Earnings growth, marketability and the role of Islamic financial literacy and inclusion in Indonesia

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Received 22 December 2021
Revised 12 April 2022
19 September 2022
Accepted 1 November 2022

Abstract

Purpose – This paper aims to describe earnings growth and marketability generated by Islamic banks in Indonesia and to find the effects of a moderated mediation model on the nexus between Islamic financial inclusion and literacy, marketability and earnings growth.

Design/methodology/approach – The sample of this research was Islamic commercial banks in Indonesia listed on the Financial Services Authority and Bank Indonesia using time-series data of financial statements from 2014 to 2021. This research was designed using the model of moderated mediation.

Findings – Earnings growth experienced by Islamic banks in Indonesia has a positive average value followed by a positive marketability. Based on the significance test, the level of earnings growth is positively affected by marketability. The result indicates that the higher the marketability, the higher the earnings growth of Islamic banks. In a moderated mediation model, the result has found a positive effect on the nexus between inclusion supported by the role of literacy, marketability and earnings growth. It indicates that Islamic financial inclusion moderated purely by the role of literacy enhances Islamic banking marketability so that earnings growth continuously increases.

Practical implications – The increase of literacy is an empirically proven way to strengthen market power, so the finding obtained in this research can be feedback from the scheme made by the Indonesian government in supporting the Islamic business and for the corporate area being eager to grow greater and faster in competing and equalizing its power in the banking industry. In addition, this research implies that other countries continuously promote and increase the role of Islamic financial literacy and inclusion to enhance market power and increase the growth in Islamic banking.

Originality/value – This research extends the limited scholarly work on the role of Islamic financial literacy and inclusion using a different design from prior studies. The framework of market power theory has been elaborated to find the effect of Islamic financial inclusion supported by the role of literacy on earnings growth through marketability. This research is a trailblazer in testing the nexus model between variables allowing the path analysis using the moderated mediation model.

Keywords Earnings growth, Inclusion, Islamic banking, Literacy, Marketability

Paper type Research paper

This paper was the best selected paper and invited to be presented in Islamic Finance and Economic Research Forum in 2019 (FREKS 2019) held by Financial Services Authority (OJK) collaborated with Indonesian Association of Islamic Economist (IAEI). The authors thank Dr Md Nazim Uddin, A Post-Doctoral Fellow from Ankara University Turkey, for assistance in the process of accomplishment and proofreading of this paper.

Journal of Islamic Accounting and Business Research
© Emerald Publishing Limited
1759-0817
DOI 10.1108/JIABR-12-2021-0322

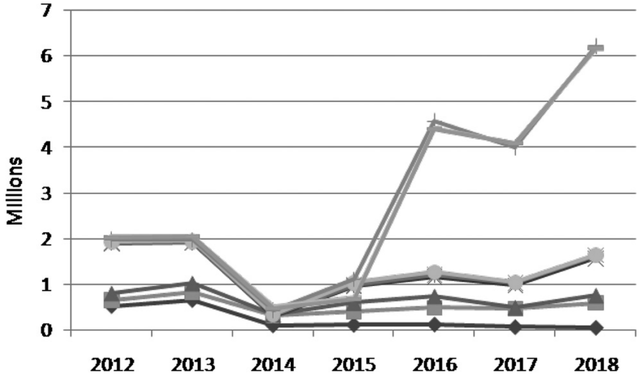
1. Introduction

The phase of developing Islamic business still becomes a global highlight (Abdul Aris *et al.*, 2013; Alharbi, 2015; Iqbal and Mirakhor, 2011; Siddiqi, 2006). The bank is one of the businesses undertaking its operations under Islamic principles. Their growth powers seem not comparable with conventional banks. In Indonesia, some cases encouraging the stagnancy of the growth in the Islamic banking industry are the limited access to the Islamic product (Abdul Aris *et al.*, 2013; Ahmed, 2011) in the isolated regions, no synergy with stakeholders and less understanding of terms of Islamic business so that those result in low financial literacy and inclusion (Dewi *et al.*, 2020). Thus, the cases should be solved. In 2017, Financial Services Authority (from now on referred to as OJK) designed and launched the roadmap for a strategy for the development of finance (OJK, 2019b). It designs a scheme regarding Islamic financial literacy and inclusion. In this context, Islamic banks attempt to demonstrate the scheme by socializing Islamic business with society. The government has been participating with the university in educating citizens and labeling and campaigning the scheme through seminars, focus group discussions and conferences (Bisnis.com, 2022; OJK, 2021a, 2021b). Meanwhile, financial corporations join in shining the literacy and promoting the product so that people can be involved in Islamic financial business. Scholars also make another effort. They are involved in demonstrating their works to support the development of the phase of Islamic business in Indonesia (Ali *et al.*, 2019; Hidayat, 2019; Nur Rianto Al Arif and Rahmawati, 2018; Umar, 2017). Their engagement helps analyze the phase of the development of financial literacy and inclusion through the literature study (Adzimatinur and Manalu, 2021; Albaity and Rahman, 2019; Ali *et al.*, 2019; Amidjono *et al.*, 2016; Cohen *et al.*, 2022; Hidayat, 2019; Setyawati and Suroso, 2016).

As launched by Bank Indonesia in 2002 related to the blueprint of the development of Islamic banking, the forecast of future growth was established at the 20% level in the national banking industry (Bank Indonesia, 2002). Unfortunately, the expected growth is not in line with the actual growth (Okezone, 2017). In 2018, Law No. 21 of 2008 regarding Islamic banking was enacted to establish the basis of regulation, including the banking governance, prudential principle, risk management, guidance authority (*fatwa)*, committee and supervision in Islamic banks (Bank Indonesia, 2008). The law is evidence of the performance made by the Indonesian government in leading the increase in the growth of Islamic banking. In recent years, it has not reached the expected growth. As reported in Okezone (2017), market share of Islamic banking in Indonesia is still 5% and estimated at the 20% level in future few years. It points out that the growth of Islamic banking in the banking industry is stagnant at the 5% level and has not yet reached the current estimation target.

Indonesia, a country with the largest Muslim population in the world, is leading Islamic financial businesses to grow more in the future. It may make a profitable expectation for the banking area to participate in Islamic business through new investment or spin-off policy (Aggarwal and Garg, 2019). At the end of 2019, there were 14 Islamic commercial banks and 20 conventional banks holding Islamic business units (OJK, 2019a). An increasing reaction to the growth phase leads this research to demonstrate the growth and marketability absorbed by Islamic banks. Although there has been an increase in total number of Islamic banks, market power in Islamic banking is still stagnant at the 5% level. The given problem is more clearly illustrated when all Islamic commercial banks fell within the losses in 2014, as shown in Figure 1, indicating that the income in millions of Rupiah moved downward in 2014, so this occurrence pushed them to get up and grab a greater profit in the market industry.

The program of literacy and inclusion is held to enhance the knowledge regarding Islamic finance and society's involvement in supporting the national economy's growth.



Source: Authors' calculation based on Indonesia Financial Services Authority Data

Figure 1. Islamic commercial banks' performance over the period of 2012–2018

Through OJK and Bank Indonesia, the Indonesian government goes on the field to educate and coach society. The synergy with the banks is also performed to persuade people to invest and become customers. Academicians, students and civil societies are considerable perpetrators. Slow growth in the market share makes the government ask all stakeholders to integrate and support the program of literacy and inclusion.

An idea to provide feedback should be conducted by testing the feasibility of literacy and inclusion in playing the role at the level of marketability affecting the growth. Some prior studies are only designed plainly to enhance the literature in the context of Islamic finance by seeking to analyze the fundamental determinants of the market share (Nur Rianto Al Arif and Rahmawati, 2018; Syachfuddin and Rosyidi, 2020) and survey to find the tendency of financial literacy on the behavior (Ateş *et al.*, 2016; Setyawati and Suroso, 2016) as well as financial inclusion on the national growth (Sanjaya, 2016). Recently, Islamic banking seems more enthusiastic about gaining market power and growing, while Islamic financial literacy and inclusion look superior to accelerating growth. Therefore, this research can contribute to the program of Islamic financial literacy in Indonesia, elaborated by the tenet of market power. This finding can be recognized as a scientific response to the scheme made by the Indonesian government in leading to the increase of growth in Islamic business and becoming a means to promote financial inclusion and literacy in the world continuously. From an additional point of view, this research design provides a novelty using a moderated mediation model under the role of Islamic financial literacy and inclusion. The result of this research also provides the latest sound knowledge basis to respond to financial literacy and inclusion in playing their role on marketability as a mediation variable so that the level of Islamic banking growth continuously increases. The contribution to the body of knowledge is also marked in this research. It tackles the concept of marketability elaborated through market power theory. To the best of our knowledge, this research also becomes the first research using alternative measurement. It uses the additional approach in estimating Islamic financial literacy using disclosure index and inclusion using total customers.

The rest of this research paper is outlined as follows. Section 2 briefly presents the theory of market power and the development of the hypotheses. A research method in Section 3 presents sample, variable and data analysis. Section 4 outlines the finding of the research outlining results and discussion. Finally, Section 5 provides the summary and concluding remarks, including the suggestions and areas for future research.

2. Theoretical framework and hypothesis development

2.1 Market power theory

In expanding the business, a corporate area attempts to improve the quantity and quality of goods and services. In the banking industry, services are its profit area gained from the difference of interest between the loan and savings. High competition between banks will reduce bank profits. It will press the credit interest rate, reducing the debtor's default risk.

Furthermore, market power can be managed based on the effort of banks to affect the price of products and services in the context of competition. It is called marketability. As Berger (1995) implied, market power describes the concentration affecting performance. The bank with greater power is easy to control in the market, so the fluctuation in the market (volatility) is avoidable. This research uses the concept of structure conduct performance (SCP) in the tenet of market power, revealing that structure can affect the conduct of a firm to maximize the profit through price above marginal cost ($P > \mathrm{MC}$). The increase in the level of performance could occur due to taking a more significant market power. The bank with a dominant market share is a determinant of marketability in the banking industry, deals with the market's competition and reflects the level of power in the market (Abbas and Arizah, 2019).

In the literature on SCP, scholars use the Lerner Index as a rational approach to measure market power in the context of the intensity of competition (Căpraru *et al.*, 2020). The index is the best tool to assess individual power and helps evaluate banking performance (Leon, 2014). It assumes that maximal profit is at the value of marginal cost below price ($\mathrm{MC} < P$). If the value is one, market power is perfect, and Lerner (1934) assumed it into the degree of monopoly.

2.2 Marketability and the role of literacy and inclusion

If market power becomes more extraordinary, it will indicate that the firm can grow higher. The power also supports banking stability (Turk Ariss, 2010). By controlling the market, the competition could be won, as the market share affects the banking performance (Sahile *et al.*, 2015). The bank with higher marketability tends to easily gain more profit. When the bank competes to obtain market share, it affects the bargaining position in the market, resulting in a higher profit. Besides, Islamic banks creating the differentiation of products can increase market share. Islamic banking competitiveness is necessary for financial stability (Risfandy *et al.*, 2016).

Conventional banks in Indonesia have higher market power than Islamic banks (Cupian and Abduh, 2017). As conventional banks are dominant, the marketability absorbed by Islamic banks is slow in the market (Sunarmo, 2018). It should be watched to avoid volatility. When Islamic banking obtains a lower power in the marketability, the customers tend to convert their funds to a conventional bank because Islamic banks are susceptible to profit–loss sharing, where market shock may occur, and the interest rate tends to be on the rise.

Marketability is the bank's effort in charging the price and incurring marginal costs (Abbas and Arizah, 2019). The bank has the power fundamentally to affect the product price. By considering the competition in the deposit and loan market, the magnitude of marketability may lead to an increase in the level of growth. In the level of business competition, the increasing competition creates a decline in market power (Weill, 2011).

The level of growth may be higher when Islamic banking has greater marketability; otherwise, it could decline when the marketability is weak. Although the magnitude of Islamic banking's growth has not been able to equal conventional banking, stakeholders expect at least that the growth can increase in line with the phase of the development of marketability.

The Indonesian government, through OJK, is attempting to do more action after launching the national financial literacy strategy called SNLKI. It contains a framework concerning the implementation of the activity of inclusion and literacy (Okezone, 2017). The core is to encourage all stakeholders to join in the activity. Housewives, students, employees, business perpetrators, marginal people and farmers are literacy subjects. The increase in their involvement in the financial sector has already been a significant policy globally made by each government worldwide (OECD, 2013; Peterson and Arun, 2018).

Literacy and inclusion can affect national growth (OECD, 2013; Ozurumba and Charles, 2019; Sanjaya, 2016; Umar, 2017). The acceleration of the profitability of Islamic banking is expected to occur. The role of literacy and inclusion may affect marketability and lead to an increase in earnings growth. Literacy can serve as a moderator on inclusion because it is an educational process providing knowledge in terms of financial activity.

As implied by the Association of Chartered Certified Accountants (ACCA, 2014), literacy involves the concept and the understanding of communication in the financial context, being good at managing and making decisions. It has been formulated worldwide as one of the fundamental drivers to lead economic growth and financial stability, although the development of financial literacy obtained by society is a challenge to the growth of countries (OECD, 2013). Financial literacy can lead to increased firm performance, as previous scholars found that the nexus between financial literacy and firm performance is significant (Dahmen and Rodríguez, 2014). Improving financial literacy makes the financial system stable (Berger *et al.*, 2009). The role of literacy would aid in improving the financial system (Agarwalla *et al.*, 2015).

The gist of this research model is to hypothesize the nexus between inclusion and marketability moderated by the role of literacy. Islamic financial inclusion is the openness and involvement in accessing and consuming Islamic financial products. The inclusion can improve when increasing literacy (Agarwalla *et al.*, 2015; Sardiana, 2016; Shen *et al.*, 2018). The improved financial literacy can promote digital financial products so that people can understand finance and become good at choosing and using a product based on Islamic principles. Financial literacy leads people to select and access financial products suitable for usage (Braunstein and Welch, 2002).

Financial inclusion is an advanced element in making a financial decision. When people understand financial literacy, they may save and invest. Islamic banks lead the competition in terms of product and service innovation. People will integrate with the banking service. Tahiri Jouti (2018) implied that financial inclusion causes Islamic finance to be able to provide access to Islamic financial services, both savings and insurance. Related to literacy, it has a function of providing the strategy related to the service features in line with the users' needs. Optimizing the literacy scheme tends to lead to a substantial nexus between Islamic financial inclusion and marketability. In the context of banking performance, the outcome of the role of literacy leads the corporate areas to provide products and services in line with the needs of society. When people tend to enjoy the services, they are good at managing their finances. If the bank as a financial sector continuously facilitates them, the inclusion will increase slowly, resulting in enhanced performance. Under market power theory, literacy will strengthen inclusion, resulting in the acceleration of the level of market power in Islamic banking so that the level of earnings growth increases. The first hypothesis implies that increasing marketability is determined by the effect of inclusion moderated by literacy. In other words, Islamic financial inclusion moderated by the role of literacy will affect marketability:

H1. Islamic financial literacy has a moderating effect on the nexus between Islamic financial inclusion and marketability.

2.3 Earnings growth, marketability and the role of literacy and inclusion

Earnings growth of Islamic banking will increase if literacy and inclusion can grow higher. Greater marketability supported by the reinforcement of literacy and inclusion leads to a higher profit. Under market power theory, the bank with more excessive power can maintain stability amid the competition. The role of literacy in boosting marketability may be a determinant of the growth of bank performance. An increasing involvement due to literacy support makes society understand the Islamic financial instrument. It refers to people having access to the instrument of savings, remittances, credit, etc.; furthermore, financial inclusion positively affects national growth (Sanjaya, 2016; Umar, 2017). The process of financial literacy may affect inclusion. People can migrate to Islamic banks when they know and understand Islamic financial business (Tahiri Jouti, 2018). Nmadu and Mika'ilu (2018) found that financial literacy influences financial stability. If inclusion is supported, improved financial literacy may be able to impact the level of stability.

Meanwhile, the marketability on the greater power level can be a mediator to boost the growth rate. If the role of literacy strengthens inclusion, it will affect marketability, resulting in improved growth. The bank could absorb the market power, leading to an increase in the growth level. Furthermore, the effect of Islamic inclusion tends to take the chance for investing more, so that a more significant return can be gained, as stated by Jappelli and Padula (2013) that the implementation of financial inclusion generates the opportunity to invest greater for the individual, raising returns to the saving. The literacy will stimulate people to use products and services, and customers already enrolled as service users (inclusion) in the bank may be more interested in enhancing the investment. Therefore, the inclusion supported by literacy is expected to affect earnings growth through the effect of mediation generated by marketability. In other words, the effect of the moderation of Islamic financial literacy on inclusion can lead to greater marketability, resulting in increased earnings growth. Therefore, the second hypothesis implies that the role of inclusion moderated by the literacy can accelerate Islamic banking marketability in gaining greater power. Marketability serves as mediating variable:

H2. Marketability has a mediating effect on the nexus between Islamic financial inclusion moderated by literacy and earnings growth.

3. Research methodology

3.1 Sample selection and data

This quantitative research uses the sample of Islamic commercial banks listed on Bank Indonesia and OJK. It used time-series data using monthly financial statements from 2014 to 2021. We observed data with the criteria that the sample is listed in Bank Indonesia and OJK over period of 2014 to 2021 and data were available. In 2014, complete data for measuring variables were available in October. Consequently, we used time-series data from October 2014 to December 2021.

3.2 Research variables

Moderating and intervening variables were added to design a moderated-mediation model. This research included independent and dependent variables. The independent variable was Islamic financial inclusion, and earnings growth was the dependent variable. For a mediation variable, this research included marketability, and Islamic financial literacy was attributed as a moderating variable. Control variables were also attributed to this research consisting of accessibility, channel, and net performing financing (NPF).

3.2.1 Marketability. As stated by Abbas and Arizah (2019), marketability is implied as a bank's ability to absorb the market's power. It uses resources reflected in a variety of commercial products and services. In this research, the power can be identified based on price and cost. Because several scholars assumed that the banking concentration of the Herfindahl–Hirschman index as the traditional measurement is insufficient and unrepresentative to understanding the power in the market, this research used the Lerner Index as a proxy of the output price and marginal cost (Lerner, 1934). The index relates to the banking power to impose the price. Some of the latest scholars have been successful in using it to determine the power of Islamic banks and then adjust it according to the research model (Cupian and Abduh, 2017; Hamza and Kachtouli, 2014; Meslier *et al.*, 2017; Risfandy *et al.*, 2019, 2020; Weill, 2011).

Lerner Index has ranged between zero and one. The index with the value reaching one indicates a greater power and no competitive market (Lerner, 1934). In the context of competition, the higher the index value, the higher the marketability. It implies that Islamic banks are in low competition and have great power to determine the price. If the banks have zero value, they operate under weak power to show low marketability (Abbas and Arizah, 2019). Therefore, a greater index reveals lower competition. The index is calculated using the comparison between the difference between the price of output (P) with marginal cost (MC) and the price of output (P). It is formulated as follows:

$$\text{Lerner}_{it} = \frac{(P_{it} - \text{MC}_{it})}{P_{it}}$$

Where i and t are the bank and time of the month, P denotes the price of output measured in the bank with the ratio of profitability (income per total average assets) and MC denotes marginal cost measured as follows:

$$\text{MC}_{\text{it}} = \frac{\text{TC}_{\text{it}}}{Q_{it}}\left(\alpha_0 + \alpha_1 \text{lnQ}_{\text{it}} + \sum_{j=1}^{3} \beta_0 ln W_j\right)$$

For estimating LnTC, the equation is shown as follows:

$$\text{lnTC}_{it} = \alpha_0 + \alpha_1 \text{lnQ} + \alpha_2 \frac{1}{2}[\text{lnQ}]^2 + \sum_{\text{j}=1}^{3} \beta_0 \text{ln}\left(\text{W}_{\text{j}}\right) + \sum_{\text{j}=1}^{3}\sum_{\text{k}=1}^{3} \beta_1 \text{lnW}_{\text{j}}\text{lnW}_{\text{k}} + \sum_{\text{j}=1}^{3} \beta_2 \text{lnQlnW}_{\text{j}} + \varepsilon$$

Where TC is total cost measured using a function of output and three prices (W_{j}) of input composed of the price of labor (W_1), price of capital (W_2) and price of deposit (W_3) described in the following equation.

$$TC_{it} = f(Q, W_1, W_2, W_3)$$

Table 1 summarizes the measurement of Lerner indicators formulated in this research. In the table, Panel A shows Lerner indicators, meanwhile Panel B shows cost function indicators.

3.2.2 Earnings growth. Earnings growth is the level of a company's increase or decrease in earnings. The increasing earnings over the years reflect the bank's power to grow greater and healthier in the long term. It needs to compare past and present performances. Past performance can provide the information to estimate future performance (Scott, 2015). This research used earnings before income tax (EBIT) monthly (t).

$$\text{growth}_{it} = \frac{\text{EBIT}_t - \text{EBIT}_{t-1}}{\text{EBIT}_{t-1}}$$

3.2.3 Islamic Financial literacy and inclusion. Islamic financial literacy and inclusion are identified monthly. This research used online media to disclose information regarding the literacy activities presented in the seminar, workshop, focus group discussion and other activities in providing Islamic financial literacy. The media report online is identified and searched using a Google machine tool to obtain information about the event. Each agenda will display based on the period of monthly observations from the last quarter in 2014 until 2021. Each event should be searched using keywords including socialization, Islamic finance, literacy, inclusion, seminar, workshop and Islamic bank. It should be identified accurately and carefully to avoid distortion regarding double source and content. A score of one is given if the activity is available. Because of the monthly data, literacy is measured using the accumulative scores for a month.

The literacy used total monthly disclosures. Meanwhile, the inclusion relates to the number of financial service users. After people understand and become aware of the importance of Islamic financial management and business through literacy, they tend to be users. Nmadu and Mika'ilu (2018) used customers in the number of accounts as representative dimensions of financial inclusion. Islamic banks are involved in developing an understanding of finance to persuade society to be customers. As a result, customers can be proxied as Islamic financial inclusion. In this research, total number of customers of financing and third-party funds for each period are the inclusion measurement.

3.2.4 Control Variables. This research used control variables measured monthly. Because the level of national growth moved downward in 2014, all incomes of Islamic banks have dropped in losses, including the decline in asset quality (Bisnis.com, 2015). Thus, this research used NPF as a control variable. In addition, the use of accessibility of market share through the number of offices and channels through automated teller machines (ATMs) was

Table 1. Measurement of Lerner Index

Panel A. Lerner Indicators		
P_{it} (*Price*)	=	Ratio of total income to total average assets (Profitability)
TC_{it} (*Total Cost*)	=	Total bank's expenses
Q_{it} (*Total Output*)	=	Total assets
MC_{it} (*Marginal Cost*)	=	Rasio of TC to Q multiplied by the function of the equation of LnTC
Panel B. Cost Function Indicators		
W_1 (*Price of Labor*)	=	Ratio of total personal expenses to total assets
W_2 (*price of deposits*)	=	Ratio of bonus and yield expenses to total funds
W_3 (*price of capital*)	=	Ratio of total operating expenses (administrative and other operating expenses) to total assets

also included as control variables. Office and ATMs, via channels, record remarkable financial performance (Nmadu and Mika'ilu, 2018). Both are preferred to note that deposit portfolio and financing facility can stand for service dimensions under the facility of banks. Therefore, the control variables in this research are accessibility, channel and NPF.

3.3 Research model and data analysis

Time-series data should be checked using the static test, multicollinearity, heteroscedasticity and autocorrelation (Gujarati, 2011). If assumption tests have been met, data were analyzed using ordinary least squares regression with a moderated mediation model. This model includes intervening and moderating variables (Figure 2). Hypotheses test used macro process. In the nexus between variables, the process can be used to test moderated mediation models because of probing two- and three-way interactions (Hayes, 2018; Hayes and Matthes, 2009). The research model is described as follows.

For testing *H1*, the moderation model was designed by creating the interaction between literacy and inclusion to obtain that effect. The moderation model has two possible effects, namely, pure and quasi effects. The moderation model is tested when the nexus between independent and dependent variables depends on a third variable (Cohen, 1988; Cohen *et al.*, 2022). The result provides the effect of significance at the level of 0.10 in this research.

There are two mediations that could occur consisting of partial and full effects. Full mediation will occur if direct and indirect effects are generated, but if the only indirect effect is found, it is called partial mediation (Baron and Kenny, 1986). The test of *H2* used a moderated mediation model to detect the indirect effect of the marketability variable on Islamic banks' earnings growth.

4. Results and discussion

4.1 Descriptive statistics and research model estimation

This research provides descriptive statistics, including mean, minimum and maximum values and standard deviation. It is presented in Table 2. The mean value of growth was

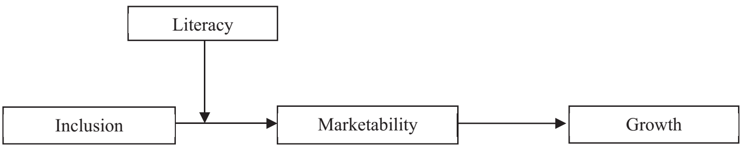


Figure 2.
Moderated mediation model

Variable	Mean	Min	Max	SD
Earnings Growth	0.33	−0.97	4.43	0.66
Marketability	0.21	−1.70	0.97	0.57
Islamic Financial Literacy	4.00	0.00	13.00	3.09
Islamic Financial Inclusion	22.02	11.78	42.37	8.19
Accessibility	1.93	1.68	2.16	0.11
Channel	3.04	2.35	3.87	0.41
NPF	4.23	2.59	6.17	0.93

$N = 87$

Source: Authors' calculation

Table 2.
Descriptive statistics

0.33, disclosing that the performance of Islamic banks on the earnings grew 33% for eight latest periods. During the period, the growth with the lowest value was at the level of −0.97, and the highest was at the level of 4.43. For the marketability variable, its mean value was 0.21. It showed positive marketability.

Over the observation periods, Islamic banks even suffered negative value because the banks grew with losses where $P < \mathrm{MC}$. During the observation periods, the number of disclosures of literacy obtained at most 13 activities and at least no activity for a month. Meanwhile, the financial service users obtained at most 22.02 m and at least 11.78 m. On average, literacy and inclusion variables obtained 4.00 and 22.02, respectively. For the NPF variable, it obtained 4.23%. Related to control variables, accessibility and channel were 1.93 and 3.04, respectively, indicating that the average Islamic banks provide 1,930 offices with 3,040 channels using ATMs.

From 2014 to 2016, marketability obtained negative power (Table 3). It indicates that the mean value of sample banks suffered losses where the price–quality was less than the marginal cost ($P < \mathrm{MC}$). In 2014, it generated a value less than zero, as shown in Figure 1, implying that there are negative profits corresponding to the quality price and marginal cost in which Islamic commercial banks and business units have meager profitability and all performances in earnings at once declined in the period of 2014, as banks suffer stagnantly with a negative value in the level of growth in earnings. The existence of Islamic banks has not been equal to the magnitude of total conventional banks. Sunarmo (2018) stated a low market power obtained by Islamic banks in the banking industry because of the dominant magnitude of conventional banks. Besides, marketability grew positive and increased in the three last periods of 2017 to 2019. In the level of growth, Islamic banks fluctuated. In 2017, they obtained 0.33 and ended with a mean value of 4.41 in 2021. Afterward, growth and marketability experienced a decrease in value. In 2020, this world just suffered from the COVID-19 pandemic, affecting the economic system and business performance (Barua and Barua, 2021; Candera and Indah, 2021; Devi *et al.*, 2020; Karim *et al.*, 2021; Shen *et al.*, 2020). However, marketability and growth showed the same tendency for the latest periods. The literacy variable also showed this tendency. To justify the tendency, this research further examined it empirically to find the effect of significance. Before obtaining the effect test results, assumption tests should be met.

This research model has been a good fit after checking time-series data through the stationary test, multicollinearity, heteroscedasticity and autocorrelation (Gujarati, 2011). As presented in Table 4, the model used the augmented Dickey–Fuller (ADF) and Philips–Perron (PP) tests to show that a shift in time does not make a change in the shape of the distribution (Dickey and Fuller, 1979). The test for a unit root in level obtains data at significant levels (0.01, 0.05 and 0.10). It indicates that variables are stationary at the level. The model has also been a good fit, as independent variables show no multicollinearity with a VIF of less than 10.0 and no heteroscedasticity with a p-value in the Breusch–Pagan test of more than 0.05. The

Table 3.
The mean value of main variables per period

Period	2014[a]	2015	2016	2017	2018	2019	2020	2021
Marketability	−0.60	−0.43	−0.34	0.22	0.64	0.91	0.55	0.71
Growth	0.19	0.23	0.51	0.33	0.53	0.40	0.21	0.25
Literacy	1.67	2.67	3.75	4.87	5.41	5.83	3.41	4.41
Inclusion	11.96	13.07	16.35	20.07	22.63	24.99	27.91	39.21

Note: [a]Last quarter
Source: Authors' calculation

Regressors	ADF (*p*-value) Test statistic	PP (*p*-value) Test statistic	VIF
Growth	−5.120***	−5.330***	
Marketability	−3.620***	−4.343***	8.21
Inclusion	−4.017***	−4.101***	7.09
Literacy	−4.215***	−4.740***	6.06
Accessibility	−3.535***	−4.001***	2.40
Channel	−4.841***	−5.010***	1.84
NPF	−3.620***	−3.752***	1.63
Mean	–		4.54
Breusch–Pagan			0.305
Durbin–Watson			2.176
Breusch–Godfrey LM test autocorrelation			0.361

Note: *** Significant at the 0.01 level
Source: Authors' calculation

Table 4. Time-series data check

autocorrelation test is the necessary assumption in time-series analysis. Data show no serial correlation with the Durbin–Watson value of 2.176 and the Breusch–Godfrey value of more than 0.05. As a result, the technique of data analysis used is linear regression.

After data meet the good fit model, we estimate the moderated mediation model. Table 5 shows the estimation result.

4.2 Hypothesis testing result

Testing a moderated mediation model showed moderation, mediation and moderated mediation effects. In a moderation model, Islamic financial inclusion moderated by literacy does not affect growth but positively affects marketability at the level of 0.01. The result shows that Islamic financial literacy has a moderating effect on the nexus between inclusion and marketability. It accepted *H1*.

In Table 6, the inclusion variable does not affect marketability (Inclusion→ Marketability), but the positive effect occurs after the literacy variable interacts. This effect shows pure moderation. In a mediation model, marketability mediates the nexus between inclusion and growth. The result is no effect at all. In a mediation model, marketability cannot be a mediating variable, both a full and a partial mediator. This research further examines a moderated mediation model. The literacy variable is used as a moderator. The result shows a positive effect. It indicates that marketability mediates the nexus between Islamic financial inclusion moderated by literacy and earnings growth. Thus, *H2* is accepted. Table 7 summarizes the results of testing hypotheses.

4.3 Growth, marketability and inclusion moderated by literacy

As shown in Table 2, the mean value of marketability in Islamic banks obtained positive power of approximately 0.36. A positive effect generated by the marketability variable was also found on the growth at the 0.01 level in the significance test (Panel A in Table 5). It indicates that Islamic banks with positive marketability lead to positive growth. Under the tenet of market power, low market share is in a high competition between Islamic banks; as Weill (2011) confirmed, the increase of the competition leads to a decrease in market power. Banks tend to have unstable earnings growth due to still having fluctuating power in the market. However, when the power seems optimistic, the growth increase. In the concept of SCP, the conduct of competition could be affected by the market structure and reflected in

Panel A. Moderation Model (Inclusion, Marketability and Growth)	Coefficient	t-statistic	LLCI	ULCI
Marketability	0.4472	3.5596***	0.1971	0.6972
Literacy	0.0581	0.6671	−0.1153	0.2316
Inclusion	0.0496	2.4215**	0.0088	0.0903
Int_1	−0.0029	−0.8464	−0.0096	0.0039
Accessibility	−0.0001	−0.0582	−0.0018	0.0017
Channel	0.0001	−0.0608	−0.0004	0.0005
NPF	0.3118	1.8858*	−0.0173	0.6409
Y = Growth				
R = 0.5150 R^2 = 0.2652 F-statistic = 4.0727***				
Panel B. Moderation Model (Literacy, Inclusion and Marketability)				
Literacy	−0.2957	−4.2145***	−0.4353	−0.1561
Inclusion	−0.0211	−1.1669	−0.0570	0.0149
Int_1	0.0130	4.9253***	0.0077	0.0182
Accessibility	−0.0019	−2.4337**	−0.0034	−0.0003
Channel	−0.0003	−1.4147	−0.0007	0.0001
NPF	0.4523	3.2735***	0.1774	0.7273
Y = Marketability				
R = 0.6601 R^2 = 0.4357 F-statistic =10.2943***				
Panel C. Moderated Mediation Model (Literacy, Inclusion, Marketability and Growth)				
Marketability	0.3839	3.5685***	0.1699	0.5980
Inclusion	0.0413	2.3694**	0.0066	0.0759
Accessibility	−0.0003	−1.3464	−0.0018	0.0013
Channel	0.0001	0.0453	−0.0004	0.0005
NPF	0.3429	2.1253**	0.0219	0.6638
Y = Growth				
R = 0.4567 R^2 = 0.2086 F-statistic = 4.2699***				
Direct Effect (Inclusion → Growth)				
Inclusion	0.0413	2.3694**	0.0066	0.0759
Indirect Effect (Inclusion→Marketability →Growth)				
Marketability	0.0094	1.4687	−0.0024	0.0232

Moderated Mediation Model (Int_1 →Marketability→Growth)

	Index	SE	t-statistic	LLCI	ULCI
Moderated Mediator	0.0050	0.0014	3.5714***	0.0027	0.0082

Notes: ***, ** and * represent statistical significance at the 1, 5 and 10%, respectively (two-tailed test); Independent variable = growth; dependent variable = inclusion; moderation variable: literacy mediation variable = marketability; control variable = accessibility; channel and NPF Int_1 = moderating variable (interaction between inclusion and literacy)
Source: Authors' calculation

Table 5.
Moderated mediation model estimation

the marketability. When it is positive, the growth tends to go up. This condition occurs because market power can be optimized to increase funds and reduce financing risk. In addition, the project funded by Islamic banks tends to be classified as moderate quality, so the risk of portfolio funds decreases and the probability of growth is improved. In the case of competition fragility. Besides, when the margin is low, the banks are forced to invest more, the income and bank fragility increase (Maudos and Fernández de Guevara, 2004) and the losses are suffered due to any nonperforming financing. It is due to the debtors' inability to pay profit–loss sharing, like transactions with *qardhul hasan, muajjal* and *salam* principles, but the conditions change when banks can improve the case of competition fragility.

Model	Coefficient	*t*-statistic
Inclusion→ Growth	0.0496	2.4215**
Literacy→ Growth	0.0581	0.6671
Inclusion × Literacy→ Growth	−0.0029	−0.8464
Marketability → Growth	0.4472	3.5596***
Inclusion → Marketability	−0.0211	−1.1669
Literacy → Marketability	−0.2957	−4.2145***
Inclusion × Literacy→Marketability (*H1*)	0.0130	4.9253***
Inclusion → Marketability → Growth	0.0094	1.4687
Inclusion × Literacy → Marketability→Growth (*H2*)	0.0050	3.5714***

Note: ***p-value <0.01 and **p-value < 0.05

Table 6. Research model results

The positive marketability obtained by Islamic banks tends to strengthen the growth. Meslier *et al.* (2017) stated that regulation is a determinant. Thus, Law No. 21 of 2008 has been enacted, and the framework of SNLKI has been addressed to maximize the role of literacy and inclusion. Marketability has been determined by the inclusion moderated purely by the literacy level. It implies that the literacy variable can lead to a positive effect change on inclusion and marketability. Optimizing enforcement of Islamic financial literacy leads Islamic banks to provide products and services in line with the needs of society. The moderation with pure effect emerges because of the substantial nexus between literacy and inclusion, as found by prior studies (Agarwalla *et al.*, 2015; Sardiana, 2016; Shen *et al.*, 2018) that the effect of literacy leads to an increase in the inclusion. Tahiri Jouti (2018) revealed that introducing Islamic financial products would make people migrate to Islamic banks. This result is equally recognized by some researchers concluding that improved financial literacy can promote the use of financial services (Sardiana, 2016; Shen *et al.*, 2018). The conduct individual with a good comprehension of Islamic financial literacy can take the conviction to select the product according to the need, and the customers who obtain more literacy can increase their investment in Islamic banks. They use more financial instruments and continue to be a partnership to develop the business with Islamic finances.

A positive effect occurred in earnings growth after marketability was affected by the inclusion variable moderated through the literacy variable. The indirect effect taken by the variable of marketability is insignificant. It tends to change when the moderator of literacy is included. The role of literacy, in this case, provides a pure moderation effect so that marketability can be a full mediator.

Over the observation periods, marketability in Indonesia tends to absorb the power indirectly in the market through the support of the role of literacy and inclusion. The inclusion supported by the role of literacy tends to enhance the magnitude of marketability so that earnings growth can go up. This research found that the higher the marketability obtained by Islamic banks, the higher the effect of inclusion supported the role of literacy on

Hypothesis	Result
H1. Islamic financial literacy has a moderating effect on the nexus between Islamic financial inclusion on marketability	Accepted
H2. Marketability has a mediating effect on the nexus between Islamic financial inclusion moderated by literacy and earnings growth	Accepted

Table 7. Hypothesis testing results

earnings growth. It enables Islamic banks currently to be stable amid fluctuating performances.

The performance tends to increase through the increase of market share (Sahile *et al.*, 2015). Banks can meet their stability when they compete to absorb a greater power. The higher the market power absorbed by Islamic banks, the more their financial stability (Risfandy *et al.*, 2016). The level of inclusion has additionally provided the effect on financial stability found by Nmadu and Mika'ilu (2018), and the absorption of powers in the market can function on the growth because of the role of literacy and inclusion.

Therefore, the growth of Islamic banking within the positive marketability tends to increase by the support of the inclusion function moderated by the literacy level.

5. Conclusion

This research describes that Islamic banks in Indonesia have earnings growth and marketability with positive average values. They attempt to increase earnings growth by grabbing market power in the banking industry. In 2019, they could grab a higher power compared with previous years during observation periods. Afterward, their growth and marketability experienced a decrease during the COVID-19 pandemic in 2020 and 2021. Nevertheless, a positive effect has been found on marketability and earnings growth. When Islamic banks grab a higher power in the market, earnings growth can increase. Based on the theory of market power denoting the difference between price quality and marginal cost, as formulated by Lerner (1934), Islamic banks can earn more profit when they obtain greater market power.

A moderated mediation model is the core of this research. This research further examines the nexus between marketability and earnings growth involving the role of Islamic financial inclusion and the level of literacy. Specifications of the research model and data quality are highly considered to obtain good results. We reveal that the inclusion supported by the role of literacy is a significant way to spur market power. The effect of inclusion moderated purely by literacy can enhance marketability. Through indirect effect, marketability continues to impact positively on earnings growth. The gist of this research documents that banks can seize greater market power when the inclusion supported by the role of literacy is included so that earnings growth continues to go up. According to the literature, literacy and inclusion positively affect economic performance (Dahmen and Rodríguez, 2014). Literacy tends to improve the financial system (Agarwalla *et al.*, 2015), so Islamic financial literacy serves as a key position in the nexus between inclusion, marketability and earnings growth.

The finding of this research finally has implications for the research and practice. It serves as feedback related to earnings growth in Islamic banking, including the role of inclusion and literacy. It becomes a means for developing the body of knowledge in Islamic finance. For the Islamic banking industry, a variety of products and services should be enriched, and literacy can be a means to increase the level of market power. For the policy addressed to the regulator, the optimization program of Islamic financial literacy and inclusion should be enacted continuously and in synergy with society. Indonesian authorities can pay more attention to the development of literacy continuously. Related to future studies, this research is aware of the number of Islamic banks in Indonesia not compared with the conventional banks that are highly dominant in the market, so Islamic banks' marketability and growth have not shown higher mean values. In addition, the usage of financial technology is being programmed. It is a more exciting model when the relationship between marketability and the role of Islamic financial inclusion is also supported by financial technology proxy. Digital and internet usages as part of the medium of financial technology need to be used in the future research model. Because assessing the reasonable proxy from financial technology is not easy, this research expects three to five years from now that, future scholars will be encouraged to find an alternative approach of measurement and then revisit this research paper as a reference to develop further study.

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