE PROFITABILITY OF ISLAMIC BANKING IN INDONESIA

Agus Widarjono[a]
Sahabudin Sidiq[b]
[a,b]Department of Economics, Faculty of Business and Economics, University Islam Indonesia
Email: agus.widarjono@uii.ac.id[a]; sahabudin.sidiq@uii.ac.id[b]

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*Correspondence:
Name: Agus Widarjono
E-mail:
agus.widarjono@uii.ac.id

ABSTRACT

This study investigates the influence of sectoral financing concentration on the profitability of Islamic banking in Indonesia. The data is aggregated by Indonesian Islamic banks from January 2015 to June 2021. Islamic banks are divided into two, namely Islamic commercial banks and Islamic window banks. The study used Autoregressive distributed lag (ARDL) and Panel Mean Group (PMG). The results showed that sectoral financing concentration increased the profitability of Islamic commercial banks while diversification of sectoral financing boosted the profitability of Islamic window banks. In addition, this study also showed that size and inefficiency negatively affected the profitability of Islamic commercial banks and window banks. This result implies that the right sectoral financing policy for Islamic commercial banks is financing concentration. This strategy implies that Islamic commercial banks must build competitiveness in certain sectors of the economy. For this reason, there is a need to increase the skills of the worker to build a competitive advantage in the sector that is the focus of financing. In comparison, sectoral financing diversification is more applicable for Islamic window banks. To support this diversification strategy, banks must conduct good supervision in the financing, especially sectoral financing based on profit-sharing contracts.

INTRODUCTION

The presence of an Islamic bank (IB) is essential for the Indonesian economy. According to the Indonesian Financial Service Authority in 2021, Islamic banks can support the economy since around 37.73% of its financing is directed to medium, small, and micro enterprises (MSMEs), the largest part of businesses in Indonesia (Widarjono et al., 2020). As a financial intermediary, Islamic banks function to channel funds obtained from and to the community. Islamic bank financing can be distinguished based on the type of economic sector being financed and the type of financing contracts encompassing *mudharabah*, *musyarkah*, *murabahah*, *istisna*, *salam*, and *ijarah*. Accordingly, the key success of Islamic banks is how their financing can generate income and profits.

Some profit measurements are widely used, namely return on assets (ROA) and return on equity (ROE). The Financial Services Authority (FSA) has determined the

strength of Islamic banks according to several financial aspects, one of which is ROA. Islamic banks are said to be very healthy, healthy, quite healthy and unhealthy if the ROA is above 1.5%, 1.5%-1.25%, 1.25%-0.5%, and below 0.5% (Widarjono, 2020). Based on data from FSA, the average ROA of Islamic banks was 1.41% in the period 2015-2021. Accordingly, this Islamic bank is considered healthy but still below the ROA of conventional banks (2.38%). Thus, conventional banks' performance is still better than Islamic banks.

According to the performance of Islamic banks, the sustainability of Islamic banks relies on the capability of generating profit rates. There are two strategies for Islamic banks to generate profits, namely through the diversification of financing and the concentration of financing (Tabak et al., 2011). Diversification of financing to various sectors of the economy will increase profits because diversification of financing avoids high financing defaults. On the other hand, the concentration of financing will increase profits because the concentration of financing makes it easier to reduce the problem of agency problems and asymmetric information to increase the profitability of Islamic banks.

Some previous studies have explored financing diversification's impact on Islamic bank profitability, such as Hamid and Ibrahim (2020) and Šeho et al. (2021). Both studies documented that financing concentration negatively impacts profitability. Prastiwi and Anik (2021) also found that sectoral financing concentration lowers the profitability of Indonesian Islamic banks. However, previous studies have not distinguished between Islamic commercial banks (ICBs) and Islamic windows banks (IWBs). The latter is the Islamic business line of conventional banks. In fact, the two types of banks have different strategies in terms of financing to encourage profits, including financing strategies in various economic sectors.

This study aims to analyze the influence of sectoral financing diversification in various economic sectors on the profitability of Islamic banks. This study distinguishes profitability behavior between Islamic commercial banks and window banks. However, existing studies that investigated the profitability of ICBs and IWBs in Indonesia separately are still rare. Consequently, our study intends to fill the gap in the empirical study by exploring the influence of sectoral financing diversification on IBs' profitability in Indonesia.

LITERATURE REVIEW

Two fundamental theories propose the impact of loan diversification on bank profitability. The first theory is the traditional banking theory, for which bank loan diversification in various economic sectors reduces loan default, known as the diversification stability hypothesis. A well-diversified bank may eliminate the idiosyncratic shock on their loan portfolios since the loans are spread across different economic sectors (Berger et al., 2010). The second theory is the corporate finance

theory, for which loan concentration on specific economic sectors may build up the comparative advantage due to expertise. By specializing in a few economic sectors, A bank can monitor their loan well and reduce agency problems and asymmetric information (Denis et al., 1997).

An empirical study by Shim (2019) indicates that increased loan diversification positively impacts the bank's financial strength. The results suggest that diversifying their loan portfolio can reduce the risk of their fragility more efficiently than banks focusing their loan on a specialized area. Another study conducted by Adzobu et al. (2017) also analyzed the impact of loan portfolio diversification on profitability. The study uses ROA and ROE as bank profitability proxies, and NPLR and LLPR are used as proxies for credit risk. The result shows that the increase in loan diversification would reduce not only a bank's profitability but also increase credit risk.

Islamic banks with different management and operation commonly have specified diversification products based on Islamic transactions. Al-Kayed and Aliani (2020) also studied the diversification effect on bank risk and bank return in the Gulf Cooperation Council (GCC) region. This study suggests that Islamic banks should diversify their instruments when their risk increases, while the focus on Islamic bank instruments is favorable when risk is low to moderate. Hamid and Ibrahim (2020) examined the dynamic relationship between diversification and profitability for 18 countries in a dual banking environment from 2000 to 2016. They documented that diversification negatively influences profitability in developing countries. Sectoral diversification also lowers the profitability of 46 Islamic banks from 2000 to 2015 in six countries, but sectoral diversification's effect on profitability differs across risk levels (Šeho et al., 2021). The study of the diversification of Islamic banks in Indonesia has been conducted by Widarjono et al. (2020) and Prastiwi and Anik (2021). The result shows that financing diversification significantly increases IB's profitability.

Herfindahl-Hirschman Index (HHI) is applied to calculating sectoral financing diversification. HHI is calculated by the sum of the squares of the ratio of sectoral financing to total financing. According to corporate finance theory, sectoral financing concentration generates higher profit due to comparative advantage (Acharya et al., 2006), while financing diversification produces more profit because of less financing risk according to the traditional banking theory (Rossi et al., 2009).

H_1: *Diversification affects profitability*.

This study includes bank-specific variables as control variables that affect the IB's profitability. Bank-specific variables include size, financing, and efficiency. The size of an Islamic bank is measured by using total assets. Large banks can generate more profitability, stemming from economies of scale because of low operating costs (Hamid, 2017; Trad et al., 2017). However, a large bank may get a disadvantage since large banks are associated with less monitoring and supervision and, in turn, increase financing default (Pasiouras & Kosmidou, 2007).

H_2: *Bank size influences profitability*.

Bank liquidity can be proxied by the financing deposit ratio (FDR). High FDR indicates that banks allocate more financing than collecting money from depositors. High FDR implies that Islamic banks can produce more profit because of high financing (Mirzaei et al., 2013). However, a high FDR represents low liquidity. The low liquidity indicates Islamic banks' incapacity to control unexpected rises in assets or a fall in the financing, which may worsen Islamic banks' profitability and enhance financing default risk (Trinugroho et al., 2017).

H_3: *FDR influences profitability*.

The cost-to-income ratio (%) is a proxy for operating efficiency (Trinugroho et al., 2014). The cost-to-income ratio (CIR) calculates expenses to generate revenue per unit. The high CIR indicates that the production expense per unit revenue is high. Consequently, low CIR reveals highly efficient in operating and vice versa. Low CIR leads IB to produce high margins, so IB generates high profits (Trinugroho et al., 2018).

H_4: *CIR negatively influences profitability*.

RESEARCH METHODS

This study analyzes the influence of sectoral financing diversification with several bank-specific variables as a control variable on the profitability of IBs in Indonesia. Variable control is the bank size measured through total assets, financing measured by FDR, and operating efficiency measured by CIR. The aggregate data of ICBs and IWSs was used in this study using monthly financial statements from January 2015 to June 2021. The report's data on ICBs and IWBs was taken from the Financial Services Authority's website.

The model of the impact of diversification of sectoral financing on the profitability of ICBs and IWBs can be expressed in the regression equation:

$$ROA_t = \delta_O + \delta_1 HHI_t + \delta_2 LOGASSET_t + +\delta_4 FDR_t + \delta_5 CIR_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where ROA is the return to the asset (%), HHI is the Herfindahl-Hirschman index (%), the asset is a total asset (trillion rupiahs), FDR is the financing deposit ratio (%), and CIR is the ratio of operating costs to operating income (%).

Islamic bank financing can be categorized into 23 sectors, consisting of (1) agriculture, hunting and forestry, (2) fisheries, (3) mining and quarrying, (4) industry, (5) electricity, gas and water, (6) construction, (7) large and retail trade, (8) provision of accommodation and provision of drinking meals, (9) transportation, warehousing and communication, (10) financial intermediaries, (11) real estate, rental business, and corporate services, (12) government administration, defense and compulsory social security, (13) educational services, (14) health services and social activities, (15) community services, socio-culture, entertainment, and other individuals, (16) individual services serving households, (17) activities that are not yet clear the limits, (18) for residential home ownership, (19) for flat or apartment ownership, (20) for shophouse ownership, (21) for motor vehicle ownership, (22) for other household

appliance ownership (including multipurpose loans), (23) no other business fields. IHH is calculated using the formula as follows:

$$\text{HHI} = \left(\frac{\text{S1}}{\text{TP}}\right)^2 + \left(\frac{\text{S2}}{\text{TP}}\right)^2 + \left(\frac{\text{S3}}{\text{TP}}\right)^2 + \cdots + \left(\frac{\text{S24}}{\text{TP}}\right)^2 \quad \text{.....(1)}$$

Where TP is the total financing and S is sectoral financing. The higher IHH indicates more concentrated financing, and the lower HHI shows more diversification.

ARDL Model

This study employs a dynamic regression model due to time series data. The selected dynamic model is the Autoregressive Distributed Lag Model (ARDL) method. This study selects the ARDL method due to two important reasons. First, ARDL can be used for models with different levels of variable stationarity. Second, ARDL produces dynamic coefficients both short-run and long-run. Equation (1) is written in the form of ARDL equations as follows:

$$\Delta ROA_t = \emptyset_0 + \emptyset_1 ROA_{t-1} + \emptyset_2 HHI_{t-1} + \emptyset_3 LASSET_{t-1} + \emptyset_4 FDR_{t-1} + \emptyset_5 CIR_{t-1} + \sum_{1=1}^{n} \varphi_{1i}\, \Delta ROA_{t-1} + \sum_{1=1}^{n} \varphi_{2i}\, \Delta HHI_{t-1} + \sum_{1=1}^{n} \varphi_{3i} \Delta LASSET_{t-1} + \sum_{1=1}^{n} \varphi_{4i}\, \Delta FDR_{t-1} + \sum_{1=1}^{n} \varphi_{5i}\, \Delta CIR_{t-1} + \varepsilon_t \quad \text{.....(2)}$$

The estimation of ARDL is carried out in several steps. The first step is the stationary test of variables using the unit-roots test. The study uses the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) methods. The second step is estimating the ARDL model. The results of the ARDL model depend on the method used in determining the lag length. This method uses the Akaike Info Criterion (AIC) method, which accommodates the maximum lag length. The cointegration test is the next step in the ARDL model to know the long-run relationship between dependent and independent variables. The cointegration test in the ARDL model is done employing the Bound Testing Approach. This cointegration test uses F-statistics. Hypothesis no cointegration is $H_0 = \emptyset_1 = \emptyset_2 = \emptyset_3 = \emptyset_4 = \emptyset_5 = 0$. The Bound testing approach provides upper bound values I(1) or lower bound (0). If the F-statistic is greater than I(1), there is a cointegration. Otherwise, F-statistic (value) is smaller than I(0), there is no cointegration. However, if the F-statistic is between I(0) and I(1), there is no decision. The next phase is the Error Correction Model (ECM). Model ECMARDL is as follows:

$$\Delta ROA_t = \rho_0 + \sum_{1=1}^{n} \rho_{1i}\, \Delta ROA_{t-1} + \sum_{1=1}^{n} \rho_{2i}\, \Delta HHI_{t-1} + \sum_{1=1}^{n} \rho_{3i} \Delta\, LOGASSET_{t-1} + \sum_{1=1}^{n} \rho_{4i} \Delta\, FDR_{t-1} + \sum_{1=1}^{n} \rho_{5i}\, \Delta CIR_{t-1} + \rho_6 ECT_{t-1} + \varepsilon_t \quad \text{.....(3)}$$

Where ECT_{t-1} = error correction variable (residual) of the previous period.

Panel Mean Group (PMG) Model

This study also applies the panel method to investigate the impact of sectoral financing diversification on IB's profitability because of similar business lines between ICB and IWB that provide exactly similar products. More importantly, panel data with long time series should use the Pooled Mean Group (PMG) instead of the dynamic panel using the GMM method. The PMG proposed by Pesaran et al. (1999) provides an intermediate estimator, permitting the short-term parameters to differ between groups while imposing equality of the long-term coefficients between countries. Symmetric PMG model can be written in terms of panel ARDL as

$$\Delta ROA_{it} = \pi_{0i} + \pi_1 ROA_{it-1} + \pi_2 HHI_{t-1} + \pi_3 LASSET_{t-1} + \pi_4 FDR_{t-1} + \pi_5 CIR_{t-1} + \sum_{i=1}^{l} \gamma_{ij}\, \Delta ROA_{it-1} + \sum_{i=1}^{p} \delta_{ij}\, \Delta HHI_{it-1} + \sum_{i=1}^{p} \theta_{ij}\, \Delta LASSET_{it-1} + \sum_{i=1}^{p} \sigma_{ij}\, \Delta FDR_{it-1} + \sum_{i=1}^{p} \omega_{ij}\, \Delta CIR_{it-1} + \mu_{it} \quad (4)$$

Where $i = 1,2,..,n$ object and $t = 1,2,,..,t$ number of observations, π_{0i} show object-specific intercepts, γ_{ij} and δ_{ij} are the short-run object-specific coefficient. The long-run impact of sectoral financing diversification on profitability is measured by $-\frac{\pi_2}{\pi_1}$ and the short-run effect is measured by δ_{ij}.

RESULT AND ANALYSIS

Descriptive Statistics

Table 1 presents descriptive statistics of the variables that are being studied. The average profitability of ICBs (1.149%) is lower than that of IWBs (2.204%), meaning that IWBs' performance is better than ICBs'. Based on the IHH, the sectoral financing concentration rate of ICBs (9.865%) is lower than that of IWBs (15.831%). The average total assets of ICBs are higher than the total assets of IWBs.

Table 1
Descriptive statistics

pl	Mean	Maximum	Minimum	Std. Dev.
		ICBs		
ROA	1.149	2.150	0.160	0.481
HHI	9.865	12.218	8.535	0.873
ASSET	288630.600	411461.100	197854.300	63716.510
FDR	82.209	92.560	74.970	4.802
CIR	90.518	99.040	81.860	4.998
		IWBs		
ROA	2.204	2.820	1.680	0.262
HHI	15.831	19.064	14.036	1.204
ASSET	131013.400	204736.500	66964.740	42464.690
FDR	76.688	83.410	69.190	3.457
CIR	101.906	111.760	91.320	5.012

Source: Data Processed

The results mean that the operating scale of ICBs is higher than IWBs. The high scale of this business is also indicated by the financing rate as measured by FDR where ICBs is higher than IWBs. The higher financing of ICBs shows that ICBs are more aggressive in distributing financing compared to IWBs. The level of operating efficiency measured by CIR indicates that ICBs are more efficient compared to IWBs.

ARDL Results

The requirement for the ARDL model and its advantage is that the level of data stationarity can be mixed as long as the second difference is not stationary (Pesaran & Shin, 1998). The study first examines the data stationarity using the unit-root tests of ADF and PP methods. The results of the ADF and PP tests without and with trends are displayed in Table 2. Variables ROA and CIR are stationary in levels for both ICBs and IWBs. Nevertheless, all variables are stationary in the first difference. These results show that the stationary level of data is different. However, no data is stationary in the second difference, so the ARDL model can be applied to analyze the profitability of IBs in Indonesia.

Table 2
ADF and PP unit root test results

	Level				First Difference			
	ADF		PP		ADF		PP	
	C	T	C	T	C	T	C	T
ICBs								
ROA	-1.272	-3.866**	-1.206	-4.005**	-10.042***	-10.009***	-10.046***	-10.012***
HHI	2.153	0.559	1.865	0.232	-7.412***	-7.757***	-7.587***	-7.808***
LASSET	-0.097	-1.598	0.065	-3.004	-5.839***	-5.796***	-11.508***	-11.428***
FDR	-0.847	-2.500	-0.753	-2.290	-11.471***	-11.393***	-11.425***	-11.349***
CIR	-0.707	-3.492**	-0.682	-3.625*	-8.925***	-8.908***	-8.925***	-8.908***
IWBs								
ROA	-3.048**	-3.186*	-4.267***	-4.374***	-13.075***	-13.001***	-16.074***	-15.986***
HHI	0.850	-0.477	-0.049	-0.866	-11.729***	-11.929	-11.677***	-11.930***
LASSET	-1.399	-0.921	-1.346	-2.215	-4.748***	-4.928***	-13.860***	-14.908***
FDR	-1.930	-2.270	-2.004	-2.394	-9.366***	-9.306***	-9.349***	-9.291***
CIR	-2.867*	-3.312*	-2.547	-3.123	-8.913***	-8.865***	-12.655***	-12.554***

Source: Data Processed
Note: ***, **, and * significant at 1%, 5%, and 10%

Estimation of the ARDL model as an autoregressive regression model requires an optimal lag selection. This study uses the Akaike Information Criterion (AIC) to select a lag length with a maximum length of 6. The ARDL results of ICBs and IWBs are displayed in table 3. Model ARDL for ICBs is ARDL (1,0,5,0,2), while the IWBs model is ARDL (1,1,5,0,2). The coefficient of determination (R^2) is 0.9822 and 0.9447 for ICBs and IWBs, respectively, meaning that the independent variable in the ARDL model can explain the profit rate of 98.22% for ICBs and 94.47% for IWBs, respectively. Based on the value of R^2, the ARDL model, as a time series regression model, can explain the profit rate of Islamic banks in Indonesia.

The middle part of Table 3 shows results for the diagnostic test on autocorrelation and heteroskedasticity problems with the LM and ARCH tests. Autocorrelation problems do not exist, but heteroskedasticity problems exist for ICBs. So the ARDL model for ICBs is estimated using the white method to produce a robust estimator. In contrast, the IWBs model found no problems of autocorrelation and heteroskedasticity. The next diagnostic test is the stability test of the estimated parameters using the CUSUM Test and CUSUM-Squares. Figures 1 and 2 display the parameter stability test. According to the CUSUM-Squares, ICBs have parameters stability, but it is less stable in a given period and tends to be stable. Meanwhile, the estimated parameters of IWBs are stable using both the CUSUM and CUSUM-Squares.

Table 3
ARDL results

Variable	Islamic Commercial banks		Islamic Window Banks	
	Coefficient	Prob	Coefficient	Prob
C	20.9981***	0.0008	5.7628***	0.0005
ROA(-1)	0.4196***	0.0060	0.5910***	0.0000
HHI	0.0930**	0.0169	0.0170	0.5794
HHI(-1)			-0.0510*	0.0941
LASSET	-1.2314**	0.0208	-0.5231	0.1786
LASSET(-1)	1.3417*	0.0604	1.7131***	0.0002
LASSET(-2)	-0.8548	0.2333	-2.1889***	0.0000
LASSET(-3)	0.5756	0.2396	1.5173***	0.0002
LASSET(-4)	0.4362	0.4878	-1.2176***	0.0027
LASSET(-5)	-1.3386*	0.0548	0.5632	0.1061
FDR	-0.0130**	0.0110	-0.0040	0.1857
CIR	-0.1405***	0.0000	-0.0868***	0.0000
CIR(-1)	0.0822***	0.0003	0.0497***	0.0000
CIR(-2)	-0.0164**	0.0129	0.0066	0.1694
R-squared	0.9822		0.9447	
LM	0.5680		0.8920	
ARCH	7.1982***		0.5959	
F-statistic	5.4857***		3.1163*	

Source: Data Processed
Note: ***, **, and * are significant at 1%, 5% and 10%. Upper bound I(0) for 1%, 5%, and 10% are 4.37, 3.49, and 3.09

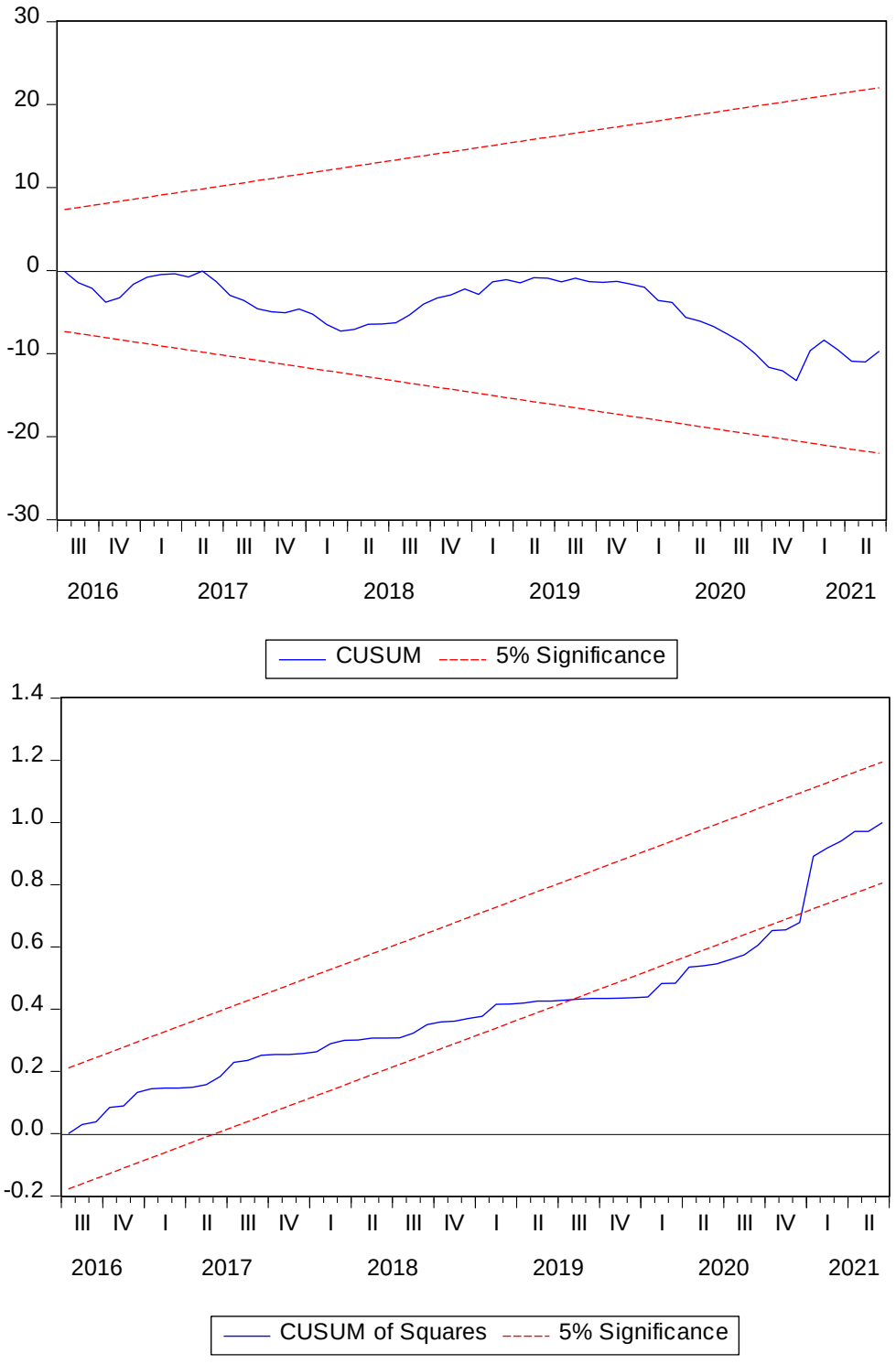
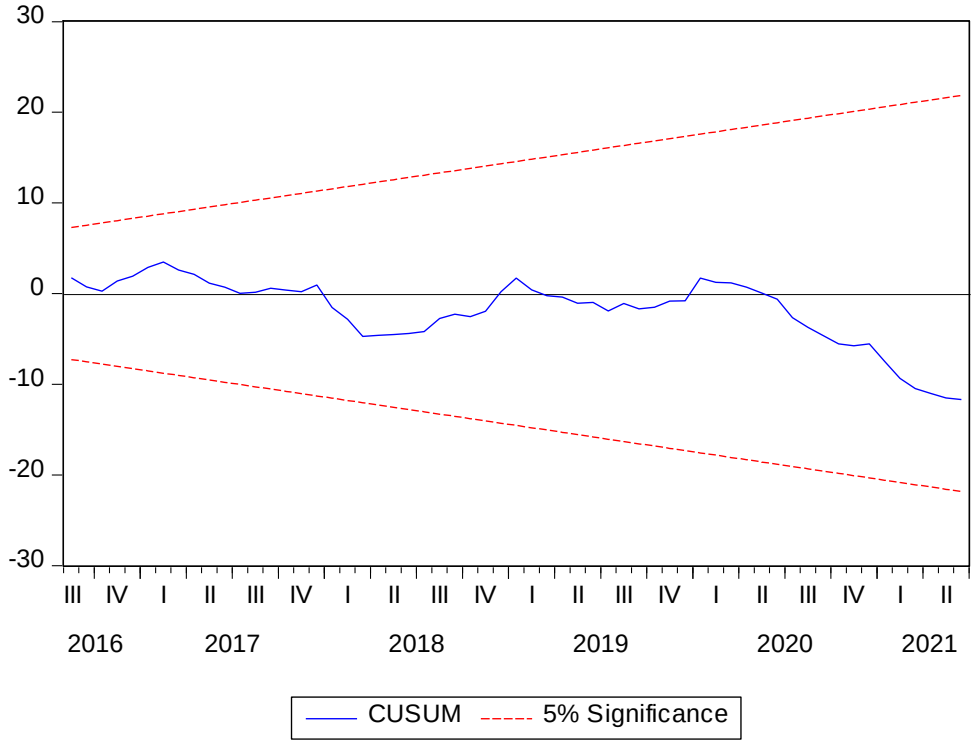


Figure 1. Stability Test of Islamic Commercial Banks

Source: Data Processed



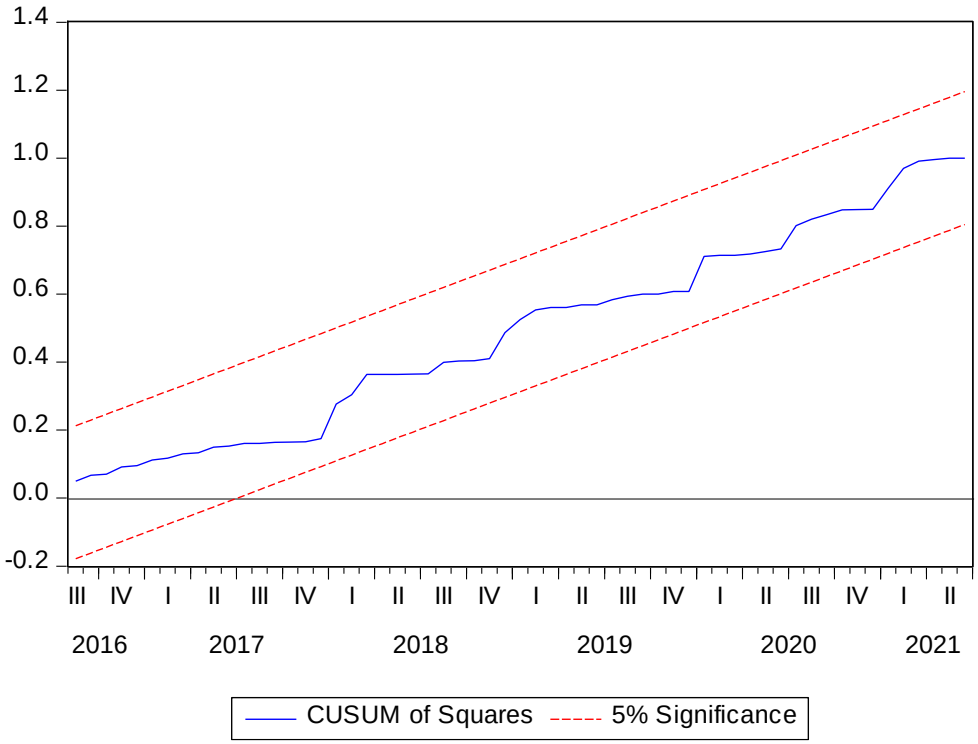


Figure 2 Stability test of Islamic Window Banks

Source: Data Processed

The next step is to test the long-run relationship between variables using the cointegration test following the Bound testing approach (Pesaran et al., 2001). The results of the bound testing approach are displayed at the bottom of table 3. The computed F statistics for ICBs and IBWs are 5. 4875 and 3. 1163, respectively. The F-

statistics for ICBs exceed I(1) at α =1%, while the F-statistics for IWBs is greater than I(1) at α =10%. This cointegration test indicates that the relationship between the dependent and independent variables is found in the long run.

The results of the unit-root and cointegration tests illustrate a disequilibrium in the short run. However, the disequilibrium will be corrected to move the equilibrium condition in the long run. The Error Correction Model (ECM-ARDL) can investigate this short-run disequilibrium condition by including the error variable ECT(-1) as the correction variable to eliminate this imbalance. Table 4 presents the results of the ECM-ARDL model. As an ECM model, ECM-ARDL is applicable if the error correction variable is negative and significant. The findings showed that the ECT(-1) variable was negative and significant at α=1% for ICBs and IWBs. However, the adjustment process has a different speed between ICBs (-0.5804) and IWBs (-4.090).

Several independent variables affect the profitability of IBs in the short run. Indeed, sectoral financing diversification (IHH) does not affect the profitability of both ICBs and IWBs. The explanatory variables that affect profits in the short run are assets and operating efficiency for the ICBs case. Meanwhile, the explanatory variables that influence the profits for IWBs are assets and operating efficiency. These results indicate that only Islamic bank-specific variables affect the short-run profitability of Islamic banks.

Table 4
ECM-ARDL Model Results

Variable	Islamic Commercials Banks		Islamic Window Banks	
	Coefficient	**Prob.**	**Coefficient**	**Prob.**
D(HHI)	-	-	0.0170	0.5199
D(LASSET)	-1.2314***	0.0059	-0.5231*	0.0971
D(LASSET(-1))	1.1816***	0.0069	1.3260***	0.0001
D(LASSET(-2))	0.3268	0.4224	-0.8630***	0.0014
D(LASSET(-3))	0.9024*	0.0523	0.6543**	0.0271
D(LASSET(-4))	1.3386***	0.0033	-0.5632*	0.0631
D(CIR)	-0.1405***	0.0000	-0.0868***	0.0000
D(CIR(-1))	0.0164***	0.0299	-0.0066	0.1273
ECT(-1)	-0.5804***	0.0000	-0.4090***	0.0000
R-squared	0.8761		0.9282	

Source: Data Processed
Note: ***, **, and * significant at 1%, 5% and 10%

Table 5 shows the long-run coefficients of ARDL models. The results of ICBs show that the sectoral financing concentration (IHH) has a positive influence on profits at α = 1%. Assets, financing, and inefficiency negatively affect profits at α = 1%. Meanwhile, the results of IWBs indicate that sectoral financing diversification negatively influences profit at α = 5%. This finding indicates that the sectoral financing concentration will increase profits for ICBs, but the sectoral financing concentration will reduce profits for IWBs. Previous research has shown that the financing concentration increases profits in the case of Islamic rural banks in Indonesia (Widarjono et al., 2020) and the case of aggregate Islamic banks in Indonesia (Prastiwi & Anik, 2021). Other studies document that the sectoral financing concentration

decreases the profitability of IBs in the Gulf Cooperation Council (GCC) (Al-Kayed & Aliani, 2020).

In addition to IHH variables, all bank-specific variables affect the profitability of ICBs and IWB at α = 1%. Assets are negative and significant, meaning that the greater size of the Islamic bank will lower the profit rate. Financing, as measured by FDR, affects profits negatively. The greater the financing will reduce the profitability of Islamic banks. The inefficiency of operations has a negative effect on IB's profitability. These findings suggest that the inefficiency of Islamic banks will lower their profitability. The interesting thing is that all coefficients of ICBs are higher than those of explanatory IWBS. The results imply that ICBs' profitability is more sensitive to sectoral financing diversification strategies and changes in bank-specific variables compared to IWBs

Table 5
Long-Term Coefficients

Variable	Islamic Commercial Banks		Islamic Windows Banks	
	Coefficient	Prob.	Coefficient	Prob.
C	36.1766	0.0000	14.0895	0.0000
HHI	0.1602***	0.0037	-0.0833**	0.0385
LASSET	-1.8456***	0.0004	-0.3323***	0.0009
FDR	-0.0225***	0.0078	-0.0097	0.2009
CIR	-0.1288***	0.0000	-0.0746***	0.0000

Source: Data Processed
Note: ***, **, and * significant at 1%, 5% and 10%

Pooled Mean Group Results

The first step in the pooled mean group (PMG) model is to test the panel data stationer using the unit-root panel method. The study used the LCC method and the IPS method (Levin et al., 2002). The unit-root panel test is carried out without and with the trend. Table 6 presents the results of unit-root panel tests. The NPF, HHI, asset, FDR, and CIR variables are not stationers at the level, but all variables are stationary at the first difference using the IPS method.

Once it is known that all data is not stationary at the level but stationary at the first difference, the next step is to test the long-run relationship between variables within the data panel using the Pedroni method, either without or with the trend (Pedroni, 1999). There are two statistical tests, namely individual tests and group tests. The results of the cointegration test from Pedroni are displayed in Table 7. All statistical tests in cases without trends are significant, while tests with trends show that six statistical tests are significant. These results indicate that there is a long-run relationship between the variables studied.

Table 6
Panel Unit Root Tests

	Level				First differences			
	LLC		IPS		LCC		IPS	
	C	T	C	T	C	T	C	T
ROA	0.210	-0.061	-0.484	-1.658	0.033	1.355	-7.118***	-6.605***
HHI	4.027	3.423	4.360	3.427	-4.127***	-4.665***	-4.446***	-4.287***
LASSET	-1.417*	1.881	0.769	1.764	1.479	2.812	-4.755***	-4.213***
FDR	-0.068	0.395	-0.003	-0.048	-0.687	0.288	-5.493***	-4.833***
CIR	0.661	0.816	0.688	-0.956	-1.011	0.075	-6.564***	-5.988***

Source: Data Processed
Note: C and T stand for constant and constant with trend. ***, **, and * significant at 1%, 5%, and 10%.

Table 7
Panel Cointegration Tests

ROA	Islamic Commercial Banks		Islamic Window Banks	
	Statistic	Prob.	Statistic	Prob.
Panel v-Statistic	1.2360	0.1082	0.4451	0.3281
Panel rho-Statistic	-4.8610***	0.0000	-4.7917***	0.0000
Panel PP-Statistic	-4.7813***	0.0000	-5.5899***	0.0000
Panel ADF-Statistic	-1.9319***	0.0267	-2.4160***	0.0078
Group rho-Statistic	-4.7082***	0.0000	-4.3384***	0.0000
Group PP-Statistic	-5.3551***	0.0000	-5.7417***	0.0000
Group ADF-Statistic	-1.9863**	0.0235	-2.3704***	0.0089

Source: Data Processed
Note: ***, **, and * significant at 1%, 5%, and 10%

After the variables studied are integrated, the last step is to estimate the mean group (PMG) panel model. Table 8 presents the estimated results of the PMG panel model. As a dynamic model, the PMG model produces both short- and long-run coefficients. The short-run estimation model is applicable as long as the error correction variable ECT(-1) is negative and significant. The findings show that the coefficient of ECT(-1) was -0.2348 and significant at α =10%. That is, the imbalance in the short run will be corrected with an adjustment rate of 0.2348% each month. In the short run, several variables affect profits. The profit of the previous period has a negative effect on profits. Sector financing concentration has a positive influence on profits. Assets have a positive impact on profits, and operating inefficiencies negatively affect profits.

In the long-run condition, PMG produces a negative and significant for sectoral financing diversification at α = 10%. That is, the sectoral financing concentration will reduce the profit rate of Islamic banks. Assets negatively affect profits at α =1%, and operating inefficiencies negatively influence profits at α=1%. The results of this PMG method reinforce the results of the ARDL method.

Table 8
PMG Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Long Run Equation				
HHI	-0.0664*	0.0353	-1.8798	0.0624
LASSET	-0.3492***	0.0952	-3.6692	0.0004
FDR	-0.0040	0.0068	-0.5882	0.5574
CIR	-0.0705***	0.0082	-8.5951	0.0000
Short Run Equation				
C	3.0546	2.2664	1.3478	0.1801
D(ROA(-1))	-0.2795***	0.0328	-8.5088	0.0000
D(HHI)	0.1201	0.0883	1.3597	0.1763
D(HHI(-1))	0.0378*	0.0196	1.9300	0.0558
D(ASSET)	-0.4291	0.8047	-0.5332	0.5948
D(ASSET(-1))	1.3217***	0.2145	6.1614	0.0000
D(FDR)	-0.0068	0.0083	-0.8274	0.4095
D(FDR(-1))	-0.0020	0.0033	-0.5983	0.5507
D(CIR)	-0.0968***	0.0352	-2.7466	0.0069
D(CIR(-1))	-0.0245***	0.0050	-4.8658	0.0000
ECT(-1)	-0.2348*	0.1723	-1.3631	0.0876

Source: Data Processed
Note: ***, **, and * significant at 1%, 5%, and 10%

Discussion

The main purpose of this study is to analyze the influence of sectoral financing diversification as measured by IHH on the profitability of Islamic banks in Indonesia. Based on the long-term coefficient of the panel ARDL, the sectoral financing concentration has a negative impact on the profitability of Islamic banking in Indonesia. This long-run coefficient is a combined coefficient between ICBs and IWBs where the concentration of sectoral financing from IWBs is higher. Accordingly, the result shows that the concentration of sectoral financing has a negative effect on profitability, supporting the diversification stability hypothesis. This finding is in line with previous findings where the concentration of sectoral financing negatively affects the profitability of Islamic banks (Hamid & Ibrahim, 2020; Šeho et al., 2021; Prastiwi & Anik, 2021).

However, according to the ARDL results, this study showed that the sectoral financing concentration could increase profits for Islamic commercial banks, supporting the concentration stability hypothesis. However, the sectoral financing concentration decreased the profit rate for Islamic Windows banks, confirming the diversification stability hypothesis. The two findings are certainly contradictory. The explanation of these conflicting results can be explained in Figure 3. The sectoral concentration financing rate of IWBs is higher than the sectoral concentration financing rate of ICBs. A high rate of sectoral financing concentration causes a high

probability of financing defaults and further reduces the profitability of Islamic window banks.

Some research suggests that the financing concentration increased the non-performing financing (NPF) of Islamic banks. The high sectoral financing concentration causes high financing defaults in the form of non-performing loans (NPL) of conventional banks in African countries (Adzobu et al., 2017; Mulwa, 2018). Prastiwi and Anik (2020) also found that the sectoral financing concentration has increased the NPL of conventional banks in Indonesia. Widarjono and Rudatin (2021) also showed that the financing concentration of Islamic bank financing based on the types of contracts such as *mudharabah*, *musyarakah*, *murabahah*, *istisna*, and *ijarah* increases the NPF of IBs in Indonesia.

These findings show that the sectoral financing concentration is the right strategy to increase the profitability of ICBs, according to ARDL results. This strategy is good for ICBs, considering that they do not have enough experience in financing in various economic sectors. Sectoral financing diversification strategies lead to high operating costs because it requires improving employee skills in various economic sectors and high supervisory costs. The existence of extra costs from this diversification policy causes an increase in operating costs to which the cost-to-income ratio of Islamic banks is relatively high compared to conventional banks, so it can reduce the profitability of ICBs.

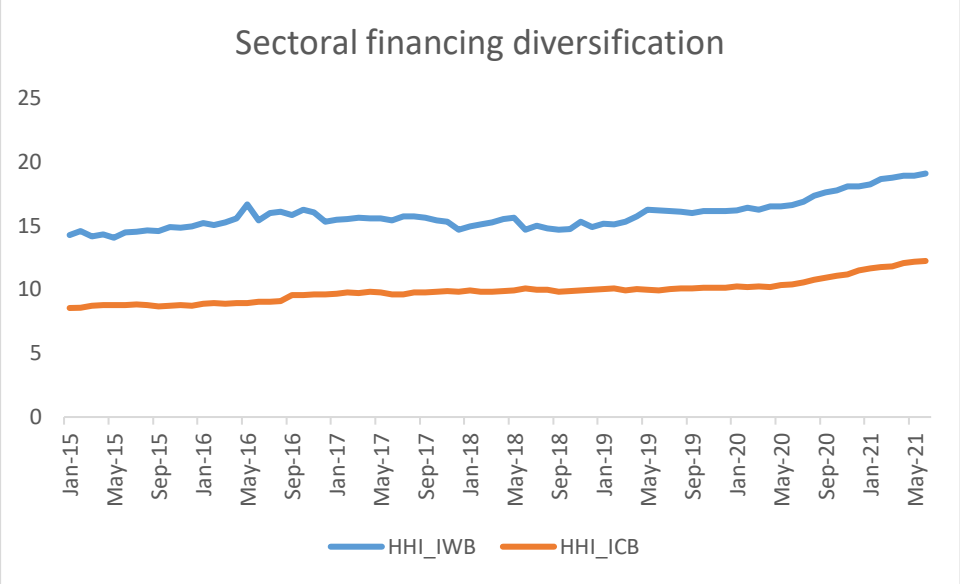


Figure 3. Sectoral Financing Diversification for ICBs and IWBs

Source: Data Processed

Meanwhile, the sectoral financing diversification strategy is the right strategy for IWBs. IWBs have a high level of financing concentration, so it creates a high financing risk. Therefore, sectoral diversification for various economic sectors is a common strategy for mitigating financing risk. However, this strategy must be accompanied by strict supervision, from customer selection to financing repayment.

This diversification strategy may increase operating costs. However, the monitoring cost may be low since the parent bank of IWBs is a conventional bank with good experience in managing its financing, so it can monitor financing well. Indeed, at the same time, this strategy can reduce the risk of financing defaults so that it increases the probability of IWBs

Bank-specific variables, namely assets, financing, and operating efficiency, also affect the returns of Islamic banks. Assets negatively affect profits. Assets represent the size of Islamic banks. The larger the asset, the greater the ability of Islamic banks to provide high financing. However, this ability has not driven Islamic bank profits because of the high NPF of Islamic banks (Ikramina & Sukmaningrum, 2021). The finding of the negative influence of assets on profits is strengthened by the negative influence of financing (FDR) on the profitability of ICBs. The inefficiency of Islamic bank operations also has a negative effect on the profitability of Islamic banks. Low efficiency causes operating costs to be very expensive, so it lowers the returns of Islamic banks. This finding is in line with the case of Islamic banks in the Gulf Cooperation Council (GCC) (Belkhaoui et al., 2020).

CONCLUSION

The main purpose of this study is to analyze the influence of sectoral financing diversification on the profitability of Islamic banks in Indonesia. In addition, some bank-specific variables are also augmented in explaining the profitability of Islamic banks in Indonesia. This study distinguishes Islamic Banks into two: Islamic commercial banks and Islamic window banks. The strategy of sectoral financing concentration can strengthen the returns of Islamic commercial banks, but the sectoral financing diversification strategy can boost the returns of Islamic Window banks.

There are some important implications for the findings of this study. First, sectoral financing concentration is a good strategy for Islamic Commercial Banks. Most Islamic commercial banks do not have enough experience to diversify financing, so the concentration of sectoral financing is more resilient. The implication is that Islamic Commercial Banks must build an advantage in certain sectors of the economy. For this reason, it is necessary to increase labor skills to master the economic sectors that can create an advantage. Second, the policy of diversifying sectoral financing is appropriate for Islamic Window banks. As the business line of a conventional bank, the parent bank has enough experience in channeling funds to various economic sectors. However, this diversification policy must be balanced with good supervision by Islamic Window Bank because some revenue-sharing contracts are subject to deviations due to moral hazards and asymmetric information.

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