# ANALYSIS OF MARKET POWER AND EFFICIENCY OF ISLAMIC BANKING: EVIDENCE FROM INDONESIA

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## Abstract

Financial integration and economic openness drive Islamic banking to enhance competitiveness and efficiency. This research aims to analyze the development of market power and efficiency of Islamic banking in Indonesia. Market power is assessed using the Lerner Index and the Herfindahl-Hirschman Index, while technical efficiency and scale efficiency are evaluated using Data Envelopment Analysis (DEA). This study utilizes quarterly data from 2014 to 2020, focusing on 14 Islamic commercial banks as observation objects. The findings reveal that the market power (Lerner index) of Islamic banking at the interbank level falls into the category of moderate competition, whereas at the industry level (HHI), Islamic banking exhibits relatively high concentration, indicating intense oligopolistic competition. The technical efficiency achievement of Islamic banking is categorized as low, while scale efficiency achievement falls into the moderate category. This research encourages the government, through the Financial Services Authority (OJK), to monitor the market concentration level of Islamic banking to ensure healthy industry competition and enhance bank efficiency through policies and projections concerning potential mergers and spin-offs in Islamic banking.

Keywords: Market Power, Efficiency, Lerner Index, Herfindahl-Hirschman Index, DEA
JEL classification codes: L13, G21, O16

## Introduction

Islamic banking in Indonesia is an intriguing subject of study due to the world's largest Muslim population (Trinugroho et al., 2018) and being part of the group of nine countries (Iran, Saudi Arabia, Malaysia, UAE, Kuwait, Bahrain, Bangladesh, Qatar, Indonesia, and Turkey) contributing more than 85% of the $2.8 trillion Islamic banking assets worldwide (Islamic & Development, 2022). Islamic banking continues to evolve and innovate in providing financial services based on principles that align with Islamic values.

The intense competition in the market, financial integration, and economic openness drive the banking industry to become increasingly competitive and efficient. Islamic banking is urged to enhance its competitiveness in the international banking environment to address the diverse impacts of market concentration (Malini & Putri, 2020). Financial integration in the ASEAN region has led to the emergence of Qualified ASEAN Banks (QABs), providing opportunities for banks meeting QAB standards to expand their market presence and operate without discriminatory treatment in all ASEAN countries (De Jesus & Torres, 2017).

The development of Islamic banking in Indonesia still lags behind its market potential. This is evident from the small market share of Islamic banking, contributing only 6.27% of the total national banking assets, while conventional banking reaches 93.73%. The growth rate of Islamic banking's market share remains relatively slow at 0.25% per year. The performance of Islamic banking, as indicated by various indicators, shows suboptimal achievements, as depicted in the following figure.

Figure 1.1 Islamic Banking Performance Indicators against Conventional Banks
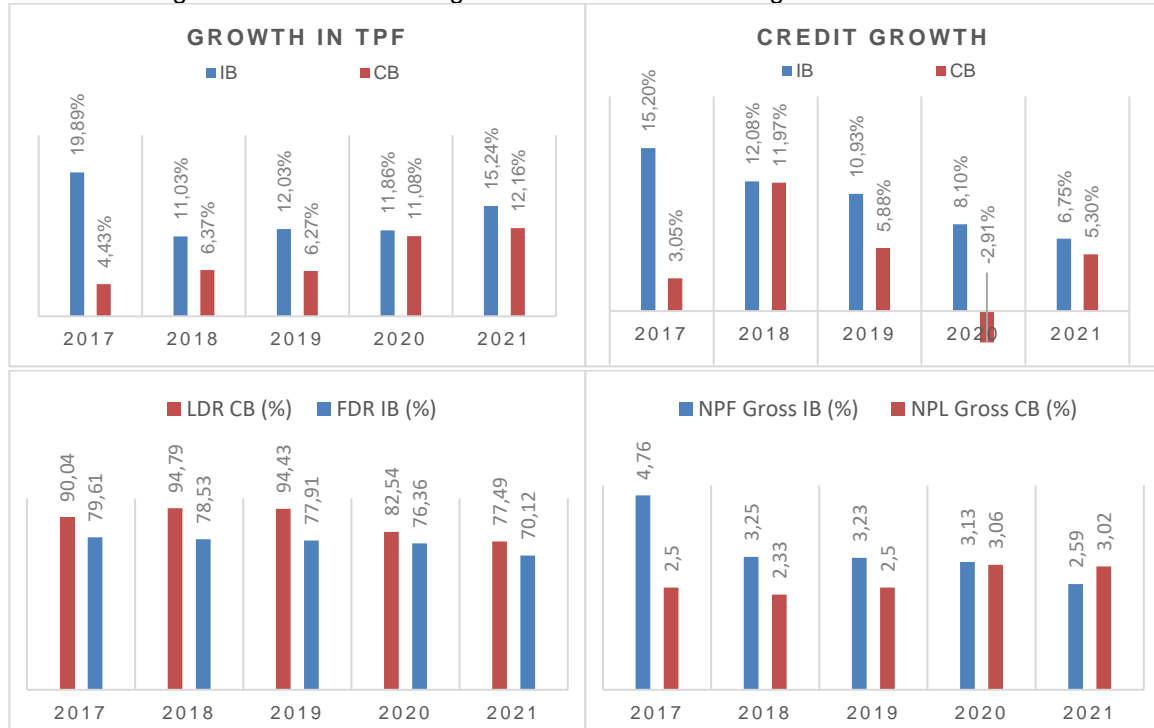


Source: Sharia Banking Statistics Report, IB (Islamic Bank), CCB (Conventional Bank)

Bank performance is greatly influenced by internal organizational performance and industry organizational structure. Profitability derived from market power advantages in an industry reflects collusive behavior where prices are determined by large companies (Widarjono et al., 2020). Collusive conditions in the banking industry will create unhealthy industry competition and disadvantage consumers (society). The theory describes market power in an industrial environment with the Structure Conduct Performance (SCP) approach.

The SCP theory states that the level of market concentration has a negative relationship with the level of competition. Edward Mason asserts that this condition originates from the emphasis on market share in determining production policies and price setting by companies (Talpur, 2023). An industry that is concentrated and dominated by a few companies will yield greater profits. In such an environment, companies have fewer incentives and innovations to enhance efficiency.

From the background provided, this research will provide an analysis of market power and market structure conditions, as well as the achievement of efficiency levels in Islamic banking through technical efficiency (x-efficiency) and scale efficiency (scale-efficiency). This study emphasizes the use of diverse approaches in assessing market power and efficiency, utilizing larger samples and observations. This enables the provision of new empirical evidence.

**Literature Review**

**Market Power and Competition Theory**

One of the approaches used in industrial economics is to employ the Structure-Conduct-Performance (SCP) paradigm. This study also focuses on barriers to entry into the market and threats of industrial competition. Bain (1951) argues that the level of company concentration in an industry will affect competition, subsequently influencing behavior, competitiveness, and company performance (Cabral, 2000). The SCP hypothesis emphasizes that there is collusion among large companies with high levels of concentration to set higher prices to gain significant profits.

Stigler (1964) reinforces Bain's (1951) view on collusion among large companies. Stigler suggests that collusive agreements among large companies can be achieved because the costs of collusive arrangements are relatively small in concentrated markets. Hegestad (1984) demonstrates that with an increase in concentration, there will be an increase in market power (Bourke, 1989). This is then followed by the ability to set prices monopolistically to gain more profits. This results in higher cost-to-price ratios and non-beneficial prices for consumers (Ye et al., 2012). In industrial competition, Cabral (2000) argues that company behavior (business strategies in terms of pricing and production) in oligopolistic competition will elicit reactions from competing firms.

Market power refers to the relative ability of a company to control prices by manipulating the levels of supply, demand, or both. This means that companies with greater market power can manipulate market prices and control the level of profits (Hoose, 2010). Such conditions lead to collusion in prices set by market leaders, which affects smaller companies (Widarjono & Anto, 2020).

Indicators of market power in the structure-conduct-performance (SCP) paradigm are represented by concentration ratios using structural approaches such as Concentration Ratio (CR) and Herfindahl-Hirschman Index (HHI). Meanwhile, non-structural approaches include the Lerner Index and the Panzar-Rosse Model (Pavic et al., 2016; Khan & Hanif, 2019; Nur Rianto Al Arif & Awwaliyah, 2019).

The Herfindahl-Hirschman Index (HHI) is a measure of market concentration that provides a more comprehensive overview of overall concentration involving all companies within an industry. HHI calculates the total representing the market structure obtained by squaring the market shares (value n) of all companies in the industry (Lee, 2007). The calculation of the Herfindahl-Hirschman Index (HHI) is as follows:

$$HHI = S_1^2 + S_2^2 + S_3^2 + S_4^2 + \ldots\ldots\ldots.S_n^2$$

Analysis of market power using a non-structural approach with the Lerner index involves calculating the individual firm's power by examining the difference between price and marginal cost (Viverita, 2014). A Lerner index value approaching 0 indicates that the individual firm's power approaches the structure of perfect competition, while a value nearing 1 indicates a monopoly market structure. The Lerner index is calculated using the following function:

$$\text{Lerner Index} = \frac{P_{st} - MC_{st}}{P_{st}}$$

Where: Price (P) is total revenue over total assets, and MC is the marginal cost of bank s at time t.

**Theory and Approaches to Efficiency**

Efficiency is generally defined as the level of performance achieved with the use of fewer inputs to produce more outputs (Alexander, 2009). Technically, production planning is considered efficient if there is no other way to produce more output with the same input or produce the same output with fewer inputs.

The Efficiency Structure (ES) hypothesis states that a company's performance is positively related to efficiency. ES, proposed by Demsetz (1973) and further developed by Brozen (1982), suggests that greater company profits result from cost reduction due to efficiency rather than market power, enabling them to control prices for greater profits. These companies have a comparative advantage over competitors in both management and technology.

The ES hypothesis explains that the cost expenditures incurred by banks play a crucial role in determining the optimal scale of bank performance and the scope of banking activities (Berger, 1995). Greater cost efficiency resulting from scale or scope expansion can enable banks to expand lending with low interest rates while offering high-interest rates on savings (Chan et al., 2015). According to Demsetz (1973), the ES theory suggests that although there are differences in profitability among banks, the profitability of each bank will tend to decrease due to intense competition in the banking market. At some point, banks with larger market shares will earn higher profits compared to smaller banks (Berger, 1995).

The ES hypothesis is divided into two, namely the Relative Efficiency Structure (RES) hypothesis and the Scale Efficiency Structure (SES) hypothesis. The Relative Efficiency Structure (RES) hypothesis states that banks can achieve greater profits due to their advantages in management and technology, enabling them to operate and produce products at lower costs (Mala et al., 2018). The RES hypothesis is also known as the x-efficiency hypothesis.

The Scale Efficiency Structure (SES) hypothesis states that banks in the industry tend to have similar levels of management and well-established technology, but only a few companies are able to produce more efficiently than others. This condition leads to lower costs and higher profits for those companies (Zuhroh et al., 2015).

Both the Relative Efficiency Structure (RES) hypothesis and the Scale Efficiency Structure (SES) hypothesis are estimated using the Data Envelopment Analysis (DEA) approach. The DEA approach was introduced by Charnes, Cooper, and Rhodes (1978) and is utilized as an analytical tool to evaluate the performance of an entity or organization. Essentially, the DEA method compares input and output data from one organization (decision-making unit/DMU) with input and output data from similar DMUs (Riania & Maulani, 2021). Efficiency measurement approaches employ Data Envelopment Analysis (DEA) as a non-parametric method and Stochastic Frontier Analysis (SFA) as a parametric method. Both methods are widely used in studies on determining company efficiency, each with its advantages and disadvantages (Tahir & ., 2013).

In efficiency measurement approaches with DEA, there are two models utilized. Charnes, Cooper, and Rhodes (1978) introduced the constant return to scale (CRS) model, which assumes that the ratio between input and output additions remains constant. This assumption indicates that if there is an increase in input by one unit, it will result in an equal increase in output. Subsequently, Banker, Charnes, and Cooper (1984) corrected the Charnes, Cooper, and Rhodes model by stating that every firm does not operate at an optimal scale. Banker, Charnes, and Cooper introduced the variable return to scale (VRS) model, assuming that each increase in input will result in a different amount of output (which can be either smaller or larger).

In a business or industry such as banking, there are similar characteristics among them. However, each bank varies in size and production levels. This condition illustrates that the size of a bank plays a role in determining its relative efficiency and inefficiency. The CRS model approach reflects both technical efficiency and scale efficiency, while the VRS model only reflects scale efficiency (Rusydiana, 2013).

**Research Method**

This study employs a quantitative descriptive approach to elucidate phenomena by gathering numerical data, which are subsequently analyzed using mathematical or statistical methods (McCaffrey, 2023). The research utilizes data from the entire population of Islamic commercial banks in Indonesia over the period 2014-2020.

This research assesses market power through the calculation of the Lerner index and industrial competition using the Herfindahl-Hirschman Index (HHI). The formula to calculate the Lerner index is as follows:

$$\text{Lerner Index} = \frac{P_{st} - MC_{st}}{P_{st}}$$

Where: Price (P) represents total revenue, comprising revenue as a mudharib and other income divided by Total Assets. MC: (1) labor price (personnel costs divided by total assets), (2) physical capital price (operating expenses minus personnel costs divided by fixed assets), (3) deposit price (profit-sharing expenses divided by total deposits). The marginal cost of the bank is calculated using the translog cost function, where the first derivative of the cost function indicates the marginal cost function. The translog cost function of the bank is as follows:

$$n\,TC_{it} = \propto_0 + \propto_1 x \ln TA_{it} + \frac{1}{2} x \propto_2 x (\ln TA_{it})^2 + \sum_{j=1}^{3} \ln w_{j.it}$$

$$+ \frac{1}{2}\sum_{j=1}^{3}\sum_{k=1}^{3} \beta_{jk} x \ln w_{j.it} x \ln w_{k.it} + \sum_{j=1}^{3} \gamma_j x \ln TA \; w_{j.it}$$

$$+ \delta \, x \, Year \, Dummies$$

After obtaining the translog coefficient values, these values are then utilized to calculate MC using the estimation model as follows:

$$C = \frac{TC}{TA} \cdot \frac{\partial ln\,TC}{d\,ln\,TA}$$

The logarithmic derivative from total cost to logarithm of output can be estimated with the following equation function:

$$\frac{\partial ln\,TC}{d\,ln\,TA} = \propto_1 + \propto_2 x \ln TA_{it} + \sum_{j=1}^{3} \gamma_j \; x \; w_{j.it}$$

The HHI is a measure of market concentration by calculating the total market share of Islamic banks within the banking industry. This index is measured using the following formula:

$$HHI = S_1^2 + S_2^2 + S_3^2 + S_4^2 + \ldots\ldots\ldots.S_n^2$$

Efficiency measurement of Islamic banking in Indonesia is conducted by calculating technical efficiency (x-efficiency) and scale efficiency. To measure x-efficiency and scale efficiency, the Data Envelopment Analysis (DEA) approach is used. DEA is an optimization method to measure the technical efficiency of an Economic Activity Unit (EAU) and compare it relative to other EAUs. The input variables consist of Personnel Expenses, Total Operating Costs, Fixed Assets, Mudharabah Deposits, and Wadiah Savings, while the output variables consist of Fund Management Income, Other Income, and Total Funding.

This study adopts the bank function approach as an intermediary institution, particularly regarding the ability to manage operational income compared to the costs incurred in measuring efficiency. The input variables refer to previous studies conducted by (Mala et al., 2023) regarding the comparison of efficiency between Islamic banking in Indonesia and Malaysia, and regarding banking efficiency in the ASEAN region (Chan et al., 2015).

## Result and Analysis

## Analysis of Market Power and Industry Competition in Sharia Banking in Indonesia

The development of market power measured by the Lerner index in the banking sector in Indonesia during the period 2014-2020 shows dynamic movements. Changes in the relative index values indicate differences in the monopolistic power of each bank in regulating the quantity of output, price levels, and expected profit levels. An increase in the Lerner index value reflects a greater increase in price (income-to-total asset ratio) compared to marginal cost (fund, labor, and capital costs). Conversely, a decrease in the Lerner index value is attributed to a smaller decrease in price compared to a decrease in marginal cost.

The results of market power calculations using the Lerner index in Islamic banking in Indonesia range from 0.41 to 0.52, with an average value of 0.46 during the observation period. This condition indicates that banks can pass on cost increases to consumers by 0.46% higher than their marginal cost. These findings suggest that Islamic banking has a moderate monopoly power and tends towards oligopolistic competition. This research aligns with previous studies conducted by Nur Rianto Al Arif and Awwaliyah (2019), stating that the market structure of Islamic banking falls into the oligopoly category. Four banks are dominating the Islamic banking industry with total assets and deposits reaching 59-62% (Al Arif, 2017).
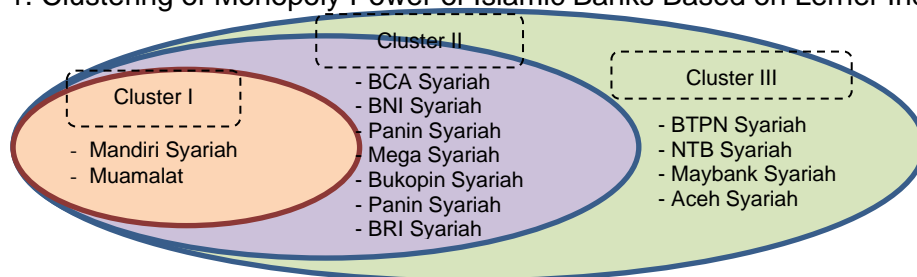
The research findings are reinforced by Prasetyowati's study (2020), which calculated the extent of exploitation of Islamic banking in Indonesia using the Lerner index with a value of 0.36. This research result has a higher index value compared to the studies conducted by Mala et al. (2023) and Risfandy et al. (2019). This discrepancy is highly plausible considering the different databases and methodologies used.

Table 1: Calculation Results of the Lerner Index for Islamic Banking in Indonesia 2014-2020

| Nama Bank | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | | x̄ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | |
| Aceh Syariah | 0,64 | 0,61 | 0,60 | 0,51 | 0,54 | 0,53 | 0,50 | 0,53 | 0,55 | 0,53 | 0,41 | 0,41 | 0,56 | 0,52 | 0,51 | 0,51 | 0,51 | 0,51 | 0,51 | 0,50 | 0,43 | 0,47 | 0,49 | 0,51 | 0,46 | 0,47 | 0,48 | 0,49 | 0,51 |
| Mega Syariah | 0,45 | 0,45 | 0,44 | 0,43 | 0,36 | 0,39 | 0,42 | 0,44 | 0,49 | 0,48 | 0,47 | 0,48 | 0,46 | 0,46 | 0,46 | 0,45 | 0,43 | 0,43 | 0,43 | 0,43 | 0,42 | 0,42 | 0,42 | 0,43 | 0,42 | 0,42 | 0,44 | 0,43 | 0,44 |
| BTPN Syariah | 0,55 | 0,53 | 0,53 | 0,51 | 0,48 | 0,49 | 0,51 | 0,52 | 0,52 | 0,54 | 0,55 | 0,57 | 0,57 | 0,58 | 0,59 | 0,60 | 0,61 | 0,62 | 0,62 | 0,63 | 0,63 | 0,63 | 0,64 | 0,65 | 0,66 | 0,55 | 0,54 | 0,58 | 0,57 |
| Bukopin Syariah | 0,44 | 0,44 | 0,44 | 0,44 | 0,44 | 0,45 | 0,46 | 0,46 | 0,47 | 0,47 | 0,47 | 0,46 | 0,44 | 0,43 | 0,42 | 0,41 | 0,41 | 0,42 | 0,42 | 0,41 | 0,40 | 0,41 | 0,41 | 0,41 | 0,41 | 0,42 | 0,42 | 0,43 | 0,43 |
| Muamalat | 0,42 | 0,40 | 0,34 | 0,36 | 0,37 | 0,36 | 0,35 | 0,35 | 0,34 | 0,33 | 0,34 | 0,34 | 0,34 | 0,34 | 0,33 | 0,33 | 0,33 | 0,37 | 0,36 | 0,33 | 0,33 | 0,33 | 0,33 | 0,33 | 0,34 | 0,34 | 0,34 | 0,33 | 0,35 |
| BJB Syariah | 0,43 | 0,43 | 0,45 | 0,46 | 0,42 | 0,43 | 0,40 | 0,43 | 0,43 | 0,41 | 0,39 | 0,43 | 0,41 | 0,36 | 0,23 | 0,31 | 0,42 | 0,43 | 0,44 | 0,44 | 0,43 | 0,43 | 0,43 | 0,44 | 0,43 | 0,43 | 0,44 | 0,60 | 0,42 |
| BRIS | 0,62 | 0,40 | 0,42 | 0,43 | 0,48 | 0,41 | 0,41 | 0,42 | 0,42 | 0,43 | 0,43 | 0,43 | 0,39 | 0,41 | 0,41 | 0,40 | 0,40 | 0,41 | 0,41 | 0,40 | 0,37 | 0,37 | 0,38 | 0,39 | 0,41 | 0,41 | 0,43 | 0,44 | 0,42 |
| Panin Syariah | 0,40 | 0,47 | 0,50 | 0,51 | 0,56 | 0,49 | 0,49 | 0,49 | 0,49 | 0,42 | 0,43 | 0,44 | 0,44 | 0,45 | 0,43 | 0,43 | -0,04 | 0,41 | 0,44 | 0,45 | 0,44 | 0,41 | 0,41 | 0,41 | 0,42 | 0,40 | 0,39 | 0,39 | 0,43 |
| Victorya Syariah | 0,49 | 0,47 | 0,42 | 0,39 | 0,39 | 0,52 | 0,48 | 0,38 | 0,30 | 0,10 | 0,18 | 0,36 | 0,49 | 0,50 | 0,51 | 0,49 | 0,47 | 0,48 | 0,50 | 0,50 | 0,48 | 0,48 | 0,47 | 0,48 | 0,46 | 0,46 | 0,60 | 0,99 | 0,46 |
| Maybank Syariah | 0,69 | 0,59 | 0,65 | 0,65 | 0,38 | 0,28 | 0,63 | 0,82 | 0,43 | 0,23 | 0,36 | 0,45 | 0,56 | 0,64 | 0,62 | 0,68 | 0,63 | 0,69 | 0,53 | 0,08 | 0,80 | 0,75 | 0,64 | 0,58 | -0,03 | 0,28 | 0,28 | 0,74 | 0,52 |
| NTB Syariah | 0,79 | 0,72 | 0,61 | 0,44 | 0,73 | 0,41 | 0,33 | -0,24 | 0,59 | 0,59 | 0,59 | 0,60 | 0,57 | 0,54 | 0,54 | 0,54 | 0,53 | 0,53 | 0,47 | 0,49 | 0,50 | 0,50 | 0,53 | 0,55 | 0,51 | 0,51 | 0,52 | 0,52 | 0,52 |
| BCA Syariah | 0,49 | 0,49 | 0,49 | 0,49 | 0,47 | 0,47 | 0,48 | 0,48 | 0,45 | 0,47 | 0,48 | 0,49 | 0,46 | 0,47 | 0,47 | 0,49 | 0,48 | 0,48 | 0,48 | 0,48 | 0,46 | 0,47 | 0,47 | 0,48 | 0,46 | 0,46 | 0,47 | 0,49 | 0,48 |
| BNI Syariah | 0,44 | 0,44 | 0,45 | 0,46 | 0,43 | 0,44 | 0,43 | 0,45 | 0,45 | 0,46 | 0,46 | 0,46 | 0,44 | 0,45 | 0,45 | 0,45 | 0,43 | 0,45 | 0,45 | 0,46 | 0,45 | 0,48 | 0,48 | 0,47 | 0,49 | 0,45 | 0,58 | 0,65 | 0,46 |
| Mandiri Syariah | 0,43 | 0,36 | 0,38 | 0,33 | 0,35 | 0,36 | 0,37 | 0,36 | 0,35 | 0,36 | 0,36 | 0,36 | 0,35 | 0,36 | 0,36 | 0,36 | 0,36 | 0,38 | 0,38 | 0,38 | 0,40 | 0,42 | 0,42 | 0,42 | 0,41 | 0,43 | 0,44 | 0,44 | 0,38 |
| Rerata Bank | 0,52 | 0,49 | 0,48 | 0,46 | 0,46 | 0,43 | 0,45 | 0,42 | 0,45 | 0,41 | 0,42 | 0,45 | 0,46 | 0,46 | 0,45 | 0,46 | 0,43 | 0,47 | 0,46 | 0,43 | 0,47 | 0,47 | 0,47 | 0,47 | 0,42 | 0,43 | 0,46 | 0,54 | 0,46 |

The market power of each Islamic bank in Indonesia, calculated using the Lerner index, can be grouped into three clusters. The first cluster exhibits "relatively high" monopoly power with Lerner index values in the range of 0.50-0.59; the second cluster demonstrates "moderate" monopoly power with Lerner index values in the range of 0.40-0.49, while the third cluster shows "low" monopoly power with Lerner index values in the range of 0.30-0.39. The clustering of monopoly power of Islamic banks can be seen in Figure 1.

Figure 1. Clustering of Monopoly Power of Islamic Banks Based on Lerner Index Values



Cluster I
- Mandiri Syariah
- Muamalat

Cluster II
- BCA Syariah
- BNI Syariah
- Panin Syariah
- Mega Syariah
- Bukopin Syariah
- Panin Syariah
- BRI Syariah

Cluster III
- BTPN Syariah
- NTB Syariah
- Maybank Syariah
- Aceh Syariah

The development of market structure and industrial competition in Islamic banking, as measured by the Harfindahl-Hirschman Index (HHI), shows a decreasing trend during the period 2014-2020. The HHI value in the initial observation period of 2014 was 2093, which then decreased to 1691 by the year 2020. This indicates a decline in concentration levels and increasingly competitive competition among banks. However, with these HHI values, the competition and market structure of banking in Indonesia fall into the category of "moderate concentration" or an oligopolistic market. This research is also supported by Malini and Putri (2020) and Sunarmo (2018), indicating that the competitive condition of the Islamic banking industry in Indonesia falls into the category of a monopolistic market.

Table 2. Calculation Results of the Harfindahl-Hirschman Index (HHI)
for Islamic Banking in Indonesia 2014-2020

| Nama Bank | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Aceh Syariah | 58,2 | 74,3 | 78,0 | 52,2 | 69,3 | 89,5 | 96,2 | 61,5 | 75,7 | 77,0 | 69,2 | 51,4 | 55,9 | 67,4 | 68,1 | 58,2 | 49,6 | 62,5 | 65,8 | 53,5 | 61,4 | 65,4 | 46,9 | 51,4 | 43,2 | 45,9 | 50,9 | 41,1 |
| Mega Syariah | 19,0 | 17,3 | 14,4 | 9,7 | 8,0 | 5,9 | 5,0 | 5,5 | 5,7 | 5,4 | 5,7 | 5,5 | 5,1 | 5,4 | 4,9 | 5,6 | 4,8 | 4,8 | 4,7 | 5,4 | 5,2 | 5,4 | 5,3 | 5,2 | 5,5 | 5,8 | 6,5 | 16,4 |
| BTPN Syariah | 2,8 | 2,9 | 3,0 | 2,8 | 3,3 | 4,6 | 4,1 | 4,8 | 5,7 | 8,0 | 6,8 | 7,8 | 8,2 | 8,3 | 8,9 | 9,5 | 9,8 | 12,5 | 13,7 | 14,5 | 15,3 | 18,6 | 20,1 | 19,3 | 20,9 | 18,3 | 17,0 | 17,1 |
| Bukopin Syariah | 5,4 | 5,2 | 5,0 | 5,2 | 5,6 | 5,6 | 5,5 | 6,0 | 7,0 | 7,5 | 7,6 | 7,2 | 5,8 | 6,2 | 7,0 | 5,8 | 5,1 | 4,5 | 4,3 | 4,0 | 4,1 | 3,8 | 3,7 | 3,7 | 3,0 | 2,4 | 1,9 | 1,7 |
| Muamalat | 792,1 | 830,9 | 771,3 | 758,9 | 670,4 | 638,3 | 623,8 | 581,4 | 532,8 | 495,2 | 499,9 | 454,5 | 422,5 | 434,6 | 408,2 | 433,2 | 358,0 | 331,5 | 322,7 | 328,5 | 296,1 | 285,6 | 271,1 | 208,3 | 199,5 | 186,2 | 169,3 | 166,2 |
| BJB Syariah | 6,9 | 6,2 | 5,9 | 7,2 | 7,7 | 8,0 | 7,3 | 7,4 | 8,4 | 8,8 | 8,2 | 8,1 | 8,1 | 7,5 | 6,8 | 6,8 | 5,5 | 5,1 | 4,6 | 4,6 | 4,3 | 4,7 | 5,1 | 4,9 | 4,4 | 4,3 | 4,6 | 5,0 |
| BRIS | 81,5 | 81,5 | 75,4 | 80,6 | 90,2 | 95,7 | 101,7 | 104,4 | 108,8 | 111,0 | 111,6 | 112,0 | 114,2 | 113,1 | 113,6 | 113,2 | 131,6 | 142,1 | 140,4 | 144,2 | 144,8 | 129,8 | 130,0 | 151,5 | 145,6 | 193,4 | 223,8 | 210,8 |
| Panin Syariah | 4,9 | 5,3 | 6,1 | 7,5 | 8,9 | 9,2 | 9,8 | 9,1 | 9,1 | 10,8 | 11,4 | 11,2 | 11,4 | 12,1 | 10,7 | 8,5 | 7,9 | 8,0 | 7,1 | 7,7 | 6,8 | 8,6 | 8,6 | 10,1 | 9,5 | 8,8 | 8,1 | 8,1 |
| Victorya Syariah | 0,5 | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,3 | 0,3 | 0,3 | 0,3 | 0,3 | 0,4 | 0,4 | 0,3 | 0,4 | 0,5 | 0,5 | 0,5 | 0,4 | 0,5 | 0,3 | 0,3 | 0,5 | 0,4 | 0,4 | 0,3 | 0,3 | 0,3 |
| Maybank Syariah | 1,1 | 1,0 | 1,0 | 1,2 | 1,0 | 0,6 | 0,6 | 0,5 | 0,5 | 0,5 | 0,3 | 0,3 | 0,2 | 0,2 | 0,2 | 0,2 | 0,2 | 0,1 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| NTB Syariah | 7,6 | 7,4 | 7,0 | 6,6 | 6,8 | 6,9 | 6,9 | 6,6 | 9,1 | 9,3 | 9,5 | 8,5 | 11,0 | 11,1 | 11,8 | 8,9 | 10,2 | 8,5 | 8,6 | 5,0 | 6,8 | 6,5 | 8,2 | 6,1 | 8,0 | 8,2 | 9,0 | 6,9 |
| BCA Syariah | 1,1 | 1,2 | 1,4 | 1,7 | 2,0 | 2,4 | 2,7 | 3,4 | 3,6 | 3,4 | 3,7 | 3,6 | 4,1 | 3,7 | 3,9 | 4,0 | 4,1 | 4,5 | 4,7 | 5,0 | 4,7 | 4,7 | 6,2 | 6,1 | 5,7 | 5,7 | 5,2 | 6,0 |
| BNI Syariah | 64,3 | 73,1 | 74,9 | 74,0 | 89,7 | 89,0 | 101,2 | 94,2 | 112,5 | 117,6 | 122,9 | 117,1 | 125,3 | 119,6 | 125,8 | 138,0 | 162,1 | 155,2 | 162,7 | 169,0 | 188,5 | 173,2 | 182,6 | 203,6 | 213,5 | 202,7 | 195,2 | 191,5 |
| Mandiri Syariah | 1047,6 | 957,5 | 936,3 | 873,4 | 961,8 | 917,1 | 880,4 | 880,8 | 945,5 | 925,0 | 941,2 | 907,6 | 899,8 | 848,8 | 866,5 | 880,2 | 943,2 | 937,1 | 934,6 | 970,1 | 945,6 | 978,5 | 1000,2 | 1027,5 | 1075,3 | 1029,6 | 1014,3 | 1019,4 |
| Nilai HHI | 2093 | 2064 | 1980 | 1881 | 1925 | 1873 | 1845 | 1766 | 1825 | 1780 | 1798 | 1695 | 1672 | 1638 | 1637 | 1673 | 1693 | 1677 | 1674 | 1712 | 1684 | 1685 | 1688 | 1698 | 1734 | 1712 | 1706 | 1691 |

The correlation between the testing results of market strength using the Lerner index and the calculation results of the Harfindahl-Hirschman index for Islamic banking in Indonesia demonstrates theoretical and empirical consistency. Subsequently, these findings are confirmed through changes in market share dominance in Islamic banking, leading to a tight oligopolistic market structure where the top four companies control over 60% of the market share in the industry. These results are supported by previous research conducted by Prasetyowati (2020) and Nur Rianto Al Arif and Awwaliyah (2019). In another study, Mala et al. (2023) used the concentration ratio (CR 4) to determine the market structure of Islamic banking in Indonesia during the period 2012-2018. From the research findings, the market structure of banking falls into the category of loose oligopoly. This research outcome is corroborated by Syamlan et al. (2023), who explain that the concentration level and market structure of Islamic banking in Indonesia have not undergone significant changes. The market structure has remained relatively stable despite mergers among Islamic commercial banks and Sharia business units.

The competitive condition and market structure of Islamic banking in Indonesia shares various similarities with conditions in other countries. Basri examined the impact of competition in the industry and the market structure of the Islamic banking industry in Malaysia, showing that the Islamic banking industry in Malaysia operates under monopolistic competition conditions with a relatively concentrated market structure (Basri, 2020). Hakim and Chkir (2014) studied the market structure and concentration level of the Islamic and conventional banking industries in GCC countries. The research findings indicated that conventional banking is more concentrated than Islamic banking. The market structure of Islamic banking and conventional banking exhibits similarities in terms of total loans and deposits.

**Analysis of Efficiency in Islamic Banking in Indonesia**

The efficiency level of Sharia banking during the period 2014-2020, measured by technical efficiency (x-efficiency), obtained a value of 0.85. This condition indicates that overall input utilization (overhead cost, personal expenses, fixed assets, and current accounts/savings) has not been maximized in generating output. The efficiency level achieved is 85%, while the suboptimal input utilization reaches 15%.

The efficiency level achievements of each bank can be seen in table 3, where Victorya Sharia Bank achieves the highest efficiency with a value of 0.97, followed by Panin Sharia Bank (0.94) and Maybank Sharia Bank (0.93), while the banks with the lowest efficiency levels respectively are Mandiri Sharia Bank (0.73), Muamalat (0.74), Aceh Sharia Bank (0.77), and BRIS (0.79). This condition indicates that Sharia banking operates at low efficiency levels (achievements < 85%) and moderate efficiency (86-96%).

Table 3. X-Efficiency Values of Islamic Banking in Indonesia 2014-2020

| Nama Bank | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | | Rerata Bank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | |
| Aceh Syariah | 0,83 | 0,81 | 0,90 | 0,84 | 0,58 | 0,70 | 0,72 | 0,78 | 0,73 | 0,71 | 1,00 | 0,62 | 1,00 | 0,76 | 0,75 | 0,80 | 0,82 | 0,76 | 0,75 | 0,76 | 0,67 | 0,70 | 0,76 | 0,75 | 0,81 | 0,70 | 0,84 | 0,83 | 0,77 |
| Mega Syariah | 0,72 | 0,73 | 0,73 | 0,68 | 0,62 | 0,56 | 0,75 | 0,85 | 0,96 | 0,94 | 0,86 | 0,93 | 0,83 | 0,79 | 0,86 | 0,90 | 0,91 | 0,92 | 0,93 | 0,94 | 0,89 | 0,89 | 0,96 | 0,93 | 0,94 | 0,95 | 0,98 | 1,00 | 0,85 |
| BTPN Syariah | 1,00 | 0,87 | 0,67 | 0,84 | 0,62 | 0,87 | 0,94 | 1,00 | 0,85 | 0,86 | 0,97 | 0,90 | 0,76 | 0,81 | 0,84 | 0,92 | 0,85 | 0,90 | 0,92 | 0,96 | 0,89 | 0,94 | 0,97 | 1,00 | 0,91 | 0,79 | 0,91 | 1,00 | 0,88 |
| Bukopin Syariah | 0,86 | 0,84 | 0,86 | 0,86 | 0,87 | 0,81 | 0,84 | 0,84 | 0,92 | 0,83 | 0,84 | 0,82 | 0,84 | 0,74 | 0,74 | 0,72 | 0,88 | 0,76 | 0,77 | 0,78 | 0,91 | 0,79 | 0,80 | 0,82 | 0,96 | 0,97 | 1,00 | 0,97 | 0,84 |
| Muamalat | 0,93 | 0,83 | 0,83 | 0,83 | 0,86 | 0,76 | 0,79 | 0,73 | 0,83 | 0,74 | 0,66 | 0,67 | 0,98 | 0,71 | 0,69 | 0,65 | 1,00 | 0,65 | 0,63 | 0,60 | 0,86 | 0,60 | 0,63 | 0,62 | 0,99 | 0,58 | 0,55 | 0,55 | 0,74 |
| BJB Syariah | 0,84 | 0,86 | 0,87 | 0,92 | 0,85 | 1,00 | 0,99 | 1,00 | 0,89 | 1,00 | 1,00 | 1,00 | 0,91 | 0,84 | 0,89 | 1,00 | 0,81 | 0,70 | 0,73 | 0,71 | 0,81 | 0,72 | 0,72 | 0,73 | 0,83 | 0,73 | 0,72 | 0,74 | 0,85 |
| BRIS | 1,00 | 0,72 | 0,73 | 0,83 | 0,85 | 0,74 | 0,75 | 0,80 | 0,78 | 0,77 | 0,76 | 0,81 | 0,78 | 0,75 | 0,74 | 0,75 | 0,68 | 0,72 | 0,75 | 0,79 | 0,72 | 0,72 | 0,77 | 0,85 | 0,91 | 0,81 | 0,93 | 0,94 | 0,79 |
| Panin Syariah | 0,98 | 1,00 | 0,99 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,92 | 0,85 | 0,83 | 0,89 | 1,00 | 0,90 | 0,93 | 0,84 | 0,92 | 0,88 | 0,86 | 0,82 | 1,00 | 0,93 | 0,95 | 0,98 | 1,00 | 1,00 | 0,97 | 1,00 | 0,94 |
| Victorya Syariah | 0,95 | 1,00 | 0,86 | 1,00 | 0,98 | 1,00 | 1,00 | 0,92 | 0,93 | 0,89 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,98 | 1,00 | 0,97 | 0,93 | 0,90 | 0,92 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,97 |
| Maybank Syariah | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,86 | 0,82 | 0,85 | 0,82 | 1,00 | 1,00 | 0,97 | 1,00 | 0,98 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,38 | 0,38 | 1,00 | 1,00 | 0,93 |
| NTB Syariah | 1,00 | 0,88 | 0,99 | 0,64 | 0,98 | 0,84 | 0,67 | 0,55 | 0,68 | 0,84 | 0,91 | 0,99 | 0,68 | 0,79 | 0,86 | 0,93 | 0,72 | 0,77 | 1,00 | 1,00 | 0,86 | 0,85 | 0,79 | 0,89 | 0,84 | 0,75 | 0,85 | 0,91 | 0,84 |
| BCA Syariah | 0,84 | 0,76 | 0,80 | 0,87 | 0,90 | 0,88 | 0,96 | 0,98 | 0,77 | 0,88 | 0,92 | 1,00 | 0,92 | 0,97 | 0,90 | 0,84 | 0,91 | 0,82 | 0,87 | 0,86 | 0,81 | 0,85 | 0,82 | 0,82 | 0,91 | 0,80 | 0,79 | 0,82 | 0,87 |
| BNI Syariah | 0,88 | 0,85 | 0,86 | 0,89 | 0,88 | 0,89 | 0,83 | 0,88 | 0,91 | 0,87 | 0,86 | 0,83 | 0,85 | 0,81 | 0,80 | 0,83 | 0,83 | 0,80 | 0,81 | 0,81 | 0,91 | 0,89 | 0,85 | 0,81 | 0,94 | 0,71 | 1,00 | 1,00 | 0,86 |
| Mandiri Syariah | 0,85 | 0,71 | 0,69 | 0,69 | 0,77 | 0,68 | 0,72 | 0,70 | 0,78 | 0,66 | 0,67 | 0,71 | 0,76 | 0,68 | 0,67 | 0,69 | 0,77 | 0,68 | 0,70 | 0,71 | 0,83 | 0,75 | 0,75 | 0,74 | 0,78 | 0,73 | 0,85 | 0,84 | 0,73 |
| Rerata Tahun | 0,91 | 0,85 | 0,84 | 0,85 | 0,84 | 0,84 | 0,85 | 0,86 | 0,84 | 0,83 | 0,87 | 0,86 | 0,88 | 0,82 | 0,83 | 0,85 | 0,86 | 0,81 | 0,84 | 0,84 | 0,86 | 0,82 | 0,83 | 0,85 | 0,87 | 0,78 | 0,89 | 0,90 | 0,85 |

The results of this study are supported by research conducted by Mala et al., (2023), where the calculation of x-efficiency using data from ten Sharia banks showed that Sharia banking efficiency reached 0.87. Indonesian Sharia banking is less efficient compared to Malaysian banking due to higher operational costs in the form of cost to income. These findings are supported by research conducted by Puteh et al., (2018), which states that there is inefficiency in Sharia banking due to suboptimal use of inputs compared to outputs, with achievement levels ranging from 89.73% to 94.16%. The sources of inefficiency are mainly attributed to high credit risk and cost of funds.

Table 4. Scale Efficiency Values of Sharia Banking in Indonesia 2014-2020

| Nama Bank | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | | 2020 | | | | Rerata Bank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | |
| Aceh Syariah | 0,88 | 0,84 | 0,90 | 0,97 | 0,84 | 0,88 | 0,92 | 0,94 | 0,83 | 0,86 | 1,00 | 0,66 | 1,00 | 0,89 | 0,90 | 0,80 | 0,97 | 0,90 | 0,86 | 0,87 | 0,71 | 0,72 | 0,76 | 0,91 | 0,98 | 0,90 | 0,96 | 0,96 | 0,88 |
| Mega Syariah | 0,83 | 0,87 | 0,88 | 0,89 | 0,83 | 0,80 | 0,85 | 0,85 | 0,96 | 0,94 | 0,87 | 0,93 | 0,94 | 0,90 | 0,91 | 0,92 | 0,99 | 0,98 | 0,96 | 0,96 | 0,97 | 0,96 | 0,98 | 0,94 | 0,97 | 0,99 | 0,99 | 1,00 | 0,92 |
| BTPN Syariah | 1,00 | 0,96 | 0,94 | 0,99 | 0,90 | 0,93 | 0,98 | 1,00 | 0,85 | 0,86 | 0,97 | 0,97 | 0,91 | 0,94 | 0,98 | 0,97 | 0,93 | 0,96 | 0,98 | 0,98 | 0,92 | 0,97 | 0,99 | 1,00 | 0,91 | 0,91 | 0,95 | 1,00 | 0,95 |
| Bukopin Syariah | 0,98 | 0,97 | 0,96 | 0,97 | 0,97 | 0,96 | 0,97 | 0,96 | 0,99 | 0,95 | 0,96 | 0,94 | 0,97 | 0,91 | 0,93 | 0,91 | 0,99 | 0,95 | 0,94 | 0,94 | 0,99 | 0,98 | 0,96 | 0,95 | 0,96 | 0,97 | 1,00 | 0,97 | 0,96 |
| Muamalat | 0,93 | 0,83 | 0,83 | 0,83 | 0,89 | 0,78 | 0,79 | 0,78 | 0,83 | 0,74 | 0,73 | 0,73 | 0,98 | 0,80 | 0,78 | 0,74 | 1,00 | 0,72 | 0,74 | 0,73 | 0,86 | 0,67 | 0,73 | 0,71 | 0,99 | 0,65 | 0,63 | 0,70 | 0,79 |
| BJB Syariah | 0,95 | 0,90 | 0,87 | 0,92 | 0,95 | 1,00 | 0,99 | 1,00 | 0,97 | 1,00 | 1,00 | 1,00 | 0,99 | 0,97 | 0,96 | 1,00 | 0,95 | 0,89 | 0,91 | 0,93 | 0,94 | 0,89 | 0,88 | 0,90 | 0,95 | 0,87 | 0,89 | 0,93 | 0,94 |
| BRIS | 1,00 | 0,84 | 0,82 | 0,85 | 0,92 | 0,79 | 0,82 | 0,87 | 0,88 | 0,84 | 0,84 | 0,87 | 0,86 | 0,85 | 0,86 | 0,87 | 0,70 | 0,79 | 0,81 | 0,85 | 0,79 | 0,79 | 0,78 | 0,87 | 0,91 | 0,81 | 0,93 | 0,94 | 0,85 |
| Panin Syariah | 0,98 | 1,00 | 0,99 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,94 | 0,95 | 0,94 | 0,96 | 1,00 | 0,90 | 0,93 | 0,90 | 0,99 | 0,88 | 0,88 | 0,84 | 1,00 | 0,93 | 0,96 | 0,98 | 1,00 | 1,00 | 0,97 | 1,00 | 0,96 |
| Victorya Syariah | 1,00 | 1,00 | 1,00 | 1,00 | 0,98 | 1,00 | 1,00 | 1,00 | 0,96 | 0,99 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,99 | 1,00 | 0,99 | 0,99 | 0,97 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,99 |
| Maybank Syariah | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,99 | 1,00 | 1,00 | 0,98 | 1,00 | 1,00 | 0,99 | 1,00 | 0,98 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 1,00 | 0,38 | 0,52 | 1,00 | 1,00 | 0,96 |
| NTB Syariah | 1,00 | 0,99 | 0,99 | 1,00 | 0,98 | 1,00 | 1,00 | 0,99 | 0,96 | 0,97 | 0,98 | 1,00 | 0,99 | 0,96 | 0,95 | 0,97 | 1,00 | 0,98 | 1,00 | 1,00 | 0,96 | 0,90 | 0,86 | 0,89 | 0,97 | 0,87 | 0,92 | 0,93 | 0,96 |
| BCA Syariah | 0,99 | 0,98 | 0,98 | 1,00 | 0,98 | 1,00 | 1,00 | 1,00 | 0,95 | 1,00 | 0,99 | 1,00 | 1,00 | 0,99 | 0,98 | 0,99 | 0,99 | 0,96 | 0,98 | 0,96 | 0,92 | 0,97 | 0,95 | 0,91 | 0,98 | 0,92 | 0,93 | 0,96 | 0,97 |
| BNI Syariah | 0,88 | 0,86 | 0,88 | 0,89 | 0,88 | 0,89 | 0,86 | 0,88 | 0,91 | 0,88 | 0,86 | 0,86 | 0,87 | 0,84 | 0,86 | 0,84 | 0,87 | 0,88 | 0,87 | 0,86 | 0,91 | 0,89 | 0,86 | 0,84 | 0,94 | 0,77 | 1,00 | 1,00 | 0,88 |
| Mandiri Syariah | 0,85 | 0,71 | 0,73 | 0,69 | 0,80 | 0,68 | 0,72 | 0,72 | 0,78 | 0,73 | 0,71 | 0,71 | 0,81 | 0,74 | 0,73 | 0,69 | 0,80 | 0,75 | 0,70 | 0,71 | 0,83 | 0,75 | 0,75 | 0,74 | 0,78 | 0,73 | 0,85 | 0,84 | 0,75 |
| Rerata Tahun | 0,95 | 0,91 | 0,91 | 0,93 | 0,92 | 0,91 | 0,92 | 0,93 | 0,91 | 0,91 | 0,92 | 0,90 | 0,95 | 0,91 | 0,91 | 0,90 | 0,94 | 0,90 | 0,90 | 0,90 | 0,91 | 0,88 | 0,89 | 0,90 | 0,91 | 0,85 | 0,93 | 0,94 | 0,91 |

The scale efficiency level of Islamic banking reaches 91%, indicating the ability of banks to manage resources (inputs) to the extent of 91%, while there is still a small portion of resources that are not used efficiently (inefficient) amounting to 9%. In other words, there is room to improve the use of these resources to be more efficient. The banks with the highest

efficiency are Victorya Sharia Bank (0.99), followed by BCA Sharia (0.97), NTB Sharia (0.96), Panin Sharia and Bukopin Sharia (0.96), while banks with low efficiency are Mandiri Sharia Bank (0.75), Muamalat (0.79), and BRIS (0.85). (table 4)

The results of this study indicate a consistent pattern where larger banks (with larger assets and market share) show lower levels of efficiency compared to relatively smaller banks, both in terms of technical efficiency and scale efficiency. Larger banks face challenges in achieving optimal scale efficiency in performing intermediary functions, resulting in lower outputs. This is consistent with research conducted by Ismail et al., (2013) showing that bank size contributes to increased inefficiency, as seen in Islamic banking in Malaysia.

In this study, private commercial banks and foreign-owned banks exhibit high levels of efficiency. Chan et al., (2015) stated in their research that concentrated markets and greater foreign investment will lead to higher efficiency. This condition has a positive impact on domestic banking competition because foreign ownership and investment bring technological innovation, improvement in management quality, and expertise in risk management.

## Conclusion

The findings of this study indicate that the market power (Lerner index) of Islamic banking at the interbank level falls into the category of moderate competition, while at the overall level of the Islamic banking industry (HHI), there is relatively high concentration leading to tight oligopoly competition. The achievement of technical efficiency (x-efficiency) in Islamic banking is categorized as low, while the achievement of scale efficiency (scale-efficiency) is categorized as moderate. This study urges the government, through the Financial Services Authority (OJK), to pay attention to the level of market concentration in Islamic banking to ensure healthy industry competition and enhance bank efficiency through policies and projections regarding potential mergers and spin-offs in Islamic banking.

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