SIJDEB, 4(3), 2020, 175-190
p-ISSN: 2581-2904, e-ISSN: 2581-2912
DOI: https://doi.org/10.29259/sijdeb.v4i3.175-190

SRIWIJAYA INTERNATIONAL JOURNAL OF DYNAMIC ECONOMICS AND BUSINESS

Competitiveness and Market Concentration of Islamic Banking Industry: a Comparison Study between Indonesia and Malaysia

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Abstract: Financial integration in the ASEAN Economic community (AEC) by 2020 forces Islamic banks in Indonesia and Malaysia to be more competitive and have market power domestically and internationally to ensure business sustainability and increase assets rapidly in order to boost market share of Islamic banking in Indonesia and Malaysia. Islamic bank market competitiveness and power will determine the returns, investment, asset and trust of Islamic banks. The study uses data from 10 Islamic banks in Indonesia and Malaysia. The result confirmed that Islamic banking in Indonesia are characterized by the monopolize industry and Islamic bank in Malaysia are characterized by oligopoly Industry.

Keywords: Islamic Banks; Market Structure; Bank Competition; Indonesia; Malaysia

Introduction

The Islamic Banking industry grows base on the basis of beliefs in religion supported by the implementation of the risk sharing concept depending on a number of pre-requisites such as transparency and accountability, good governance, contacts enforcement, effective monitoring, well-structured economic institutions, and efficient financial markets (Izhar and Asutay, 2007).

Islamic banking industry has become a supporter of economic growth and an important part of the national financial industry. In Asia, the growth of Islamic banking is represented by two countries, namely Indonesia and Malaysia. The two country becomes hubs for the *Shariah* Industry in Asia and become a reference in relation to the latest *Shariah* developments, particularly Islamic banking in ASEAN Karim, (2010).

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According to Almekinders (2015), financial integration of ASEAN should fulfill these three frameworks, which are equal access, equal treatment and equal environment. These factors will be able to achieve if market where Islamic bank competing are competitive and diversely concentrate.
Islamic banking in Indonesia is expected to achieve the qualification standard of qualified ASEAN bank (QAB) in the hope to compete with other Islamic banking. However, Indonesia Islamic banking industryhas to strengthen their competitiveness within International banking environment in order to handle the impact of diverse market concentration. Contradicts with Malaysia Islamic banking, where Islamic banking industries are ready for international competition due to liberalization act implemented by Malaysia government. This policy forced Islamic bank in Malaysia to compete internationally and handle a wide range of diverse market (Ahmad Mokhtar et al. 2008).

Previous studies that focusing on Islamic banking competition and market concentration in Indonesia (Cupian and Muhamad Abduh 2015; ChajarMatariFath*et al* 2018;Ascarya and Diana Yumanita 2008), in Malaysia (Nafisah Mohammed, Abdul Ghafar Ismail 2015; FadzlanSufian and Muhamed-Zulkhibri Abdul Majid 2006; Mohd Faizal Basri2020), are focusing on single nation and there are none of the studies that provide a comparison between two countries. In 2019, there are 16 Islamic banks in Malaysia and 13 Islamic banks in Indonesia, thus making comparison between Indonesia and Malaysia Islamic bank appropriate since not only both countries are geographically closed but also the two nations have strong correlation and integration ties in term of relation and social culture.

This paper investigates the impact of structural changes due to the improvement of Islamic banking rules particularly on the competitiveness level of Islamic bank Industry. Competitiveness levels lead Islamic banking to concentrate on diverse market. Lipczynski (2005) stated that market concentration have implication toward level of competitiveness of company in a market or industry. While, Islamic banking industry diverse due to business environment complexity (Al-Muharrami, S., & Matthews, K. 2009).The comparison of competitiveness level and market power between Islamic bank in Indonesia and Malaysia is expected to provide map of assessment for a better business environment and to support ASEAN financial integration in 2020.

Therefore, this study examined market concentration with the objective to find level of competitiveness among Islamic bank in Indonesia and Malaysia and assessing market power of Islamic banking in those countries.The purpose of comparing Islamic banking industry between the two countries is not to define which Islamic banking is better, but to provide insight knowledge about the industry as a lesson to learn. This research is very important to conduct since it will provide special treatment for Islamic bank in one side and realize the core concepts of Islamic banking regulation and asses the level of competitiveness and market concentration in order to achieve financial integration in term of fairness, transparency, protection for Islamic banking environment.

Literature Review

Research from Nafisah (2015) that investigated the market concentration of Malaysia's Islamic Banking Industry in 2000-2010 found structural changes in the Islamic banking market has changed the market structure of the respective market from moderately concentrated to low concentrated market; whereby supporting the existence of competitive

environment in the Malaysian Islamic banking market. This supported the research conducted by Majid and Sufian (2007) about market structure and competition in emerging market from Malaysian Islamic Banking Industry in 2001-2005 which proved that the Islamic banks in Malaysia earned their revenue in the condition of monopolistic competition. In addition, research from Basri (2020) investigating competition and market structure of the Malaysian Islamic Banking Industry in 2008-2015 found that the Malaysian Islamic banking industry operated in monopolistic competition conditions with a moderately concentrated market structure.

On the other hand, Cupian and Abduh (2017) in their research about competitive condition and market power of Islamic and Commercial Conventional Banks in Indonesia between 2006 and 2013 suggested that the banking markets of Indonesia cannot be characterized by the bipolar cases of either perfect competition or monopoly. That is, banks earned their revenues operating under conditions of monopolistic competition in that period. However, research conducted by Mala, Rodoni, and Yaman (2018) about market power and efficiency of Islamic Banking and Conventional Banking in Indonesia in the period of January 2009 to December 2016 showed that SCP (Structure-Conduct-Performance) hypothesis is closely applied to Islamic and conventional banks because market concentration significantly influences profitability. RMP(Relative Market Power) hypothesis is also closely applied to Islamic and conventional banking, this indicates Indonesian banking has market power in determining prices and this condition makes the profit higher. Moreover, Ascarya and Yumanita (2007) measured the competitiveness of Islamic Banking in Indonesian dual banking system from 2003 to 2005 and found that Islamic banking is relatively more efficient than conventional banking. This means that Islamic banks are competitive enough to compete with conventional banks. Islamic banking is technically more efficient, but less scale efficient than conventional banking.

Methods

Data Collection

Islamic banking in Indonesia and Malaysia is an industry that has undergone structural changes due to the dual banking system and the liberalization process. In Malaysia, under the liberalization process, foreign banking is permitted and given the opportunity to offer Islamic banking products and services. Meanwhile, conventional banks in Indonesia also offer Shariah units lead to a clustered Islamic banking industry. At the end of 2019, there are 14 Islamic banks in Indonesia and 16 Islamic banks in Malaysia (Bank Negara Malaysia, 2019).

The identification of problems in this study are (1) What is the condition of the competition Islamic banks in Indonesia and Malaysia during the 2015-2019 period?, and, (2) What is the market power of Islamic banks in Indonesia and Malaysia during the 2015-2019 period ?

Thus, selection of banks as sample on the basis of the relevance of these banks as bank institutions that provide products with close substitutes within research period where number of samples in this study were 10 Islamic banks in Indonesia and 10 Islamic banks in Malaysia.Data obtained from annual reports of each bank in Indonesiaand Malaysia

during the study period, taken from the bank's official website and combined with data obtained from Bank Indonesia, financial authority services and Bank Negara Malaysia.

Table 1. **List of Islamic banks in Indonesia and Malaysia (2019)**

No	Indonesia	No	Malaysia
1	Bank Muamalat	1	Affin Bank (AFB)
2	Bank Syariah Mandiri	2	Alliance Islamic Bank (AIB)
3	Bank Mega Syariah	3	Alliance Islamic Bank (AIB)
4	Bank BRI Syariah	4	Asian Finance Bank (ASB)
5	Bank Syariah Bukopin	5	Bank Muamalat Malaysia (BMM)
6	Bank BNi Syariah	6	Bank Islam Malaysia Berhad (BIMB)
7	Bank BCA Syariah	7	CIMB Islamic (CIMBI)
8	Bank Panin Syariah	8	Kuwait Finance House (KFH)
9	Maybank Syariah Indonesia	9	Maybank Islamic (MYBI)
10	Bank Victoria Syariah	10	Public Islamic Bank Berhad (PIBB)

Methodologies

Concentration measure

Since the purpose of study is to evaluate market concentration measures, hence absolute and relative measures will be calculated based on the weighting scheme as shown above. The weighting scheme of anumber of concentration ratios discussed in this study isbased on Marfels as stated by Bikker and Haaf (2002a), Deltuvaiteet al.(2007), and Sharma and Bal (2010). They are as follows:

Table 2**. Features of Concentration Measure**

Concentration Measure	Concentration Formula	Ratio Range	TypicalFeatures
Concentration ratio of n bank	$CR_n = \sum_{i=1}^{n} s_i$	$0 < CR_n = 1$	Only takes large banks into account
HHI	$HHI = \sum_{i=1}^{N} s_i^2$	$1/n = HHI = 1$	Considers all banks; sensitive to entry of new banks
entropy	$EH = \sum_{i=1}^{N} s_i \ln s_i$	$0 = EH = \log n$	Based on expected information content of a distribution
Relative entropy	$R = EH/\ln N$	$0 < R = 1$	Based on expected information content of a distribution
Hannan and Kay (HK) Index	$HK(\alpha) = \sum_{i=1} s_i^{\alpha}$	$1/s = HK = n$	Sensitive to size distribution; $a < 1$ stresses the influence of small banks

			and *a*> 1 stresses the influence of large banks
Comprehensive Industrial Concentration Index (CCI)	N CCI = s1 +∑ si2 + (1□ si) i=1	0 <*CCI* =1	Addresses relative dispersion and absolute Magnitude.
Gini Index	*G*= 1 □ 2∫1*L*(*X*)*d*(*X*) 0	0 <*G*= 1	Accounts all banks in the market, shows Inequality in the distribution.
variance of the Logarithms (vL)	*VL* = (1— *N*)∑*Ni*=1[*loge*(*si*) - *s*–]2		Shows inequality in the distribution.
Numbers equivalents (Ne) Ne for HK Ne entropy	*NE HK*(*a*) = (*N*∑*i*=1*si*)2 /(1- *a*) *NE Entropy* = *eEH*		An inverse measure of concentration, show N Equal-sized of firms in an industry.

The methodology is based on set of measures of the competition and market power. The first measure is a set of concentration ratios (CR) and HHI index. The second measurements are the PR-H statistic and the Lerner index based on econometricestimations with the aim of evaluating the structure of market and measuring itspower in term of price setting. These research implement two steps to study the Islamic banks market powercompetitiveness in Indonesia and Malaysia. The first is to measurethe competition of Islamic bank in Indonesia and Malaysia and identify the market power of each nation using PR-H statistic and the Lerner index.

The Herfindahl-Hirschman Index

The HHI is another traditional measure of the competition and the concentration of the market conceived by Hirschman (1945) and Herfindahl (1950). Since 1982, theUS Department of Justice has based its merger guidelines on this index. It is thenwidely applied to estimate the level of competition of a market and its structure:

$$\mathrm{HHI} = \sum_{i=0}^{n} Si^2$$

where Si2 is the market shares of the company i and n is the number of companies. This indicator is calculated by adding the squares of the market shares of every banking the market or a country and it varies between zero (situation of pure and perfectcompetition) and 10,000 (1002: monopoly position). The higher the value of the indication, the more concentrated the market, and the weaker is the competition between the agents. The aim of the market is therefore to establish a monopoly position and increase market power. Declination indicates the opposite. According to the current U.S. screening guidelines, if the HHI is less than 1,000, the banking industry is considered a competitive market, a somewhat concentrated market if the HHI is between 1,000 and 1,800, and a very concentrated market if the HHI is more than 1,800. If the post-merger market HHI is less than 1,800 points and the pre-merger index increase is less than 200 points, the merger is considered to have no anti-competitive effects and is accepted by the regulators.

Panzar and Rosse (PR) Model

A test developed by Panzar and Rosse (1987) examined whether the behavior at company level is consistent with either the model of perfect competition, the model of monopolistic competition or the model of monopoly. This test is based on an empirical study of the price variation impacts of the inputs on the company's income. It is obtained by the sum of the price elasticity of the inputs (Hstatistics). The H-statistic is estimated from the reduced form of the bank revenue equation as the sum of the elasticity of the bank's total revenue in relation to the bank's input prices. H-Statistics vary between 0 and 1, with less than 0 being monopoly, less than 1 being monopolistic competition and 1 being perfect competition.

Table 3**. Interpretation of the Rosse-Panzar *H*-Statistic**

Estimated H statistic	Competitive Environment test	Equilibrium test
H = 0	Monopoly equilibrium Perfect colluding oligopoly Conjectural variations short-run oligopoly	H < 0 Disequilibrium H = 0 Equilibrium
0<H<1	Monopolistic competition free entry equilibrium	
H=1	Perfect Competition Natural Monopoly in a perfectly contestable market Sales maximizing firms subject to break even constraint	

Source: Panzar&Rosse, 1987; Nathan & Neave, 1989; Shaffer, 1982; and Molyneux et al 1996

The followinglog-linear revenue equationwhich is a variation of the Panzar and Rosse (1987) methodology:

$$ln\ TRit = a + ß1\ lnW1it + ß2ln\ W2it + ß3ln\ W3it + ß4\ lnZ1it + ß5lnZ2it + 6lnZ3it + eit \quad (1)$$

The dependent variable TRitindicates total revenues measured by the ratio of interest and non-interest revenues to total assets, following Nathan and Neave (1989). Equation (1) includes three input prices: W1is a proxy for input price of deposits. It is the ratio of total interest expenses to total deposits and money market funding. W2 is a proxy for input price of equipment and other fixed capital. It is the ratio of other operating expenses over total assets.W3 isproxy for input price of labor. It is the ratio of personnel expenses over total assets. The analysis includes other bank-specific control variables to capture bank-specific effects; three control variables are included in the equation (3). Z1 represents the ratio of net loans to total assets to capture the risk component, Z2 stands for total assets to account for possible scale economies, and Z3 denotes the ratio of equity to total assets to capture the impact of capitalization; eit is a random disturbance term.

The subscripts' and t refer to bank ioperating at time t. It consistent with Molyneux, Thornon, Lloyd and Williams (1996),the application of the PR framework to banking

requires three assumptions. First, banks are single product firms that produce interest revenues using labor,capital, and deposits as inputs (De Bandt and Davis, 2000); second, higher factorprices do not correlate with higher revenues generated by higher quality services; and third, banks are profit-maximizing firms with normally shaped cost and revenue functions (Gelos and Roldos, 2004). More importantly, banks should be observed from a long-run equilibrium perspective, for which this study tests using the following

Equation:

$$ln\ ROA = a + 1lnW1it + 2\ ln\ W2it + 3\ ln\ W3it + 4lnZ1it + 5\ lnZ2it + 6lnZ3it + eit \quad (2)$$

where ROAitis the ratio of pre-tax profits to total assets that measures a bank's return on assets. The subscript i denotes bank i, and the subscript t denotes year t. All the variables in the right-hand side of the equation are similar to the variables in equation (3). The equilibrium statistic, E, is the sum of input price elasticity's, i.e. E = 1+2+3. The interpretation of this statistic is as follows: a value of E significantly different from zero implies that the market is not in equilibrium because in the long-term, the variation of the yields on assets does not relate to the variation of the prices of the inputs. However, in the presence of positive values of the PR-H statistics,Shaffer (2004) underlines that the rejection of the test of equilibrium does not distort the inferences based on the results of the estimation of this indicator.

The Lerner index and the Power of Pricing

The market power can be considered as the capacity to sell products over the marginal cost. The Lerner index is one of the most popular and the oldest indexes of market power. It is a direct measure of competition through the distance between the price and the marginal cost. The Lerner index (LI) is computed using the formula as follows:

$$LI = \frac{(P - MC)}{P}$$

where P is the price of banking outputs and MC is the marginal cost. Following the approach in Berger *et al.* (2008), we proxy bank output by using Total assets, P is calculated as total bank revenues over assets, and MC is calculated by taking the derivative from a translog cost function shown in equation (3):

$$\ln TC_{it} = c_i + \mu_t + \sum_{j=1}^{3} \theta_j \ln w_{j,it} + \theta_4 \ln TA_{it} + \frac{1}{2}\sum_{k=1}^{3}\sum_{l=1}^{3} \varphi_{kl} \ln w_{k,it} \ln w_{l,it} +$$

$$\frac{1}{2}\rho_1 (\ln TA_{it})^2 + \sum_{k=1}^{3} \tau_k \ln w_{k,it} \ln TA_{it} + u_{it} + \varepsilon_{it}$$

Where TC is the total operating plus financial costs; TA (i.e. Total assets) is a measure of bank production. W1, W2, and W3 are the same input prices used in equations (1) and (2) and defined above. Finally, idenote banks and t denotes years, □ denotes bank-level fixed effects and ε is an errorterm.

The estimated cost function coefficients are then used for the calculation of marginal costs. Indeed, given that the marginal cost is the derivative of the total cost to output (here total

assets), it can be derived that the derivative of the total cost logarithm to the output logarithm is the ratio of marginal cost to total cost multiplied by output. As a result, the marginal cost is equal to the product of the derivative of the logarithm of the total cost to output multiplied by the ratio of the total cost to output).

$$MC_{it} = \frac{\delta TC_{it}}{\delta q_{it}} = \frac{TC_{it}}{q_{it}}\left(\delta_o + \delta_1 \ln q_{it} + \sum_{j=1}^{3} \delta_{j+1} \ln W_{j,it}\right)$$

The Lerner index is generally between 0 and 1. Lerner index = 0, mean a perfectly competitive behavior and the firm has no market power.The Lerner index close to 1: shows the weakness of competition at the price level and that the firm exercises market power thanks to a higher mark-up. An increase in prices or a decrease in the marginal cost of the company are two elements which can explain the increase of the index. However, it can register negative values which can be explained as a consequence of a very strong competition obliging the firms to propose a price lower than the marginal cost (Maudos and de Guevara, 2006), or they can correspond to the period of introduction on the market which is characterized by a very high rate of charges.

Results and Discussion

Table 4**. Summary Statistics**

Variable	Indonesia		Malaysia	
	Mean	Std. Dev	Mean	Std Dev
Total Revenue (TR)	1.0786	78.4321	0.03972	45.500
Total Cost (TC)	1.1750	50.8800	0.06000	45.000
Output (q)	17.7800	789.240	1.72000	90.000
Total Assets (Z2)	-23.6600	13.4000	-1.5700	0.0000
Return On Assets (ROA)	1.29320	66.3451	0.8463	10.653
Return On Equity (ROE)	-1.89712	5.23403	0.01808	0.226
Price of Deposits (W1)	8.6890	3.7654	5.7654	6.2867
Price of Capital (W2)	14.6055	8.57324	0.2145	45.863
Price of Labor (W3)	14.8930	3.55500	-0.3700	50.000
Loans Ratio (Z1)	18.1281	100.000	1.36000	90.000
Capital Ratio (Z3)	10.7166	0.00000	-2.6900	10.000
Efficiency (TDTA)	1.4638	12.1174	1.6382	11.243
Capitalization (EQTA)	-0.2426	3.81701	-0.3918	0.3597

Variables total revenue (TR), total cost (TC), output (q), and total assets (Z2)are expressed in million Indonesian Rupiah.

Table 4 presents a statistical summary of the variables used in the empirical analysis. Mean and standard deviations for the dependent variable, totals income (TR), and return on assets (ROA) remained stable throughout the sample point. In terms of return on equity,

the average mean of ROE is highly contributing to the performances of Islamic banks. ROA contributing to risk exposure of Islamic banks in Indonesia and Malaysia since one of the consideration for investor to invest in Islamic banking is sense of security that translates into capital stability. Efficiency mean in Indonesia is (1.4638) contradicts with Indonesia standard deviation at (12.1174). This translates as the average cost-to-income comparison of Islamic banks has varied greatly. When Islamic banks can optimize the use of its assets, whichprimarily consist of customers saving, efficiency can be achieved.

Highest standard deviation value is (90.000) for loan ratio in Malaysia Islamic bank translated to credit risk, in Islamic banking industry contributes major risk in performance achievement since most of the financing fund that applied by Islamic banks is credit transfer in form of Murabahah and Musyarakah. In the implementation, Murabahah and Musyarakahown risk where in general the risk came from difficulties to pay the credit fund. The highest kurtosis in the sampleoccurs in PR (Profitability of Banks). However, if kurtosis in one country exceeds the threshold of 3, implying that the returns have fatter tails than would be expected from a normally distributed variable, where Islamic banks in Indonesia are profitable in general but the circumstances depends on many factors including the domination in Islamic banking market share.

Table 5**. Trends in Absolute Measure of Concentration in Indonesia Islamic Banking Industry**

Year/Measures	2015	2016	2017	2018	2019
No. of Banks	10	10	10	10	10
CR					
CR(%) 2	0.80	0.80	0.85	0.80	0.73
CR(%)3	0.97	0.93	0.90	0.90	0.80
CR(%)4	0.49	0.48	0.44	0.33	0.29
CR(%)5	0.45	0.84	0.90	0.80	0.78
CR8 (%)	0.51	0.53	0.39	0.42	0.45
entropy	1.60	1.43	1.23	1.40	1.33
Re	0.22	0.43	0.33	0.33	0.45
CCI	0.03	0.07	0.01	0.09	0,01
HK(1.5)	0.12	0.18	0.17	0.20	0.25
HK(2)	0.19	0.17	0.18	0.19	0.18
HK(2.5)	0.18	0.16	0.19	0.20	0.21
NE					
HK (1.5)	6	7	8	9	7
HK(2)	5	7	6	4	7
HK (2.5)	8	7	9	2	7
entropy	11	14	17	16	18

Notes: CR = concentration ratio, HHI = HerfindahlHirshman index, RE = relative entropy, HK = Hannah and Kay index, NE = number of equivalent.Source: Calculated by authors

Table 5 shows the market concentration in Islamic banking in Indonesia. The decline in total assets shows an increase in the number of banks in Islamic bank in Indonesia and Malaysia. In terms of market concentration, Islamic banking in Indonesia can be classified as Monopoly market because of the dual banking system, so there is still a dependency between Islamic banks and their conventional units which are still integrated. In addition, over the last five years the Indonesian Islamic banking has largely focused on Monopoly market because the three major Islamic banks have the ownership of assets: BCA Syariah,

BNI Syariah and BRI Syariah where those are still integrated with their conventional parent banks which facilitate their subsidiary to access their banking networks, systems and infrastructure(Al-Muharrami *et al* 2005).

Table 6. **Trends in Absolute Measure of Concentration in Malaysia Islamic Banking Industry**

Year/Measure	2015	2016	2017	2018	2019
No. Of Banks	10	10	10	10	10
CR					
CR(%) 2	0.17	0.19	0.17	0.17	0.17
CR(%)3	0.19	0.23	0.21	0.34	0.21
CR(%)4	0.19	0.34	0.54	0.48	0.33
CR(%)5	0.19	0.34	0.43	0.32	0.35
CR8 (%)	0.18	0.23	0.23	0.35	0.34
entropy	1.95	2.05	2.06	2.12	2.61
Re	0.54	0.66	0.78	0.65	0.45
CCI	0.01	0.04	0.06	0.07	0.07
HK(1.5)	0.40	0.54	0.32	0.24	0.43
HK(2)	0.23	0.43	0.54	0.54	0.32
HK(2.5)	1.45	1.23	1.23	1.24	1.24
NE	2.11	2.11	2.11	2.11	2.11
HK (1.5)	3.22	3.33	3.23	3.23	3.24
HK(2)	2.42	2.43	2.43	2.43	2.44
HK (2.5)	6	6	7	6	6
entropy	8	8	9	8	9

Notes: CR = concentration ratio, HHI = HerfindahlHirshman index, RE = relative entropy, HK = Hannah and Kay index, NE = number of equivalent.Source: Calculated by authors

From above result, it appears that cost to income ratio is significant towards Islamic banks in Malaysia, it is showed that there is an anticipation from Islamic bank to the contribution of cost to income ratio. There is a wide argument that Islamic Bank assets should not based on debt transaction such as *Murabaha* and *Ijara* (Yusof, 2006), while on the contrary, Chapra (2007) argues that the share of equity based transaction should increase in the current financial system, while that of the debt based ones should decrease substantially.

The degree of competitiveness of Islamic banks in Malaysia is increasing over time. The entropy measure has been accepted as a measure of competition in the economics literature (Nawrocki and Carter, 2010). The higher the entropy value, the higher the degree of competitiveness. Over time, the value of entropy has increased, indicating an increase in competition in the Islamic banking market in Malaysia. The increasing level of competition in the Malaysian Islamic banking market is also represented by the CCI value which is close to zero over time. The result confirms that Islamic banking theory must segregate investment functions from their main activities and must set up a subsidiary according to the Shariah principle than there will be less efficiency which will have a negative impact on the equity-based financial system where, at the end, the performance of Islamic banks in Malaysia and Indonesia will be affected(Mamatzakis et al 2005, Weill, 2004).

Model Estimations:

Table 7**. Market Concentration of the Indonesian Banking System Over the Period 2006-2013**

Year	Number of Banks	HHI					
		Assets		Deposit		Loan	
		Indonesia	Malaysia	Indonesia	Malaysia	Indonesia	Malaysia
2015	10	0.3576	0.2879	0.02024	0.01395	0.01723	0.02260
2016	10	0.1183	0.1869	0.01278	0.01286	0.02272	0.01395
2017	10	0.3233	0.1696	0.00872	0.01931	0.01691	0.01286
2018	10	0.1238	0.1279	0.01100	0.00986	0.01967	0.01931
2019	10	0.1396	0.1692	0.01416	0.01483	0.01751	0.00986

Referring to market concentration it is found that HHI total assets showed a declining trend during the study period in both Indonesia and Malaysia. During the 2015-2019 period Islamic banking in Indonesia was concentrated in a medium distribution where HHI exceeds 1000 and less than 1800 where markets with the above HHI value results are considered to be included in the market characterization of monopoly or weak oligopoly competition (Widyastuti and Armanto, 2013).This is consistent with the study by Natadipurba (2004) on Malaysia and studies on other developing countries that find H-statisticsbetween zero and one and monopolistic competition (Al-Muharrami et al., 2006; Perera et al.,2006).

The weak monopoly and oligopoly competition market for Islamic banking in Indonesia is characterized by rapid growth in 2008 to 2013. Meanwhile after that year the period of development of Islamic banks was stagnant after 2014. The slowdown in 2015 triggered the fall in Islamic banking assets as compared with conventional banks. Concentration of market ownership strength, however, when selecting Islamic banks in Indonesia with a "survival of the fittest" framework where banks with ownership of assets, networks, and systems as they derive from traditional banks can better dominate the market.

For Islamic bank in Malaysia, the result from table 1 showed that Malaysia has 16 Islamic banks, some of which have large assets and strong capital. Thisfindings indicate competitive behavioramong Islamic banks from time to time. The valuation trend of the Malaysian Islamic banking industry, assets and loans has shifted from a medium concentrated market (2010-2015) to low concentrated markets (2015-2019). This finding indicates a reduction in disparity among Islamic banks operating in the Malaysian banking sector.

Table 8. **Equilibrium test: Fixed Effect Estimation Result of Islamic and Conventional Banks**

	Islamic Banks in Indonesia		Islamic Banks in Malaysia	
	coef.	**t-stat**	**coef.**	**t-stat**
Price of Deposit (lnw1)	-0.0196	-0.2283	1.2512	0.03136
Price of Capital (lnw2)	-0.0213	-0.3616	-2.8137	-0.01522
Price of Labor (lnw3)	-0.0031	-0.3893	-0.0844	-0.01644
Loans Ratio (lnz1)	-0.0035	-0.2333	-0.2885	-0.01527
Total Assets (lnz2)	0.0163	-0.0931	1.0748	-0.01604
Capital Ratio (lnz3)	0.0509	-0.0904	1.0064	-0.00650
Constant	-0.0081	-0.133	0.6904	-0.01082
R 2	0.0109	-0.1666	0.016	-0.01411
E-statistic	0.0251	-0.0588	2.7519	0.01395
Wald test (F-test) for E=0	0.0322	-0.1621	2.9903	0.01286
Observations				

Table 9.**Competitive structure for Islamic Banks in Indonesia and Malaysia**

	Islamic Banks in Indonesia		Islamic Banks in Malaysia	
	coef.	**t-stat**	**coef.**	**t-stat**
Price of Deposit (lnw1)	0.0332656	0.65272	-0.0310151	0.2545
Price of Capital (lnw2)	-0.0233915	0.70715	1.0241	0.1239
Price of Labor (lnw3)	0.0312119	0.81377	0.0448	0.6453
Loans Ratio (lnz1)	0.0112227	0.54915	-0.0220	-2.6359
Total Assets (lnz2)	-0.0313121	0.34657	1.5430	0.4085
Capital Ratio (lnz3)	-0.0233192	0.04165	-0.0956	11.4431
Constant	0.0120816	0.88043	0.3231	0.0191
R2	0.0454851	0.65290	-0.0220	-0.0046
H-statistic	0.56939		0.88043	
Wald test (F-test) for H=0	0.0480856	0.00289	0.3428	0.0163
Wald test (F-	-0.0196	-0.2283	0.3576	1.2512

test) for H=1

From above results, it appears that Islamic bank in Indonesia is weaker than Malaysia Islamic Bank where the value of the PR-H statisticsof the Islamic panel in Indonesia is weaker than Islamic bank in Malaysia, respectively, equal to56.93 percent and 88.04 percent. The Islamic market in Indonesia is more monopolistic. Where deregulation on market structure influenced the most toward market composition. Islamic bank in Indonesia also explaining about the capabilities of each bank to asses profit by becoming efficient not only in term of operationalization but also in term of delivering their product to the customer. Furthermore, Islamic bank in Indonesia also showed that there is dynamics development toward Islamic bank market. Islamic banking always try to win the competition by updating their system, facility and services to customer.

The estimation results for Islamic bank in Malaysia showed that the value of the PR-H statistics is stronger that Indonesia. The Islamic bank market in Malaysia is more oligopolistic. Under imperfect competition, oligopolistic banks able to gain market power and lower the deposit interest rate. The difference between the lending interest rate and the deposit interest rate is a source of positive profits. As banks earn positive profits, bank stocks gain positive value thus resulting to higher competitive environment (Gelos and Roldos 2002)

Table 10**. Annual Values of Lerner Index for Islamic and Conventional banks**

Year	Indonesia Islamic Bank	Malaysia Islamic Bank
2015	0.3411	0.4872
2016	0.4500	0.4700
2017	0.4900	0.4800
2018	0.3956	0.4300
2019	0.4426	0.4224
average	0.4244	0.4991

The annual averages of the Lerner Index calculated for Islamic bank in Indonesia and Malaysia where the average index of Islamic bank in Indonesia is 0.4244 where it appears that Islamic bank in Indonesia has lower market power more than Islamic bank in Malaysia with average value on 0.4491. This can be explained as a result of higher demand of Islamic banking product in Malaysia due to a better and improve socialization process (Faiz, 2010). In Indonesia, due to unfamiliarity with Islamic product in Indonesia where most consumer have perception that Islamic product is not user friendly and complicated (Sahut,*et al* 2012).

Conclusion

The level of competitiveness and market concentration of Islamic banking Industry in Indonesia and Malaysia confirm that Indonesia Islamic bank is under monopolistic competition while Malaysia Islamic bank is under oligopoly market structure competition. Being in Monopoly market leads to certain benefit where Monopolies in banking can drive growth. This happens because monopolistic banks have an immediate benefit to allocate the majority of their assets to more profitable investment projects. On the contrary, deposit rates at banks operating on the monopolistic market are reducing the interest of depositors in saving; meaning savings to banks are reduced.

The finding of the results confirm that Islamic bank in Indonesia are less competitive than Islamic bank in Malaysia due to differences in term of market power that caused by inefficiency in operation. In the operationalization, Islamic bank in Malaysia have more product diversification and it resulting into a better socialization process to the public in Malaysia to access and have better knowledge about their Islamic bank in general while in Indonesia Islamic banking internal problem relates with system dependency with their conventional bank has been an ongoing problem since years ago.

According to Stiroh and Poole (2002) and Bikker and Groeneveld (2000), there are two sources of increasing concentration in the banking industry which are Internal growth and External Growth. In terms of liquidity, Indonesian Islamic banks are less competitive not only when compared with Malaysian Islamic banks, but also with the conventional bank in Indonesia. The reason is due to the transformation of banking landscape in Indonesia and the implementation of dual banking system. Malaysia Islamic bank on the other hand experienced internal and external growth where internally they have expansion of existing subsidiaries and external growth related with merger and acquisition where the integration happened through the upgrading of the Islamic banking institution from Islamic windows to full pledged Islamic bank and on-going liberalization process.

The creation of full pledged Islamic bank in Malaysia has given the opportunity to Islamic banking to operationalize from their conventional counterpart where this opportunity has increased the market power of that institution in making business decision that will increase their market power. In the implementation, strength in market power lead to the increase of market concentration. However, due to moderated concentrate Islamic bank in Indonesia and Malaysia, Islamic bank in Indonesia are hugely influenced by conventional bank while in Malaysia, Islamic bank are hugely influence by foreign Islamic banks.

References

Ahmad Mokhtar, H.S., Abdullah, N., & Alhabshi, S. M. (2008). Efficiency and competition of Islamic banking in Malaysia.*Humanomics,* 24(1), 28-48.

Al-Muharrami, S., Matthews, K. and Khabari, Y. (2006).Market structure and competitive conditionsin the Arab GCC banking system.*Journal of Banking and Finance*, in press.

Ascarya, Ascarya & Yumanita, Diana (2007). Measuring the Competitiveness of Islamic Banking in Indonesian Dual Banking System. *TAZKIA Islamic Finance and Business Review*, 2.

Bank Negara Malaysia, Annual Report, (2019).

Basri, Mohd Faizal (2020). Competition and market structure of the Malaysian Islamic banking industry.*Journal of Islamic Accounting and Business Research*11. 721-740. 10.1108/JIABR-08-2017-0127.

Berger, A.N., Klapper, L.F. and Turk Ariss, R. (2009). Bank competition and financial stability. *Journal of Financial Services Research,* 35, 99-118.

Bikker, J. A. and Groeneveld, J. M. (2000). Competition and concentration in the E.U bankingindustry. *Kredit und Kapital*, 33, 62-98.

Business Review, *49*(2), 161–186.

Chapra, M. U. (2007). The case against interest: Is it compelling?.*Thunderbird International*

Claessens, S. and Laeven, L. (2004). What drives bank competition? some international evidence.*Journal of Money, Credit, and Banking*, 36, 563-584.

Coccorese, P. (2004). Banking competition and macroeconomic conditions: a disaggregated analysis.*International Financial Markets, Institutions and Money*, 14, 203-219.

Cupian, & Abduh, Muhamad (2017). Competitive condition and market power of Islamic banks in Indonesia. *International Journal of Islamic and Middle Eastern Finance and Management*, 10, 77-91. 10.1108/IMEFM-09-2015-0098.

De Bandt, O., & Davis, E. P. (2000). Competition, contestability and market structure in European banking sectors on the eve of EMU. *Journal of Banking andFinance*, 24, 1045-1066.

De Guevara J. F. and Maudos M. (2007). Explanatory factors of market power in thebanking system. *TheManchester School,*75(3), 275–296.

Faiz, Ihda (2010). Ketahanan Kredit Perbankan Syariah Terhadap Krisis Keuangan Global. *Jurnal Ekonomi Islam La_Riba*, 4(2).

Gelos and Roldos (2004). Consolidation and market structure in emerging market banking systems. *Emerging Markets Review,* 5, 39–59.

Izhar, H. and M. Asutay (2007). "Estimating the profitability of Islamic banking: evidence from bank Muamalat Indonesia." *Review of Islamic Economics* 11(2): 17.

Karim, B. K., et al. (2010). "Bank-Specific, Industry-specific and Macroeconomic Determinants of African Islamic Banks' Profitability." International Journal of Business and Management Science 3(1): 39.

Lipczynski, J., Wilson, J. O. S., &Goddard J. (2005).*Industrial Organization: Competition, Strategsy and Policy*(2nd ed.).Pearson Education, FT Prentice Hall.

Majid, M. & Sufian, F. (2007). Market Structure and Competition in Emerging Market: Evidence from Malaysian Islamic Banking Industry. *Journal of Economic Cooperation*, Vol. 2, No. 28 (2007), pp, 99-121.

Mala, C., Rodoni, A., &Yaman, B. (2018). Market Powerand Efficiencyof Islamic Bankingand Conventional BankingIn Indonesia. *Global Review of Islamic Economics and Business*. 6, 131. 10.14421/grieb.2018.062-05.

Mamatzakis, E., Staikouras, C.,& Koutsomanoli-Fillipaki, N. (2005).Competition and concentration in the banking sector of the South Eastern European region.*Journal of Emerging MarketReview*, 6, 192-209.

Molyneux, P., Thornton, J.,& Lloyd-Williams, D. M. (1996). Competition and market contestability in Japanese commercial banking. *Journal of Economicsand Business,* 48, 33-45.

Murjan, W. & Ruza, C. (2002). The competitive nature of the Arab Middle Eastern banking markets.*International Advances in Economics*, 3,267-275.

Nafisah, M. (2015). *Market concentration of Malaysia's Islamic banking industry*. Universiti Kebangsaan Malaysia.

Natadipurba, C. (2015). *Ekonomi Islam 101*. Bandung: Mobidelta Indonesia.

Nathan, A. & Neave, E. (1989). Competition And Contestability in Canada's Financial System: Empirical Results. *The Canadian Journal Of Economics,* 22, 576–594.

Panzar, J., &Rosse, J. (1987). Testing for 'Monopoly' Equilibrium. *Journal of IndustrialEconomics, 35,* 443–56.

Perera, S., Skully, M. & Wickramanayake, J. (2006). Competition and structure of South Asian banking: a revenue behaviour approach.*Applied Financial Economics*, 16, 789-801.

Sahut M., Mili M., Krir B. (2012).Factors of Competitiveness of Islamic Banks in the New Financial Order. *8thInternational Conference on IslamicEconomics and Finance.*

Shaffer, S. A. (1982).Non-structural test for competition in financial markets in Bank structure and competition. *Conference Proceedings, Federal Reserve Bank ofChicago,* 225–243.

Stiroh, K, J. & Poole, J. (2000). Explaining the rising concentration of banking assets in the 1990's. *CurrentIssues in Economics and Finance,* 6(9).

Weill, L. (2004).On the relationship between competition and efficiency in the EU banking sector.*Kredit und Kapital*, 37, 329-352.

Widyastuti, S. R.& Armanto, B. (2013). Kompetisi Industri Perbankan Indonesia. *Buletin Ekonomi Moneter dan Perbankan Bank Indonesia.*

Yuan, Y. (2006). The state of competition of the Chinese banking industry.*Journal of Asian Economics*, 17, 519-534.

Yusof, R. M., & Majid, M. S. A. (2006). Who moves the Malaysian stock market – the US or Japan? Empirical evidence from the pre-, during, and post-1997 Asian financial crisis. *Gadjah Mada International Journal of Business*, 8, 367–406.