Competition And Net-Profit-And-Loss Sharing Margin In Indonesian Islamic Microfinance Institutions

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ABSTRACT

Microfinance institutions (MFIs) have been criticized for their tendency of taking high margin of borrowing compared to commercial bank. It is therefore important to understand factors that affect the margin in microfinance industry. This paper examines the effect of competition with four controlled variables on the margin. The total of 2815 observation were collected from *Otoritas Jasa Keuangan* (OJK) on Indonesian Islamic MFIs database using quarterly data spanning from 2010-2016. A panel data regression model has been adopted. Based on the Hausman test, fixed effect estimator has chosen to analyze the data. The results show that the degree of competition which proxied by Herfindahl-Hirschman Index (HHI) was positive and significant. According to HHI result, the Indonesian Islamic MFIs is under monopolistic market.. Thus, the Islamic MFIs are able to dominate the financial market and it could lead to a sustainable net profit margin in the future.

Keywords: Net Profit and Loss Sharing margin, Degree of competition, Islamic microfinance institutions, Indonesia

1. INTRODUCTION

Since the last decade, the development of Islamic microfinance institutions, showing a remarkable increase in number both by institutions and customers. It is predicted that microfinance institutions will have a strategic role in accelerating the process of Indonesia becoming a developed country in 2030 (Effendi, 2010). It is expected that Indonesia will be among the five largest developed countries in 2030 with microfinance institutions become one of the main pillars.

Poverty alleviation programs through Microfinance Institutions (MFIs) actually has been implemented in many developing countries. This program is a means to help small-medium enterprises in financing their economic investment activities, reduce vulnerability to external shocks, reduce consumption, and allows unemployed individuals to take up entrepreneurship. Even the United Nations explicitly states that 2005 is the beginning of the international year for Micro-finance institutions, which recognizes that the microfinance institution is an important means of reducing world poverty. In the Islamic concept, any country that has clear goal, namely the formation of prosper society, will strive to consistently find and run a variety of economic activities that benefit and in accordance with the character of the nation. Islamic microfinance institution such as Baitul Mal wa Tamwil (BMT), Cooperative Sharia, and Islamic banks with micro business unit are expected to help realize these objectives. It is very interesting from the growing number of Islamic microfinance institutions, that the problems of financial support faced by the majority of the citizen of this nation would be resolved if the role of Islamic microfinance institution can be optimized.

Most of the financial institutions literature that studies the issues of determinants of financial institutions net interest margin (NIM) focuses on the conventional financial institutions and mostly in banking institutions (see e.g. Demirguc-Kunt and Huizinga, 1999; Chortareas et al., 2012; Raharjo et al., 2014). Nevertheless, there is an emerging literature which studies the determinants of Islamic financial institutions like net interest margin, named net-profit-and-loss sharing margin (NPM). However, this literature is mostly focused on Islamic banking and the role of conventional banks (e.g. Ascarya and Yumanita, 2010). There is very limited studies to identifying the determinants of Islamic microfinance institutions especially the net-profit-and-loss sharing margin. This study is expected to cover this gap.

Therefore, the purpose of this study is to test the impact of the degree of competition using Herfindahl-Hirschman Index (HHI) on Islamic microfinance institutions net-profit-and-loss sharing margin, with four control

variables (size, leverage, regional GDP, and inflation rate). The study used a panel data regression on 2815 quarterly observations from 2010-2016 retrieved from OJK database. This study contributes to the literature by testing the effect of the degree of competition using Herfindahl-Hirschman Index (HHI) on Islamic microfinance institutions net-profit-and-loss sharing margin.

The remainder of this paper proceeds as follows: the next section discusses about the literature review and previous studies that related to determinants of Net Margin, and develops the theoretical framework for this study. The following section depicts empirical procedures and samples used to test the research model. The penultimate section presents and discusses the empirical findings of this study, and the final section concludes with the conclusions and issues for the future works.

2. LITERATURE REVIEW

Various models that explain the development of intermediation margins have been developed by the literature of financial institution over the years. Specifically, the pioneering study by Ho and Saunders (1981) considers the bank as an outreach between lenders and borrowers, and shows that an optimal pure spread depends on four factors, which are the degree of competition with market power as the proxy, risk aversion rate, average size of bank operations, and volatility of interest rate.

If banks and financial institutions could implement the financial intermediation function efficiently, they will encourage the economic growth of a country (Levine, 1997). One of the indicators that can be used in measuring the efficiency of microfinance institutions is net interest margin or net-profit-and-loss sharing margin in Islamic microfinance institutions. High net margin is often associated with the presence of inefficiencies in the banking system, particularly in developing countries, due to costs incurred as a result of the inefficiency which are transferred to customers by charging high rates (Fry, 1995; Randall, 1998; and Barajas et al., 1999). In contrast, lower net margin will result in to low social cost incurred by the public. Efficient intermediation costs are indicated by low rates and reflect the effectiveness of monetary policy, well maintained financial stability, and competitive financial institution system. High intermediation costs would reduce the incentive for economic actors to undertake intermediation activities (Hadad et al., 2003).

Interpretation of the high net margin can be seen from two sides. First, high net margin reflects a low level of efficiency of financial institution and it is not competitive. Second, high interest margin reflects inadequate in financial institution regulations and high asymmetric information (Claeys and Vennet, 2007). Under certain conditions, high net margin is indicated with a high risk premium while the conditions of increasing competition will encourage speculative behavior of the financial institution system that could lead to financial instability (Hellman, Murdock and Stiglitz, 2000).

Interest margin or net-profit-and-loss sharing margin in Islamic microfinance institutions is one of the indicators that can be used in assessing the profitability of finance institution. Other indicators used to measure the profitability of financial institution are Return On Asset (ROA) and Return On Equity (ROE) (Murthy and Sree, 2003; Caruntu and Moranesscu, 2008). Thus, the higher level of margin, the higher profitability and sustainability of the financial institution. On the other hand, high margin may also reflect the presence of lending practices with a high credit risk (Khrawish, 2011). Referring to mainstream economics literature about competition, Melmies (2015) explained that the interdependence of competition and profit margins is one of the most important features of industrial economics. Intense market competition results in smaller profit margins. Long-term profits are contingent on competition and market imperfections, so that perfect competition presumably reduces profits to zero in the long run.

Allen (1988) extended the theoretical model by Ho and Saunders (1981) by considering more than one type of loan with interdependent demands. Zarruk and Madura (1992) developed a model of banking firms that integrate capital regulation and deposit insurance premiums and show that when deposits are insured, a tightening regulatory capital is reflected in a decrease of bank margin under the assumption of risk reduction and absolute risk aversion, but when they consider increasing absolute aversion to take risks, they conclude that there is an uncertain relationship between deposit insurance premiums and its margins. Saunders and Schumacher (2000) studied the determinants of margins in six European countries and the United States. They highlight bank margins into three components, i.e : regulatory, market structure and risk premiums, and concluded the more restricted the banking system, the greater seems to be the monopoly power as well as the margin.

There is one special extension made by Maudos and Fernández de Guevara (2004) include operating costs as a determinant of net interest income. Subsequently, Maudos and Fernández de Guevara (2004) use Lerner index as a direct measurement of market power which indicates the degree of competition. They conclude that the increase in the Lerner index in European banks affects the net interest margin positively. This effect, however, is opposed by a decrease in average operating costs, credit risk and implicit interest payments, as well as lower market interest rate volatility. The authors conclude that the low intermediation margin situation is compatible with increasing market power.

Melmies (2015) also explained that the interdependence of competition and profit margins is one of the most important features of industrial economics. Consistent with mainstream economics literature, intense market competition results in smaller profit margins.

For Islamic microfinance institutions, the literature of the margins is still hardly available. Building on previous studies in mainstream economics literature and conventional financial literature (Maudos and Fernández de Guevara, 2004; Raharjo et al., 2014; Trinugroho et al., 2014) which studies the impact of the degree of competitions on net interest margin, this study will examine the impact of the degree of competitions on Indonesian Islamic microfinance institutions net-profit-and-loss sharing margin. The following section presents the proposed research method.

3. METHODOLOGY

This section comprises three sub-sections i.e. sample selection, variables used, and regression model.

3.1. Sample

The sample in this study was obtained from OJK (*Otoritas Jasa Keuangan*) database. The sample of this study are Indonesian Islamic microfinance institutions. The initial sample consists of 160 firms with quarterly data from 2010 to 2016. Due to incomplete data on the variables selected, the final sample used in this study is amounted to 157 firms with a total of 2815 firm observations. Table 1 shows the final sample used and its distribution by province.

Table 1: Sample Distribution by Province

Distribution by Province		
Province	Number of Firm	Number of Observation
Aceh	10	154
North Sumatra	7	127
West Sumatra	7	126
Riau	2	33
South Sumatra	1	17
Bengkulu	1	17
Lampung	8	138
Bangka Belitung	1	20
Riau Islands	3	54
DKI Jakarta	1	22
West Java	26	470
Central Java	26	492
DI Yogyakarta	11	205
East Java	30	530
Banten	8	158
Bali	1	16
West Nusa Tenggara	3	64
Central Kalimantan	1	5
South Kalimantan	1	21
East Kalimantan	1	5
South Sulawesi	7	128
North Maluku	1	13
Full sample	157	2815

From Table 1, it could be shown that the sample in this study mostly are Islamic MFIs from East Java, Central Java, and West Java with the number of MFIs are 30, 26, and 26 respectively. From the Table 1, it could also be inferred that most MFIs in Indonesia is still mostly in Java Region.

3.2. Variables

The detail of the causal and proxy variables used to determine the Net-profit-and-loss sharing margin (NPM) is explained as follows:

Dependent Variable namely **Net-profit-and-loss sharing margin (NPM)**, measured by the difference between operating income and operating expenses divided by earning assets.

Independent Variable used in this study is Herfindahl-Hirschman Index (HHI), Referring to Leon (2014), HHI is used to measure the degree of competition by squaring the market share of each firm competing in a market, and then summing the resulting numbers. Banks having a greater market power are supposed to set a higher interest margins (Maudos and de Guevara, 2004; Maudos and Solís, 2009). HHI could be interpreted below:

An HHI below 0.01 indicates a highly competitive industry.

An HHI below 0.15 indicates an unconcentrated industry.

An HHI between 0.15 to 0.25 indicates moderate concentration.

An HHI above 0.25 indicates high concentration and more monopolistic industry.

A small index indicates a competitive industry with no dominant players. If all firms have an equal share the reciprocal of the index shows the number of firms in the industry. When firms have unequal shares, the reciprocal of the index indicates the "equivalent" number of firms in the industry. Herfindahl-Hirschman index (HHI) can be calculated as follows:

$$HHI = \sum_{i=1}^{N} s_i^2$$

(1)

Where:
s_i = market share of firm i in the market, N = number of firms.

3.3. Model

This study used unbalanced panel data regression due to data availability. Hausman test will be used to find out which is the most suitable panel data regression model between fixed effect and random effect regression. The impact of degree of competition on net-profit-and-loss sharing margin is tested using model as follows:

$$NPM = \beta_0 + \beta_1 HHI_{it} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 RGDP_{it} + \beta_5 Infla_{it} + \varepsilon_{it}$$
(2)

Where NPM is Net-profit-and-loss sharing margin, HHI (Herfindahl-Hirschman index) is a proxy to measure the degree of competition. Control variable defines as follows Microfinance Institutions Size (Size) is measured by using total assets at year t, then calculated the natural logarithm, Leverage (Lev) is calculated by dividing long-term liabilities to total assets. Regional GDP (RGDP) are proxied by Regional GDP of the province for each quarter in natural logarithm. Inflation (Infla) is the Indonesian inflation rate for each quarter of the study period and E_{it} is an error term.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

NPM has a mean value of 0.05532 which indicates that the firms have a fairly average profit margin. Meanwhile, the variable HHI has a mean value of 0.22568 and may be implied that the average degree of competition is fairly moderate (Table 2).

Table 2. Descriptive Statistics of Selected Variables

Variable	Minimum	Maximum	Mean	Std. Dev.
NPM	0.00022	1.00846	0.05532	0.04154
HHI	0.06329	1.00000	0.22568	0.21837

Size	13.51263	20.40402	16.83245	1.08264
Lev	0.21	56.26	6.61	4.06
RGDP	16.58766	19.7086	18.5617	0.9985
Infla	0.03023	0.08600	0.05555	0.01621

Diagnostic test of measuring variance inflation factor (VIF) was performed to ensure that the results do not suffer from any multicollinearity. Since the variables have the VIF lower than the admissible level (Table 3), the extent of multicollinearity is low and may not affect the regression results adversely. Therefore, we can include all variables in our empirical model.

Table 3. Multicolinearity test

Variable	VIF	1/VIF
HHI	1.25	0.799500
size	1.12	0.896693
Lev	1.14	0.875860
RGDP	1.25	0.798008
Infla	1.00	0.798008
Mean VIF	1.15	

4.2. Hausman Test

Gujarati and Porter (2009) explains that conducting Hausman test could be used to select fixed regression or random effects in the panel data regression model. In this study, the Hausman test was performed with a 5% confidence level. A random effect is used if the p-value (Prob> X2) is greater than 0.05. In the opposite condition, fixed effect would be a more ideal model for conducting empirical analysis (Reyna, 2007).

Based on the results of the Hausman test, this study used a fixed effect model to interpret the result (Tabel 4).

Table 4. Hausman Test Result

	Model
Full Sample	
X^2	**23.66**
Prob > X^2	**0.0001**

Source: Output from STATA

4.3. The Impact of Competition on NPM

The main purpose of this study is to answer the question whether the degree of competition, proxied by Herfindahl-Hirschman Index (HHI), affects the Net-profit-and-loss sharing margin (NPM). The result showed that HHI has a significant positive impact on Net-profit-and-loss sharing margin (NPM) with a coefficient of 0.0565 at the level of $\alpha = 10$ percent (Table 5). The higher HHI (0.225) indicates that the market is more monopolistic (Table 2). Therefore, this result indicates that the Islamic microfinance institutions facing relatively lower competition and having ability to dominate the market could lead to higher net profit margin.

The result of this study is consistent with mainstream economics literature about competition as explained by Melmies (2015). From the results, it also showed that the size of Islamic microfinance institutions is negatively affected the Net-profit-and-loss sharing margin (NPM) with a coefficient of -0.0017 at the level of $\alpha = 5$ percent. This is consistent with the theory of economies of scale where large financial institution charged lower margin. The leverage is also having a significant positive impact on Net-profit-and-loss sharing margin (NPM) with a coefficient of 0.013 at the level of $\alpha = 5$ percent. This indicate that high leveraged financial institution charged high margin. On the other hand, both regional GDP and inflation rate do not affect Net-profit-and-loss sharing margin (NPM).

Table 5. Data Panel Regression Test Results

Model

Independent Variables	Dependent Variable NPM	
	Coeff.	T
Const	-.1404942	-1.42
HHI	.0564987	1.80*
Size	-.0017513	-4.29**
Lev	.0130556	2.23**
RGDP	-1.58e-10	-1.09
Infla	.0157713	0.07
R^2 Within		0.0211
F		5.52
Prob > F		0.0018

Notes: ** indicates significant at the 5%; *significant at the 10%

Source: Output from STATA

5. CONCLUSION

The empirical results obtained from this study showed that Net-profit-and-loss sharing margins (NPM) can be explained by the degree of competition proxied by Herfindahl-Hirschman Index (HHI). Therefore, from the results of this study, it can be concluded that in a more monopolistic market, Islamic microfinance institutions face a relatively low competition and have the ability to dominate the market. The results of this study are consistent with the mainstream economic literature on competition which explains that less intense market competition could results in higher profit margins. The higher net profit margins of Indonesian Islamic microfinance institutions are highly needed for the Islamic Financial Institutions to sustain in the long term.

However, this study is unable to perform robustness tests to confirm the test results of the degree of competition by replacing independent variables of competition with other proxies, such as the Lerner index due to data limitation and lack of comparison data from the conventional banking sectors which is required to calculate the Lerner index.

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