

Arif, M. Nur Rianto Al; Awwaliyah, Tara Bilqis

## Article

# Market Share, Concentration Ratio and Profitability: Evidence from Indonesian Islamic Banking Industry

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**M. Nur Rianto Al Arif<sup>\*</sup>, Tara Bilqis Awwaliyah<sup>\*\*</sup>**<sup>\*</sup> Universitas Islam Negeri (UIN)  
Syarif Hidayatullah JakartaEmail:  
nur.rianto@uinjkt.ac.id<sup>\*\*</sup> Universitas Islam Negeri (UIN)  
Syarif Hidayatullah JakartaEmail:  
tara.bilqis13@uinjkt.ac.id

## Market Share, Concentration Ratio and Profitability: Evidence from Indonesian Islamic Banking Industry

**Abstract:** Various literatures mention that an increasingly concentrated market will have an impact on performance. This study aims to analyze the influence of market structure on the profitability of the Islamic banking industry in Indonesia, especially after the enactment of the Islamic banking act. This research used panel regression with random effect model. The result shows that market structure - proxies by market share (MS) and concentration ratio (CR4) - does not affect profitability of the Indonesian Islamic banking industry. This result implies that the performance of the Islamic banking industry in Indonesia is not supported by the traditional hypothesis and the efficient structures hypothesis. However, this research indicates that there is no collusive behavior in the Islamic banking industry in Indonesia. Meanwhile, for control variables such as liquidity ratio, default rate, and operational efficiency ratio have been found to have adverse effect on the performance of the Islamic banking industry in Indonesia.

**Keywords:** market structure, performance, Islamic banking

**JEL code:** G21; L10; L25

## Introduction

A lot of research about industrial organization, especially in the banking industry, indicates that there is a relationship between market concentration and performance in the banking industry. Some research concludes the effect of market

concentrations on profitability (Samad, 2008; Athanasoglou et al., 2008). Another study also found the relationship between market concentrations and efficiency (Homma et al., 2014; Chan et al., 2015).

**Table 1: Islamic banking network**

Islamic banking	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Islamic commercial bank	5	6	11	11	11	11	12	12	13	13
Islamic business unit	27	25	23	23	24	23	22	22	21	21
Islamic rural bank	131	138	150	154	158	163	163	163	166	166

Source: Islamic banking statistics, Bank of Indonesia

The development of the Islamic banking industry in Indonesia had rapid growth. Table 1 shows the growth of the Islamic banking industry. Until the end of 2016, there were 13 full-fledged Islamic banks, 21 Islamic business units, and 166 Islamic rural banks. One of the crucial issues in this act is the spin-off policy. After the enactment of this act, the number of Islamic full-fledged banks in Indonesia has increased. The spin-off policy has increased the market share of spin-off banks.

**Table 2: Market Share and Concentration Ratio of Islamic Banks**

Banks	Market share			
	2013	2014	2015	2016
BSM	0.25781	0.24001	0.23977	0.2211
BMI	0.22044	0.22377	0.20004	0.1565
BRIS	0.07013	0.07294	0.07745	0.0777
BNIS	0.05928	0.06989	0.07468	0.0794
Panin Sharia	0.01633	0.02226	0.02403	0.0246
Mega Sharia	0.03676	0.02525	0.01928	0.0172
BJB Sharia	0.01892	0.02184	0.02244	0.0209
Bukopin Sharia	0.01750	0.01850	0.01868	0.0197
BCA Sharia	0.00823	0.01074	0.01214	0.0140
Maybank Sharia	0.00927	0.00878	0.00623	0.0038
Victoria Sharia	0.00533	0.00516	0.00522	0.0046
CR2	0.47825	0.46378	0.43981	0.3776
CR4	0.60767	0.60660	0.59194	0.5436

Source: Yuhanah (2016) with some modification

Al Arif (2017) concludes that there is a difference in market share in spin-off banks. The increasing number of Islamic full-fledged banks became more competitive than before. The competition will enhance the performance of the industry. Table 2 shows that after the enhancement of this law, the concentration ratio has decreased. Although, in general, the Indonesian Islamic banking industry is still highly concentrated. If we consider the Concentration Ratio 2 (known by CR2) measure, the largest two banks dominate by having 43-50% of the total assets and deposits. If we consider the Concentration Ratio 4 (known by CR4) measure, four major banks in the Islamic banking industry dominate by having 59-62% of the total assets and deposits (Al Arif et al, 2017).

Dina (2013) stated that there are three reasons why the effect of market structure on the performance of Islamic banking industry is interesting to discuss. First, the research will be useful in policy making to prevent unfair business competition. Second, to identify the factors that can make the Islamic banking industry have better performance than before. Finally, this will enrich the knowledge and implication of the SCP's hypothesis in the Islamic banking industry.

This research tried to examine the impact of market structure on profitability in the Indonesian Islamic banking industry. This study used structure-conduct-performance (SCP) hypothesis to prove the relationship between market structure and profitability. The research on the relationship of market structure with performance in Islamic banks is still limited. So, this study will give a significant contribution to knowledge enrichment about the SCP hypothesis in the Islamic banking industry. This research is different from Yuhanah (2016), because the previous research only used market share as the proxy of market structure, whereas this study will use market share and concentration ratio as a proxy for market structure.

## Literature Review

This research tried to use the structure-conduct-performance (SCP) hypothesis to examine the impact of market structure on profitability. The SCP hypothesis is trying to explain that market structure will affect the behaviour (conduct) of the firms. The changes in behaviour will affect the performance. The SCP hypothesis is based on the following proposition: when a few companies had significant market shares, this fosters collusion among enterprises in the industry (Al Arif et al, 2017).

There is some literature that discusses the SCP hypothesis in the banking industry, but there is limited research about the SCP hypothesis in the Islamic banking industry. In bank performance literature, there are two competing hypotheses. The first one is the structure-performance (SP) hypothesis or the traditional SCP hypothesis. In the SP hypothesis, the market structure and the level of competition will affect the profitability (Gilbert, 1984; Hannan, 1991; Samad, 2008). Williams et al. (1994) support the SP hypothesis where the concentration ratio in the Spanish banking industry decreased the collusive cost, then it increased the profit of each firm.

The second hypothesis is the efficiency hypothesis (EH). The EH emphasizes superior efficiency as an explanation for a firm's profitability (Smirlock, 1985; Samad, 2008). The efficiency affects the firms' performance. In this EH, if a company enjoys a higher degree of efficiency than its competitors, the firm can maximize profits and increase its size and market share.

Samad (2008) and Athanasoglou et al. (2008) conclude that there is no relationship between the banking concentration and profitability. Barros et al. (2007) found that the competition – fostered by foreign banks- will increase the efficiency of the banking industry in the European Union (EU). Bahtti (2010) shows that there is a negative relationship between market share and profitability. Besides that, the market that is more concentrated will increase profitability. Different results were obtained by Zhang et al. (2013), Homma et al. (2014), Chan et al. (2015). Namely, they found that the more concentrated market would decrease efficiency, and this was adverse result from using the EH hypothesis. Bhatti (2010) shows that there is a negative relationship between market share and profitability. Mirzaei et al. (2013) found that the relationship between market share and profitability was only proved in the banking industry in developing countries but not in developed countries.

Hou et al (2014) pointed out that increasingly fierce competition in the banking industry in China will improve technical efficiency. A different result was found by Horvart et al (2016) in their research where they show that the increasing competition will decrease liquidity creation; it will create financial insecurity in the banking industry. Gajurel and Pradhan (2010) said that market concentration has dual effects: decrease in market concentration and increase in bank profitability and cost efficiency.

## Method

This study uses regression analysis to panel data. The data used are quarterly data from 2012 to 2016, by including 10 out of 13 Islamic full-fledged banks. We exclude three banks because of data availability (two banks just became Islamic full-fledged banks in 2014 and 2016). Statistical data comes from the Islamic banks' financial statements. To examine the goal of this research was by using panel regression. The mathematical equation proposed in this research is:

$$\pi_{it} = \alpha + \beta_1 MS_{it} + \beta_2 CR_{it} + \beta_3 CR_{it} * MS_{it} + \beta_4 FDR_{it} + \beta_5 NPF_{it} + \beta_6 Eff_{it} + \varepsilon_{it}$$

Where:

$\pi_{it}$  is profitability ratio (proxy by ROA);  $MS_{it}$  is market share;  $CR_{it}$  is concentration ratio of the Indonesian Islamic banking industry;  $CR_{it} * MS_{it}$  is an interaction variable between the concentration ratio and market share;  $FDR_{it}$  (financing to deposit ratio) is liquidity ratio;  $NPF_{it}$  (non-performing financing) is default rate;  $Eff_{it}$  is operational efficiency ratio.

Several models can be used to estimate the parameter of this research. The first model is ordinary least square. The second model is fixed effect model and the third one is the random effect model. This research has used the model of panel regression with random effect. There are several steps in this study: first, run the estimation using the fixed-effect model. Second, do the Chow-test to choose between pooled ordinary least square or fixed effect models. Third, do the Hausmann-test to select between fixed effect model and random effect model.

## Result and Discussion

### Result

In the first step in this research we make estimates using the fixed-effect model. After that, using the Chow-test, the result shows that we reject the null hypothesis which stated that intercept is constant in  $i$  and  $t$ , so the best model is the fixed effect model. In the next step we estimate the equation with the random effect model. After that, using the Hausman-test, the result shows that we do not reject the null hypothesis which stated the random effect model is consistent, so the best model to choose in this research is the random effect model.

The empirical result in Table 3 shows that the variables that affect profitability are the liquidity ratio (proxy by financing to deposit ratio), default rate (proxy by non-performing financing), and the operational efficiency ratio. Market share does not have an effect on profitability in Islamic banks. It means that larger/smaller market share of the banks does not have a direct impact on profitability. Thus, data in Table 2 shows that some of the banks had a declining market share, and some of the banks had an increasing market share. Besides that, the concentration ratio also does not have an effect on profitability in Islamic banks. It means either more concentrated or less concentrated the banking industry has no significant influence on profitability. The interaction variables between market share and concentration ratio also do not affect the profitability.

The empirical result in Table 3 implies that the market share does not have a direct effect to determine the profitability ratio of Islamic banks. These results indicate that a higher market share does not mean higher profit or vice versa. Efficiency is the most crucial factor that was determining the level of profitability in Islamic banks. The concentration ratio shows the insignificant result as well. This result indicates that the more or less concentrated industry will not affect the level of Islamic banks' profit.

The determination coefficient (adjusted R-square) shows the value of 0.8978. It implies that the explanatory variables can explain the profitability ratio about 89.78% and the remaining 20.22% RE explained by other factors outside the model. The F-statistics shows A significant result; this result implies that all explanatory variables simultaneously affect the profitability ratio.

**Table 3: Empirical Result of Random Effect Model**

Dependent Variable: ROA				
Method: Panel EGLS (Cross-section random effects)				
Sample: 2012Q1 2016Q4				
Periods included: 20				
Cross-sections included: 10				
Total panel (balanced) observations: 200				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.75420	1.847316	7.986833	0.0000
MSASET	0.124367	0.160822	0.773319	0.4403
CR4	-0.036493	0.028053	-1.300829	0.1949
MSCR4	-0.002115	0.002512	-0.841859	0.4009
FDR	-0.006489	0.002990	-2.170485	0.0312
NPF	-0.135566	0.021889	-6.193266	0.0000
EFF	-0.115832	0.005363	-21.59900	0.0000
Effects Specification				
			S.D.	Rho
Cross-section random			0.512877	0.2608
Idiosyncratic random			0.863456	0.7392
Weighted Statistics				
R-squared	0.900952	Mean dependent var		0.242658
Adjusted R-squared	0.897873	S.D. dependent var		2.705462
S.E. of regression	0.864593	Sum squared resid		144.2716
F-statistic	292.5922	Durbin-Watson stat		1.188595
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.888963	Mean dependent var		0.688750
Sum squared resid	185.5607	Durbin-Watson stat		0.924122

Source: Data processing

## Discussion

In this research, we found that the market share does not have an impact on profitability. This result is similar with Amalia and Nasution (2007), Samad (2008), Dina (2013), Yuhanah (2016). Bhatti (2010) found a negative relationship between market share and profitability. This result implies that the SCP hypothesis reject-



ed for explaining bank performance in Indonesia, especially after the enactment of the Islamic Banking Act.

The variable of concentration ratio also does not have an effect on profitability in the Indonesian Islamic banking industry. This result is consistent with Goldberg and Rai (1996), Athanasoglou et al. (2008), Dina (2013), Ajide and Ajileya (2015). This result is different with Ahamed (2012), Bhatti and Hussain (2010), Bello and Isola (2014) that found the relationship between concentration ratio and profitability. Zhang et al. (2013) find a negative association between market concentration and performance. Thus, this research rejected the market power hypothesis that states that market concentration would increase bank profitability. Shijaku (2017) found that concentration is negatively related to bank stability.

Amalia and Nasution (2007) support the EH hypothesis in Indonesia. This research concludes that market share and concentration is not proxy of market power, but the proxy of firms' efficiency. This result implies that the high concentration is not identical with collusion. But, the conventional banking in Indonesia supports the differentiation hypothesis, which the market share is proxy of product differentiation. The difference between the result from this research with Amalia and Nasution (2007) is due to the difference in time-period. Amalia and Nasution (2007) do the research immediately after the enactment of the Islamic Banking Act. This study conducted research several years after the enactment of the sharia banking act, especially after some Islamic business units did the spin-off.

Samad (2008) supports the EH hypothesis as an explanation for market performance in Bangladesh. Ahamed (2012) concludes that profitability of the Bangladesh banking market is determined by concentration and not by market share. Tajgardoon et al (2012) show that the efficient structure is one of the essential elements of profitability. The capital ratios and bank size are more important factors in explaining profits for the Islamic banking industry.

The spin-off activities after the enactment of the Islamic banking act have increased the number of Islamic full-fledged banks. The spin-off policy is one of the policies to accelerate the Islamic banking industry in Indonesia. Table 4 shows that after the enactment of the banking act, there is an increasing trend in the market share of Islamic banks. But, there is a decline in profitability of Islamic banks.

These spin-off activities had decreased the market power of the existing Islamic full-fledged banks. One of the aims of the spin-off policy is to increase com-

petition among Islamic banks. Barros et al (2007) said that competition would realize the efficiency advantages of banks. Bikker and Haaf (2002) support the conventional view that concentration impairs with competitiveness. Brewer III and Jackson III (2006) said that it might be necessary to reconsider the assumption that higher market concentration leads to anticompetitive deposit pricing behaviour. Malyaretz et al (2018) tried to proposed new opportunities for bank competitiveness management.

**Table 4: Market Shares of Islamic Banks and Conventional Banks**

Years	Market Share of Islamic Banks (%)	Market Share of Conventional Banks (%)	Profitability Ratio of Islamic Banks
2007	1.81	98.19	2.07
2008	2.10	97.90	1.42
2009	2.54	97.46	1.48
2010	3.14	96.86	1.67
2011	3.83	96.17	1.79
2012	4.37	95.63	2.14
2013	4.66	95.34	2.00
2014	4.63	95.37	0.79
2015	4.61	95.39	0.84
2016	5.03	94.97	0.94

Source: Islamic Banking Statistics. Financial Service Authority

But, the spin-off policy will be contrary to the Indonesian banking architecture. The Indonesian banking architecture focuses on one of the pillars to strengthen the capital of banks because the spin-off policy had a negative relationship with the Indonesian banking architecture. Haribowo (2017), Al Arif et al. (2017) conclude that the spin-off policy should evaluate. Although, Al Arif (2017) found that the spin-off activities affected market share in the spin-off banks.

The policymakers should make a better institutional framework. Igbinosa et al (2017) conclude that the financial regulation had an impact on the banking sector performance. The better institutional framework will play a significant role to improve bank efficiency level even when the banking industry is highly concentrated (Chan et al., 2015). Thus, merger (or banking consolidation) can be one of alternative policies that can be taken by the policymakers to strengthen and accelerate the Islamic banking industry. Miftah and Wibowo (2017) state that merger will contribute to the development of the Indonesian banking sector in particular. Al Muharami and Matthews (2009) said that the horizontal mergers in banking would be increasing the efficiency of banks based on cost-saving consolidations.

## Conclusion

The enactment of the Islamic Banking Act in Indonesia had an impact on increasing the number of Islamic full-fledged banks. There are some Islamic full-fledged banks that have been established after they have performed a spin-off. The rise in Islamic full-fledged banks affected the increase in market share of spin-off banks. In this article we attempted to examine whether the market structure (proxy market share and concentration ratio) affected the profitability of Islamic banks. This research was done because of the high level of concentration in the Indonesian Islamic banking industry although, the number of Islamic full-fledged banks has increased after the enactment of the Islamic Banking Act. The result of this study shows that the Indonesian Islamic banking industry is not supported either by the SP hypothesis or the EH hypothesis.

Several policy recommendations can be proposed from this research. First, the policy-makers must make a fair policy between the Islamic banking industry and conventional banking industry. Second, the policymakers should create capital strengthening in the Islamic banking industry through mergers and acquisitions. Third, converting conventional banks into Islamic banks can be one of the solutions to strengthen the Islamic banking industry.

The limitation of this study is that it observes only the full-fledged Islamic banks. Therefore, the suggestion for further research is to include also Islamic business units and Islamic rural banks as subjects of research. Besides that, a further study could also add more explanatory variables.

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