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The Performance of Islamic Rural Banks in Indonesia: 2010-2015

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Abstract:

This research aims to examine the influence of concentration rate of the four largest full-fledged Islamic commercial banks (BUS) on the performance of Islamic Rural Banks (BPRS) using ordinary least square (OLS) method.

The results show that BUS, Islamic Banking Subsidiary (UUS), and BPRS have always been operating within the same financing market of murabaha products and competing for the same Micro, Small and Medium Enterprises (MSME) sector.

Another result finds that despite the high level of concentration from the four largest BUS, the concentration rate insignificantly affects the profitability level of BPRS. This insignificant influence indicates that BUS, UUS, and BPRS are operating in a monopolistic market. It also proves the efficiency hypothesis in Islamic banking industry in Indonesia.

Furthermore, this research confirms the competition-fragility theory where the concentration rate of the largest BUS negatively influences non-performing financing (NPF) rate of BPRS.

Keywords: *Islamic rural banks; market concentration; profitability; financing risk.*

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1. Introduction

Micro, small, and medium scale enterprises (MSME) sector plays an important role in the economy of Indonesia and they dominate the Indonesian economic landscape. However, the majority of MSME in Indonesia still has no access to financing services from banks or other formal financial institutions since these types of businesses tend to be mostly unbankable. The Islamic banking industry in Indonesia consists of full-fledged commercial Islamic banks (BUS), Islamic banking subsidiaries (UUS), and Islamic Rural Banks (BPRS). BPRS, similar to the conventional counterparts (BPR), are mainly addressed to empower MSME sector particularly in rural areas. However, there is an increasing pattern recently where BUS and UUS distribute more financing to MSME. This situation rises a question on whether BUS, UUS, and BPRS are operating in the same market. The market boundary between the three types of banks should be defined clearly because a situation where BUS, UUS, and BPRS compete with each others will affect the market concentration and the performance level of all parties.

Profitability measurements in banking industry mostly are in the form of Return on Asset (ROA) or Return on Equity (ROE). Financial Service Authority of Indonesia (2016) reports that BPRS tend to have the lowest ROE compared to BUS and UUS. However, after 2013, all BPRS have higher ROE than those of BUS and UUS. The increase of ROE raises question whether it is influenced by changing in market concentration which contributes to growth of profitability level at BPRS. Meanwhile, the rate of ROA at BPRS appears to be more stagnant with a tendency to decrease in a long term.

Market concentration may also affect other performance indicators of banks including financing risk. Both theoretically and empirically, the influence of concentration rate in banking industry on financing risk has been proven by previous studies (Alhassan *et al.*, 2014; Heimdal and Solberg, 2015; Jiménez *et al.*, 2010). The analysis relative to the performance of BPRS regarding with market concentration is becoming more important to be evaluated yet there has been no discussion on BPRS concerning this topic so far. Hence, this research fills in the gap from previous studies and aims to: (1) identify market boundary among BPRS, BUS, and UUS; (2) examine the influence of market concentration on ROE and ROA yielded by BPRS, and (3) examine the influence of market concentration on NPF faced by BPRS. The results of this study are expected to contribute to a more integrated policy recommendations in regulating BUS, UUS, and BPRS in Indonesia.

2. Literature Review

This paper refers to past similar studies in the same methods with different objects of research. Previous studies about BPRS mostly discuss about level of efficiency (Hosen and Muhari, 2013; Muhari, 2013), profitability (Warninda and Hosen,

2015), and liquidity (Mongid, 2015). Meanwhile, research which examine the influence of market structure on the performance of banks in Indonesia have already involved conventional commercial banks or BUK (Hapsari, 2011; Jumono *et al.*, 2016; Naylah, 2010; Yudaruddin, 2014), BUS and UUS (Fahmi, 2012). Several studies with similar topic have also been undertaken in banking sector from other countries or regions such as Europe (Staikouras and Wood, 2004), Ghana (Alhassan *et al.*, 2014), Malawi (Chirwa, 1999) and Norway (Heimdal and Solberg, 2015).

In order to answer the objectives of this study, the market boundary should be defined rigorously (Bikker and Haaf, 2002). Fahmi (2012) builds a market boundary model where total amount of third-party fund is set as dependent variable to determine boundaries between Islamic banks and conventional banks in Indonesia. The results indicate a significant negative correlation between third-party fund of Islamic banks and conventional banks' interest rate which bring to a conclusion that Islamic banks and conventional banks are not operating within the same market. In fact, there are complementary relationships between Islamic banks and conventional banks. Using total amount of mudharaba deposit as dependent variable, Kasri and Kassim (2009) find the same result in which interest rate on conventional banks' deposit significantly affects Islamic banks' deposit. However, they neglected to elaborate how the finding determines market boundary.

In an attempt to see how market concentration influences profitability level of banks, many studies use a model based on Structure-Conduct-Performance (SCP) paradigm. By using concentration rate (CR) and market share (MS) as indicators of market structure, Fahmi (2012) states a significant correlation between market structure and ROA in BUS and UUS which supports in favour of Efficiency Hypothesis (EH). His result is in line with Yudaruddin (2014) who focuses on banking industry in Indonesia. Yudaruddin's paper shows not only a significant positive correlation between CR and ROA, but also a negative correlation between operating expense ratio (OER) and ROA. The latter discovery strengthens the fact that banking industry in Indonesia appears to support EH instead of traditional hypothesis of SCP.

Many researchers have already worked on the influence of market concentration on other performance indices of banks, especially financing risk. Fundamentally, there are three ways of market concentration in influencing financing risks which have been proven by previous studies. Hellmann, Murdock and Stigilitz (2000) state that competition undermines prudent bank behaviour, thus supporting competition-fragility theory. By contrast, Boyd and De Nicolo (2005) propose competition-stability theory where banks become more risky as the market becomes more concentrated.

3. Method of Study

This study draws on data from several sources: Sharia Banking Statistics (SBS), Indonesian Economic and Financial Statistics (SEKI), and the statistics publication from Central Bureau of Statistics (BPS). SBS and SEKI database are compiled by Central Bank of Indonesia (BI) and Financial Service Authority (OJK). Although the objects of this study are BPRS, some data of BUS and UUS are also incorporated into the model to determine concentration ratio variable which describes the current situation of market structure.

The main purpose of this research is to examine the performance level of BPRS with regards to market concentration. In order to understand a correlation between those two aspects, this study uses regression instrument as a method in estimating the models. Through the use of regression, this research is able to estimate how each of independent variables influences dependent variables. Three models can be explained as follow:

3.1 Market Boundary

Investigating market boundary is a substantial matter in this study since there is a question on whether BPRS, BUS, and UUS are practically operating within the same market. If the result reveals a joint market, this study will calculate not only BPRS, but also BUS and UUS as a part of concentration rate variable to answer the second and the third objectives.

In order to determine the market boundary, this research uses an estimated model which is essentially the same as the one used by Fahmi (2012) with some modifications. While Fahmi employs total amount of third-party fund (TPF) as dependent variable, this study uses total amount of murabaha financing. Meanwhile, the use of murabaha form of financing is due to high dependency of Islamic banks on transactions based on murabaha contract. The time series of data employed are modelled as below:

$$\text{Log MUR}_t = a_0 + a_1\,\text{RRMURBUSUUS}_t + a_2\,\text{RRMURBPRS}_t + a_3\,\text{OFFICE}_t + a_4\left(\frac{\text{RRMURBUSUUS}}{\text{RRMURBPRS}}\right)_t + a_5\,\text{CPI}_t + a_6\,\text{IPI} + e_t \quad (1)$$

where MUR is the total amount of murabaha financing distributed by BPRS, RRMURBUSUUS is the rate of return (RR) of murabaha financing at BUS and UUS, RRMURBPRS is the RR of murabaha financing at BPRS, OFFICE is the number of BPRS offices, $\frac{\text{RRMURBUSUUS}}{\text{RRMURBPRS}}$ is the RR relative which is calculated by comparing between RRMURBUSUUS and RRMURBPRS, CPI is the consumer price index as a proxy of inflation, IPI is the industrial production index as a proxy of gross domestic product, and *e* is a stochastic error term.

3.2 The Influence of Market Concentration on Profitability

This study applies structural approach in examining the influence of concentration ratio of the four largest banks on profitability level. The structural approach consists of traditional hypothesis of Structure-Conduct-Performance (SCP) approach, efficiency hypothesis (EH), and several other formal approaches with roots in the industrial organization theory (Bikker and Haaf, 2002). The SCP argues that collusive practices among largest banks occur due to a highly concentrated market. Meanwhile, EH believes that largest banks are benefitted from level of efficiency, thus enhancing profitability in a very concentrated market. To gain insight in the influence of market concentration on profitability, the following regression model is run:

$$ROE_t = b_1 + b_2CR4_t + b_3\ TA_t + b_4\ TPF_t + b_5OER_t + b_6CAR_t + e_t \quad (2)$$

$$ROA_t = c_1 + c_2CR4_t + c_3\ TA_t + c_4\ TPF_t + c_5OER_t + c_6CAR_t + e_t \quad (3)$$

where, ROE is return on equity at BPRS, ROA is return on asset at BPRS, CR4 is the concentration ratio of four largest banks in market, TA is the total amount of asset, TPF is the total amount of third-party fund, OER is the operating expense ratio or the ratio of operating cost to operating income, CAR is the capital adequacy ratio, and and *e* is stocasthic error.

3.3 The Influence of Market Concentration on Profitability

There is a vast amount of literatures which have empirically proven that market structure indicators, including market concentration, influences financing risk encountered by banks. The focus on financing risk itself is driven by the fact that financing risk is primarily the countershaft of risks for most existing banks, despite any other risks. Thus, the third model of this study estimates how concentration rate of the four largest banks (CR4) affects non-performing financing (NPF) ratio at BPRS. To examine the influence of market concentration on financing risk, the following regression model is estimated by:

$$NPF_t = d_1 + d_2CR4_t + d_3CAR_t + d_4FDR_t + d_5ROA_t + d_6RRMURBUSUUS_t + d_7\ CPI_t + d_8\ IPI_t + e_t \quad (4)$$

where, NPF is non-performing ratio at BPRS, CR4 is concentration rate of four largest banks in the market, CAR is capital adequacy ratio at BPRS, FDR is financing to deposit ratio, ROA is return on asset ratio, RRMURBUSUUS is the rate of return murabaha financing at BUS and UUS, CPI is consumer price index as a proxy of inflation, IPI is industrial index production as a proxy of economic growth, and *e* is a stochastic error. The research structure is presented in Figure 1.

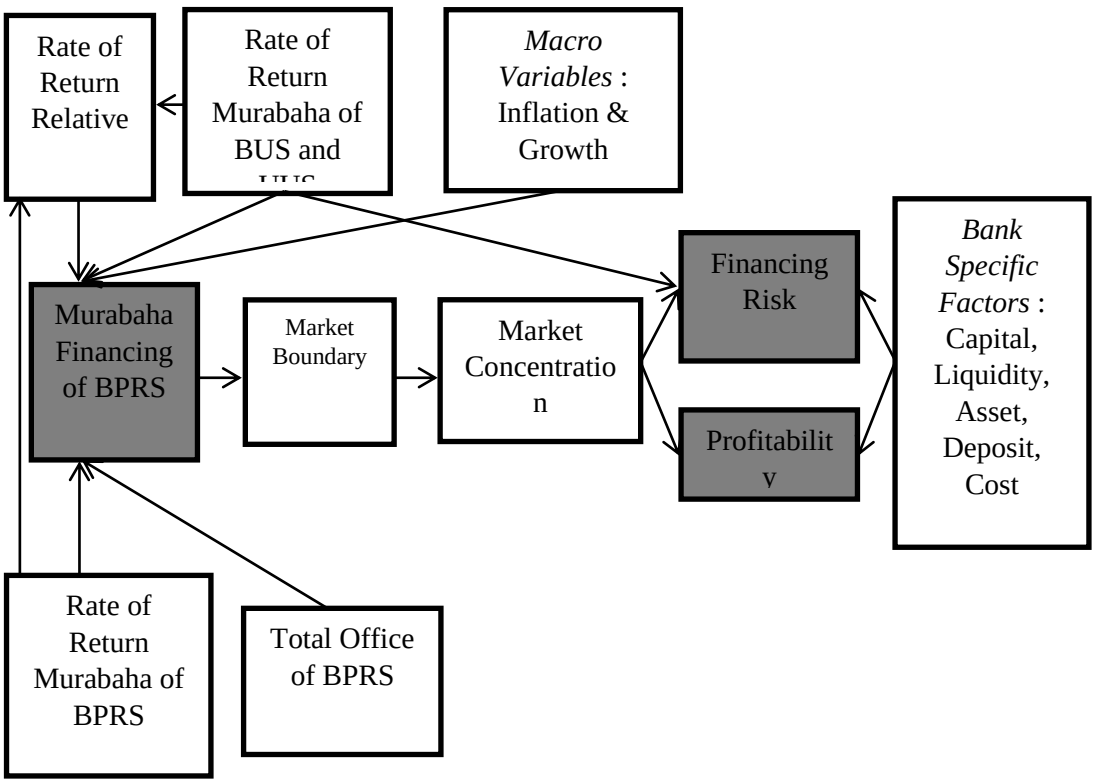
4. Results and Discussion

4.1 Market Boundary

Determining market boundary is the first step on analyzing market concentration evolution in banking industry (Bikker and Naaf, 2002). Table 1 demonstrates descriptive statistics of both dependent variable as well as independent variables while Table 2 shows the results of regression analysis.

According to Table 2, the rate of return murabaha (RRMUR) from BUS and UUS has a positive significant coefficient at 0.53. This result indicates that the total amount of murabaha financing distributed by BPRS increases when RRMUR offered by BUS and UUS escalates. Customers of Islamic banks have the characteristics of not being loyal and sensitive towards changes on rate of return from both financing and funding products.[3] These characteristics motivate customers to switch to BPRS when BUS and UUS set their RRMUR higher than before, creating an increase in total amount of murabaha financing at BPRS. The significant influence between those two variables confirms an unrestricted market boundary among BPRS, BUS, and UUS.

Figure 1. *Research Strtucture*



[3]*Being disloyal is not necessarily the characteristics of Islamic banks' costumers only, but also conventional banks. In Islamic banking field, these types of customers are known as "rational customers" and are dominating the industry instead of "emotional customers" who stick to Islamic banks due to their sharia principles.*

Table 1. *The Summary of Statistics of Market Boundary Model*

	MUR	RRMUR	RRMUR	RRMUR BUSUUS /BPRS	OFFICE	CPI	IPI
Mean	2729288	0.19	0.17	0.91	368.71	126.68	110.68
Med.	2742817	0.19	0.15	0.76	386	126.29	112.31
Max.	4281505	0.23	0.86	4.38	486	146.84	127.74
Min.	1277588	0.18	0.12	0.59	262	110.99	92.55
Std. Dev	938432.1	0.01	0.14	0.71	62.51	10.16	8.876
Skewn.	0.02	2.43	4.34	4.33	-0.34	0.28	0.02
Kurt.	1.59	14.23	20.04	20.03	1.94	2.19	1.96
Number of obs.	60	60	60	60	60	60	60

Fahmi (2012) highlights several findings which can be linked to this result. First, he argues that BUS-UUS and BUK are operating in the different markets and complementing each other. If the finding is associated to the significant positive value of RRMUR by BUS and UUS at 0.53 as mentioned earlier, it can be concluded that BPRS and BUK face different market segmentation as well. Furthermore, he suggests a monopolistic competition between BUS and UUS. Since the current study has already confirmed that BPRS, BUS, and UUS are operating within the same market, BPRS are also expected to be under monopolistic competition.[4]

Table 2*. Regression Result of Market Boundary Model (Y = Murabaha Financing)*

Key Variables	Coefficient	t-statistic	P-Value
Constants	0.12	0.25	0.80
Return Rate of Murabaha – BUSUUS	0.53	2.10*	0.04*
Murabaha Rate of Return Relative	-0.52	-2.29*	0.03*
Return Rate of Murabaha – BPRS	-1.65	-2.27*	0.03*
Total Offices	1.31	11.69*	0.00*
Consumer Price Index	0.01	6.59	0.92
Industrial Production Index	-1.54	-0.10*	0.00*
R-Squared	0.96*		
F-test	0.00*		

Note: *5% of level significance

[4]*Hosen and Fitria (2017) confirm that BPRS alone, without involving BUS and UUS, face monopolistic competition.*

The RRMUR relative variable has a significant negative coefficient at -0.52. This variable describes an elasticity of total amount of murabaha financing distributed by BPRS to changes on RRMUR relative. Generally speaking, the negative sign exhibits a contra-movement of RRMUR offered by BPRS and BUS-UUS which seems to illustrate that rate of returns on both banks always head for the opposite directions. However, that situation is unlikely to happen because BPRS often receive funding facility from BUS and UUS, thus, they need to set their murabaha rate of return higher than BUS and UUS in default. In normal situation, the RRMUR relative should have been positive since BPRS are compelled to maintain their own solvency. Nevertheless, the negative sign of RRMUR relative can be justified by the response of BUS and UUS on the fluctuation of RRMUR offered by BPRS. Being the market leader in the banking industry, BUS and UUS tend to be insensitive to changes on BPRS as their competitors. Despite the inabsolute value, the impact given by RRMUR of BPRS do not affect BUS and UUS in a way that make them reevaluate their rate of returns.

The negative sign also shows that total amount of murabah financing distributed by BPRS goes down when RRMUR relative goes up. Since the RRMUR relative illustrates a comparison of RRMUR from BUS-UUS and BPRS, a high value of RRMUR relative represents an incompetitive market as a result of wide disparity between BPRS and BUS-UUS in determining rate of return. A high value of RRMUR relative also demonstrates a situation in which BUS and UUS are capable of managing the rate of return to be much lower than BPRS because rate of return offered by BPRS should always been higher. Consequently, an increase in RRMUR relative motivates customers to switch to BUS and UUS and finally lower total amount of murabaha distributed by BPRS.

Based on Table 2, the RRMUR of BPRS variable shows a significant negative coefficient at -1.65. When RRMUR offered by BPRS increases, customers switch from BPRS to BUS and UUS whose rate of return are lower, thus declining the amount of murabaha financing distributed by BPRS significantly. It is highly important to remember that in spite of the significant coefficient, a shift movement of customers from BPRS to BUS and UUS is only possible if BPRS, BUS, and UUS are located within the same area.

The government has always encouraged BPRS to partake in developing suburbs. In remote areas where BUS and UUS are rarely found, customers have no choice but taking BPRS as the only option. When this situation occurs, BPRS have the advantage of RRMUR which eventually also increases the level of efficiency. However, the current policy issued by BI and OJK allows BPRS to open new branches in big cities. In this kind of situation, BPRS are imposed to a highly competitive market where they have to compete with larger banks like BUS and UUS. As a result, RRMUR offered by BPRS will be much lower, thus decreasing their level of efficiency. Furthermore, Muhari and Hosen (2015) find that BPRS that are located in the eastern region of Indonesia such as Papua and Maluku face

lower level of competition compared to those located in the western region i.e. Sumatera, Java, and Borneo due to more competitors.

Among all independent variables in the model, the murabaha rate of return at BPRS exemplifies the highest contribution on total amount of murabaha financing. This can be seen from its high coefficient value at -1.65 and relatively low probability value at 0.03. Clearly, murabaha rate of return is a prerequisite for the increased of total amount of murabaha financing that BPRS might obtain. As a consequence, BPRS have to be very careful in conducting business activities which might lead to a fluctuation of RRMUR.

In order to get a representative model, this study also includes control variables e.g. total offices of BPRS, consumer price index (CPI), and industrial production index (IPI). The positive and significant coefficient of total offices at 1.31 comes as no surprise. This coefficient has an implication that total amount of murabaha financing distributed by BPRS increases when BPRS expand their businesses by opening new branches or offices. Opening new branches lead to more third-party fund being absorbed from local customers. The total amount of third-party fund earned by BPRS are later distributed to several types of financing products, including murabaha. BPRS can create their own market without the existence of larger banks like BUS and UUS beforehand. These circumstances produce at least two conclusions. Firstly, BPRS are highly needed by the customers, particularly those who are residing in small towns or suburbs. Unfortunately, there is a mismatch between the needs of BPRS and the actual numbers of BPRS operating in areas that need them the most.

For example, Papua has only one BPRS so far, namely BPRS Muamalat Yotefa in Jayapura (Condensed Financial Statement Sharia Banks 2016). This situation also occurs in many other provinces, mainly outside Java. Secondly, BPRS have a specific market segmentation namely micro, small, and medium entrepreneurs living in areas located far away from big cities.

Between the two macro variables incorporated into the equation model CPI is found to be insignificant in affecting total amount of murabaha financing while IPI is proven to have a significant negative coefficient at -1.54. The result suggests that total amount of murabaha financing distributed by BPRS tend to decrease in a booming economy instead. The coefficient value of IPI is almost close to RRMUR of BPRS, making it as the second biggest contributor to the rise of murabaha financing distribution.

4.2 The Influence of Market Concentration on Profitability

This section of paper discusses about the influence of market concentration on profitability of BPRS by involving BUS and UUS. Table 3 demonstrates

descriptive statistics of the variables while Table 4 shows the results of regression analysis.

Table 3. *Summary Statistics of The Influence of Market Concentration on Profitability Model*

	TR	**BBH**	**BTK**	**BKAP**	**EQ**	**FINC**	**NPF**
Mean	307726	186171.	4644	12091	679060	342174	261871.
Med.	282992	135937	3972	11344	650989	340473	230466
Max.	782054	796943	12905	32427	105417	543363	590903
Min.	29789	12991.0	382	1064	405870	158657	116745
Std. Dev	190827	167405	3149.28	7697.82	196789	117907	117871
Skewn.	0.55	1.82	0.72	0.70	0.31	0.06	0.71
Kurt.	2.54	6.29	2.74	3.07	1.78	1.61	2.50
Number of observation	60	60	60	60	60	60	60

Table 4 shows that concentration ratio of the four largest banks has an insignificant coefficient value at -0.50 and p-value at 0.11 in affecting ROE.[5] This insignificant influence seems to reject the traditional hypothesis of structure-conduct-performance (SCP) which asserts a collusion or any other forms of non-competitive behavior among several largest banks in offering lower deposit rates and higher loan rates to the customers.[6] This result is in contrast to the negative significant influence of concentration ratio on ROA with coefficient value at -0.17 and p-value at 0.00. Nevertheless, Fahmi (2012) has proven that one significant influence between concentration ratio to profitability is merely enough to confirm a collusion among the largest banks. Market share variable is needed to confirm the theory.[7] Even though the four largest BUS are dominating the market, those BUS do not utilize their powers to gain supernormal profits which can be disadvantageous to the customers and BPRS as their competitors. Instead, the four largest BUS become more competitive and more efficient in order to achieve higher profits. A rejection of SCP theory have also been found in numerous studies, both conventional banks as well as Islamic banks (Smirlock, 1985; Sarita *et al.*, 2012; Fahmi, 2012; Yudaruddin, 2014; Barua *et al.*, 2016).

[5]*Since the previous result proves that BPRS, BUS, and UUS are operating within the same market, concentration ratio (CR) variable is taken from the four largest banks amongst those three types of banks which all of them happen to be BUS.*

[6]*In addition to concentration rate (CR), market share (MS) can be used as an independent variable to support the efficiency hypothesis in banking industry yet this paper elimnates it due to time-series characteristics of the data being run. Thus, future studies are highly encouraged to use panel data in order to incorporate MS into the estimation model.*

[7]*It is unlikely for this study to include MS variable due to the time-series data being used.*

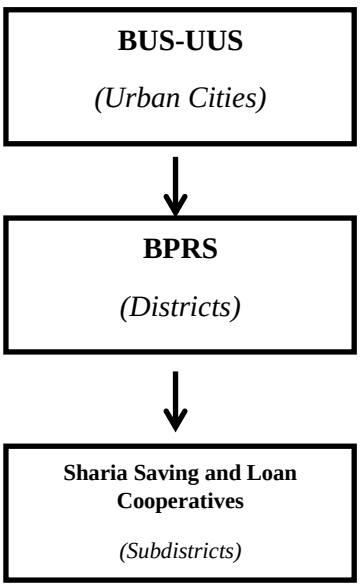
***Table 4**. Regression Result of the Influence of Market Structure on Profitability Model (Y = ROA and ROE)*

Y	ROE			ROA		
X	Coeff	t-statistic	P-Value	Coeff	t-statistic	P-Value
Constants	2.01	2.43*	0.02*	0.47	6.08*	0.00*
Concentration Ratio	-0.50	-1.61	0.11	-0.17	-5.66*	0.00*
Total Asset	-2.04	-3.86*	0.00*	-0.08	-1.62	0.11
Third-Party Fund	1.97	4.06*	0.00*	0.03	0.69	0.49
Operating Expense Ratio	-0.47	-3.18*	0.00*	-0.01	-0.77	0.44
Capital Adequacy Ratio	-0.87	-3.28*	0.00*	0.01	0.42	0.67
R-squared	0.76*			0.71*		
F-test	0.00*			0.00*		

***Note:** *5% level of significance.*

There has been no specific system or mechanism designed by BI or FSA to ensure that collusive behavior stays away from banking institution in Indonesia, including Islamic banks. It remains unclear whether Islamic banks are avoiding collusive practices due to their Islamic values and principles or the nature of competitive market. The latter argument have been put forward by previous researchers as "Constestable Market Theory". In this concept, banks maintain their prices very competitive because there is always a threat from new entrants. In other words, the four largest BUS are still competing against other BUS units, UUS, and BPRS, despite their big market size.

***Figure 2.** Division Territory of Financial Intermediary Institutions*



Regardless of the insignificant influence of concentration ratio on profitability level of BPRS, the division territory among Islamic banks is still an important issue to discuss (Figure 2). Too many banks in some certain areas will create a less homogenous market, causing a lower efficiency level and higher financing risk at the same time due to high level of competition. Hence, BUS and UUS as the market leaders in the industry which stress on the quality of services, infrastructure, and technology are suggested to operate more in urban cities. Meanwhile, BPRS are expected to focus on subdivision areas where local approach is highly needed. In addition, BPRS are also encouraged to open new offices in the eastern region of Indonesia e.g. Sulawesi, Nusa Tenggara, Maluku, and Papua. The eastern region are still lacking of support from rural banks, thus opening up opportunities for BPRS to expand their market. As for smaller areas like subdistricts, saving and loan of cooperatives are highly advised to take over. Such a situation where an integrated banking regulation to all types of banks is implemented to benefit the entire part of Islamic banking industry, including BPRS.

In relation to ROE, total asset has shown a significant negative coefficient at -2.04 and p-value at 0.00. This means that ROE will decrease by 0.24 when total amount of asset increases by 1%. Meanwhile, total asset has an insignificant negative coefficient at -0.08 and p-value at 0.11 when it comes to ROA. Despite the disagreement on significant level, both models support a negative influence between total assets to profits of BPRS. This whole situation can be explained because BPRS are less capable of managing their non-financing asset. BPRS have always been focusing on financing distribution, explaining their high financing to deposit ratio (FDR). In October 2016, BPRS had an FDR at 117.86% (FSA 2016).

This percentage shows that not only that BPRS use their total amount of third-party fund to financing customers, but also their own capitals and loans from BUS and UUS. When BPRS are experiencing a surge of total amount of asset, they face difficulties in distributing it directly to loan customers and other financial instruments which also creates a time gap. Hence, a rise of total amount of asset at BPRS will cause a decrease of profitability level instead. To overcome this issue, BPRS should learn how to distribute their asset to other profitable financial instruments. Building new offices and providing local-based service can also be an option, since they will lead to a higher profitability for BPRS in long term.

Third-party fund variable has a significant positive coefficient value at 1.97 and p-value at 0.00 in affecting ROE. This means that ROE will increase by 0.197 units when total amount of third-party fund increases by 1%. Similar to ROE, third-party fund also influences ROA positively at 0.03, yet with an insignificant influence. Thus, it is believed that third-fund party generally influences profits level of BPRS positively. As it has been explained previously, an increase of third-party fund always leads to rise of financing distribution. This situation occurs because BPRS have a tendency to distribute all of their total amount of third-party fund to financing customers, causing a very high financing to deposit ratio (FDR). The

process finally cause an increasing profitability level of BPRS. Among all independent variables, total amount of third-party fund and total asset have the highest coefficients value which means that BPRS should pay attention to changes on these two variables in order to increase their level of profitability in the future.

Operating expense ratio (OER) variable has a significant negative coefficient at -0.47 in influencing ROE. This coefficient indicates that profitability will decrease by 0.47 units when OER increases by one unit. On the other hand, OER appears to have an insignificant influence on ROA at -0.01. In spite of the distinction in significant level, both results move toward a conclusion that a high level of expense will result in lower profit level.

Indonesian banking industry, both conventional banks and Islamic banks, tends to have low level of efficiency. This can be seen by OER of 87.35% at BPRS in October 2016 (FSA 2016). This low efficiency level of BPRS indicates a bad management of financing which will eventually cause a lower profitability level.

The negative influence between OER on ROE and ROA proves an efficiency hypothesis for BPRS. Thus, an increasing of profitability level is not merely caused by market structure, but by efficiency level of the banks as well. Fahmi (2012) found similar result for BUS and UUS, while Yudaruddin (2014) supports this result by analyzing Indonesian banking industry in aggregate. If this result is linked to Muhari and Hosen (2015), it can be envisaged that BPRS in western region of Indonesia are estimated to have a lower level of profitability due to a relatively lower level of efficiency. On the contrary, BPRS in the eastern region enjoy a higher profitability since their efficiency level is relatively higher than the western region.

Capital adequacy ratio (CAR) variable has a significant negative coefficient of -0.87 in affecting ROE. This means that ROE will decrease by 0.87 unit when CAR increases by one unit. This result can be explained by characteristics of BPRS in distributing their financing. Due to a high level of FDR, BPRS are required to increase their CAR target. In order to meet the new target of CAR, BPRS must borrow fresh loan from BUS or UUS which is quite expensive. This circumstance will eventually cause a lower profitability level at some points. However, CAR demonstrates a positive influence on ROA with an insignificant coefficient at 0.01. Since the former model (ROE) implies a higher significant level instead of the latter model (ROA), a negative relationship between CAR and profit level is taken as a stronger conclusion.

In summary, the regression coefficients of most independent variables in the ROA model are not found to be significant as in the ROE model. Hence, we accept ROE as a more efficient measure of profitability in analyzing the structure-conduct-performance of BPRS in Indonesia.

4.3 The Influence of Market Concentration on Financing Risk

This section illustrates how market concentration rate of the four largest BUS affects non-performing ratio of BPRS. Table 5 shows descriptive statistics of each variable, both dependent variable as well as independent variables, while Table 6 describes the results of regression analysis.

According to Table 5, the result of this study supports *competition-fragility* theory in BPRS industry which is shown by a significant negative influence of concentration ratio of the four largest BUS on NPF of BPRS at -0.27. As indicated by Figure 1, there is an inversed movement between CR4 and NPF where an increase of concentration rate by one unit will decrease NPF by 0.12 unit. A highly concentration rate indicates a low degree of competition among business units because the largest few of business entities tend to dominate the market. Since concentration rate is proven to influence NPF, a decreasing level of competition is most likely enhance financing risk faced by BPRS. This situation has occurred to BPRS for the past five years where the NPF rate gradually increases (Financial Authority Service 2016). Thus, regulators should be careful in formulating policies that could affect Islamic banking industry to be more concentrated. The main reason is because this study proves that a more competitive and concentrated market increase might harm BPRS in terms of financing risk.

Table 5*. Summary Statistics of The Influence of Market Concentration on Financing Risk Model*

	NPF	FDR	ROA	CAR	RRMUR BUSUUS	CR4	CPI
Mean	0.07	1.28	0.03	0.25	0.15	0.63	127.38
Median	0.07	1.28	0.03	0.24	0.15	0.60	126.93
Maximum	0.10	1.40	0.04	0.30	0.73	0.71	146.84
Minimum	0.06	1.19	0.02	0.22	0.12	0.58	110.99
Std. Dev	0.01	0.05	0.00	0.02	0.08	0.05	10.28
Skewness	1.06	0.28	0.73	0.85	7.38	0.60	0.13
Kurtosis	3.75	2.39	3.26	2.93	56.36	1.63	2.17
Number of observation	60	60	60	60	60	60	60

Table 6. *Regression Result of the Influence of Market Concentration on Financing Risk Model*

Key Variable	Coefficients	t-statistic	P-Value
Constant	0.34	0.00*	0.00*
Concentration Ratio	-0.27	-6.39*	0.00*
Return rate of murabaha – BUS and UUS	-0.01	-0.64	0.52
Capital Adequacy Ratio	0.10	1.76	0.08

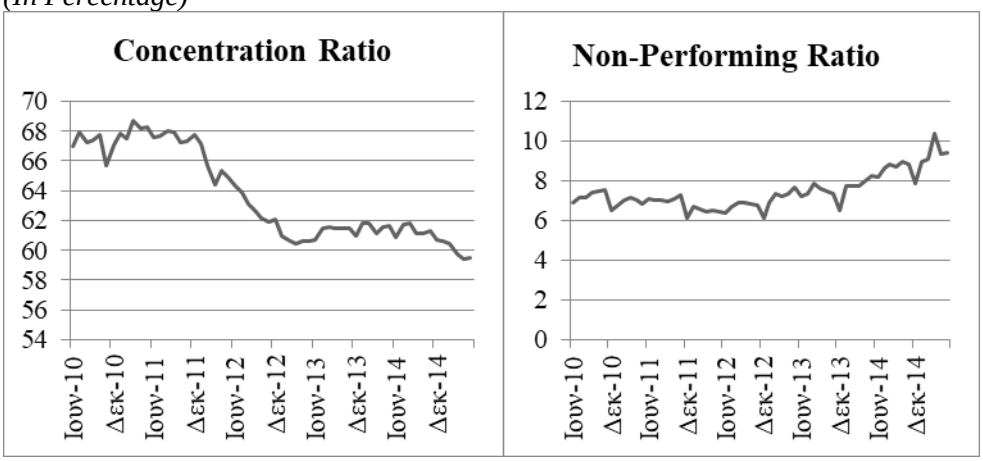
Financing to Deposit Ratio	0.07	4.14*	0.00*
Return on Asset	-0.45	-1.86	0.07
Consumer Price Index	-0.04	1.76*	0.00*
R-squared	0.72		
F-test	0.00		

Note: **5% level of significance.*

Concentration rate for the largest Islamic banks has decreased from May 2011 at 68.26% to May 2015 at 59.51% (FSA 2016). Despite the declining pattern, this movement needs to be analyzed carefully because recent studies surprisingly found a non-linear relationship between concentration rate and financing risk of banks by using General Method of Moments-estimator (Heimdal and Solberg 2015; Martinez-Miera and Repullo, 2010).

However, the main limitation of this paper compared to others is OLS as the method used, thus, it will be mostly unlikely to confirm the existence of non-linear relationship in the equation model unless panel data are being applied. FDR has a significant positive coefficient at 0.07 with p-value at 0.00. The coefficient shows that an increase of FDR by one unit will lead to an increase of NPF by 0.07 unit. The argument behind the rise of financing risk while the amount of financing being distributed increases is a poor financing management system at BPRS. However, the primary contributor to this positive correlation between FDR and NPF is mainly because customers often consider BPRS as a second layer industry. In fact, customers generally prefer bigger banks with more sophisticated technology and facility (BUS and UUS) to smaller banks (BPRS).

Figure 3. *Comparison of Concentration Ratio and Non-Performing Ratio of BPRS (In Percentage)*



Source: *Sharia Banking Statistic May 2016.*

Despite the high demand of financing from customers, BUS and UUS still process every application that comes in. This situation will result in many rejected customers with bad business prospects. Those unqualified customers will switch to smaller banks like BPRS. Meanwhile, BPRS provide an easier access for customers to apply for financing product compared to BUS and UUS in order to survive in the market. As a result, an adverse selection problem will eventually arise because many customers are willing to take high risk in terms of higher rate of return. In reality, BPRS always offer a higher rate of return for financing products compared to BUS and UUS. Customers realize that they cannot afford to pay the rate of return yet they still take the risk which causes a higher NPF rate in return.

This equation model also includes macro variable, namely costumer price index (CPI). CPI as a proxy of inflation has a significant negative coefficient at -0.04 with p-value at 0.00. This means that NPF will decrease by 0.04 unit when CPI increases by one unit. The negative relationship is caused by a contrast-movement between inflation and sharia financing instruments such as sharia bank Indonesia certificates (SBI) and certificate of wadiah bank Indonesia (SWBI).[8] While the prices are rising, the rate of return from SBI and SWBI will be decreasing. In response to this, BPRS later are encouraged to lower their financing return of rate or margin. This process will eventually increase customers' productivity due to a more affordable financing product. Purchasing power of people will also increase as final customers in their installment payment smoothly. At the end of the process, NPF is becoming even lower than before. Poetry and Sanrego (2011) also found similar result. Meanwhile among all of the independent variables, return rate of murabaha at BUS and UUS, capital adequacy ratio, and return on asset are found to be insignificant in influencing the financing risk faced by BPRS.

5. Conclusions

The result of the first model shows that BPRS, BUS, and UUS have been proven to operate within the same murabaha market. Furthermore, the second model successfully explained the influence of market concentration to profits generated by BPRS while the last model reveals how the market concentration affects financing risk faced by BPRS. According to all of the models, the purpose of this study which is to analyze the influence of market structure on performance of BPRS has been answered as follows:

1. Total amount of murabaha financing distributed by BPRS is influenced significantly by rate of return murabaha offered by BUS and UUS, rate of return murabaha offered by BPRS, rate of return relative, total offices, and industrial production index. Consumer price index is the only independent variable which has no significant influence on total amount of murabaha

[8]*Poetry, Zakiyah Dwi ,dan Yulizar D Sanrego. 2011. "Pengaruh Variabel Makro dan Mikro terhadap NPL Perbankan Konvensional dan NPF Perbankan Syariah." Tazkia Islamic Finance and Business Review 6 (2): 94.*

financing. In conclusion, BPRS, BUS, and UUS are operating and competing in the same market.

2. Model two proves that ROE is a better measurement of profitability for BPRS compared to ROA due to the number of significant independent variables e.g. total asset, third-party fund, operating expense ratio, and capital adequacy ratio.
3. ROA leads to the same conclusion that an efficiency hypothesis applies in the Islamic banking environment of Indonesia.
4. Model three reveals a significant influence between non-performing financing of BPRS as dependent variable and several independent variables which consist of concentration ratio financing to deposit ratio, and consumer price index. In summary, the model suggests a competition-fragility is the best theory to describe how the market concentration influences financing risk faced by BPRS.

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