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Growth, Competition, and Efficiency towards Net-Profit-and-Loss Sharing Margin: Study of Indonesian Islamic Microfinance Institutions

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ABSTRACT

For past years, many critics has been faced on Microfinance institutions (MFIs) facing because of their tendency of taking high margin. Therefore, it is important to understand the factors that affect margin in microfinance industry. This study examines the effect of MFIs growth, competition, and efficiency on the margin. The data collected from Otoritas Jasa Keuangan (OJK) database from 2011-2016 and conducted on Indonesian Islamic MFIs. The final sample used in this study consists of a total of 2160 observations. This study uses panel data regression model analysis to analyze the obtained data. The results obtained from this study showed that Net-profit-and-loss sharing margins (NPLS) are able to be explained by MFIs growth and efficiency but not with HHI, which is the proxy of the degree of competition.

Keywords: Sharing Margin; Growth; Degree of Competition; Efficiency; Islamic Microfinance Institutions

JEL Classification: D41, G21

INTRODUCTION

Indonesian Islamic microfinance institutions is growing rapidly, especially in the last decade, either by the number of institutions and the number of customers. The growing public awareness of the benefits and importance of undertaking economic activity through those financial institutions to achieve better conditions makes those MFIs development. Microfinance institutions is also predicted to play a strategic role in accelerating the development process of Indonesia as a developed country in 2030 (Effendi, 2010). It is predicted that Indonesia will be among the five largest developed country in 2030 as microfinance institutions become one of the main role.

The United Nations explicitly recognizes that the microfinance institution is an important means of reducing world poverty. Development of Microfinance Institutions (MFIs) as poverty alleviation programs has been implemented in many developing countries. This program will help small-medium enterprises in financing their economic investment activities, reduce vulnerability to external shocks, reduce consumption, and allows arbeitlose or unemployed individuals for doing entrepreneurship when there are very limited jobs in formal sector. In the Islamic concept, any country that has goal to prosper the society will strive to consistently find and run a variety of economic activities that benefit and suitable with the character of the nation. Islamic microfinance institution which are Cooperative Sharia, BMT and Islamic banks with micro business unit is expected to help in realizing these objectives. From the rapid growing number of Islamic microfinance institutions, it is very interesting to see how are optimization of the role of Islamic microfinance institution in this country will resolve the problems of financial support faced by the majority of the citizen.

One of the indicators that can be used in assessing the profitability of finance institution is interest margin or net-profit-and-loss sharing margin in term of islamic microfinance institutions. Therefore, the higher

the level of margin is reflecting the higher profitability of the finance institution and also reflect the well-maintained of its stability. On the other hand, high margin may also reflect the presence of lending practices with a high credit risk that finance institution should establish loan loss reserves are large enough (Khrawish, 2011).

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 net interest margin, namely net-profit-and-loss sharing margin (NPLS). Unfortunately, this literature is mostly still focuses on islamic banking and still including the role of conventional bank (e.g. Ascarya and Yumanita, 2010). There is very limited literature on the issues of the determinants of islamic microfinance institutions net-profit-and-loss sharing margin. This study will try to cover those gap by studying the impact of microfinance growth, degree of competition, and efficiency as the determinants of net-profit-and-loss sharing margin of Indonesian Islamic MFIs.

Due to the significance of the banking sector in the stability and welfare of any economy; it is imperative to constantly monitor and evaluate its performance. In the recent decades, a new prototype of banking, Islamic Banking, was introduced and was capable of achieving widespread and accelerating growth of total assets and market share on a global basis, including non-Muslim countries. Numerous empirical studies endeavor to measure the financial performance of the dissimilar banks in an attempt to gain more insights into Islamic banking model and the chronic reason behind its rapid success. Aside from banking sector, islamic microfinance sector also facing a rapid growth in terms of the number of institutions and the number of customers and therefore affecting the vast growth from islamic MFIs operation itself. Beside, from empirical evidence from study done by Asimakopoulos et al. (2009), which

conducted on conventional sector, had found that while growth induces more profits for small firms but it is insignificant for large ones. Therefore, it should be tested whether the growth of MFIs could be one of the net-profit-and-loss sharing margin determinants.

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.

Levine (1997) explained efficient implementation of the financial intermediation by banks and financial institutions will encourage the economic growth of a country. The efficiency of microfinance institutions could be indicated by their net interest margin or net-profit-and-loss sharing margin in islamic microfinance institutions. The presence of inefficiencies in the banking system is often related to high net margin, 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 to the lower net margin, the expected social cost incurred by the public to finance institutions intermediation activities undertaken will also be low. Efficient intermediation costs are indicated by low rates and reflect the effectiveness of monetary policy, well maintained financial stability, and competitive finance institution system. High intermediation costs would reduce the incentive for economic factors (Hadad et al., 2003).

Therefore, referring from some mainstream economic literatures about general banking and finance institutions, the purpose of this study is to test the impact of the Indonesian Islamic MFIs growth, degree of competition, and efficiency on their net-profit-and-loss sharing margin, also controlled by some variables which are microfinance institutions size,

leverage, regional GDP, and inflation rate. The data used to conduct this study was obtained from OJK database from 2011-2016. The samples of this study are the Islamic Microfinance Institutions in Indonesia. The final sample used in this study consists of a total of 2160 observations. This study uses panel data regression model analysis (ie. fixed effect or random effect regression). This study contributes to the literature by testing the determinants (growth, degree of competition, and efficiency) of Islamic microfinance institutions net-profit-and-loss sharing margin, area which the literature of the margins is still hardly available, also with some other controlling variables.

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 business implications from this study.

LITERATURE REVIEW

According to Iqbal and Molyneux (2005), Islamic Banking is based on profit and loss sharing (PLS) between the borrower and the bank). Islamic banks mixing investment and commercial banking operations to engage in acceptable rates of return for depositors but in accordance to Islamic rules and principles which aims to maintain profit. Islamic banks treat money as a mean to facilitate transactions for trading purposes (Iqbal and Molyneux, 2005), unlike conventional banks, where money is considered as a commodity that can be bought and sold. The rules of Islamic Banking are according to the Islamic Shariah (norms & rules) derived from the Quran and prophet Mohammad's (peace be upon him) sayings. There are five main contracts in Islamic finance namely

Mudarabah, Musharakah, Murabahah, Ijarah and Salam (Iqbal and Molyneux, 2005).

a. Mudarabah refers to an agreement between two parties; a party gives the capital and the other do the work to form a partnership to share those benefits by predetermined proportions.
b. Musharakah refers to an agreement among two or more parties to establish a business enterprise based on capital and labor. Those profit and loss is shared at an agreed proportion.
c. Murabahah refers to a sale at a specified profit margin. The term, however, is now used to refer to a sale agreement whereby the seller (bank) purchases the goods desired by the buyer and sells them at an agreed marked-up price, the payment being settled within an agreed time-frame, either in instalments or in a lumpsum. The seller (bank) bears the risk for the goods until they have been delivered to the buyer.
d. Ijarah (leasing) refers to leasing. Sale of usufruct of an asset. The lessor retains the ownership of the asset with all the rights and the responsibilities that go with ownership.
e. Salam refers to a sale in which payment is made in advance by the buyer and the delivery of the goods is deferred by the seller.

There are some fundamental differences between conventional finance institutions and islamic finance institutions. Islamic finance has three main prohibitions imposed by Islam which are: (i) treating with interest rate (ribah), (ii) engagement in excessive risk (gharar), and (iii) betting (maysir). Also, all financial transactions must be backed by a real asset.

There are various models that explain the development of intermediation margins have been developed by literature of financial institution over years. 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 (Ho and Saunders, 1981).

Allen (1988) extended those work by Ho and Saunders (1981) by acknowledging more than one kind of loan with interdependent demands. Zarruk and Madura (1992) created a model of finance institutions which integrating the capital regulation and deposit insurance premiums and exhibited that if deposits are insured, a tightening regulatory capital may be reflected on a diminishing of bank margin under those assumption of risk reduction and absolute risk aversion, but when they consider increasing absolute aversion to take risks, they presume that there will be a dubious relationship between deposit insurance premiums and its margins. Saunders and Schumacher (2000) studied those determinants about margins in six European countries and the United States. They outline bank margins into regulatory components, components of the market structure and components of risk premiums, also find that the more restricted the banking system the greater its monopoly power as well as its margin.

Peria and Mody (2004), applied the model created by Ho and Saunders to banking sector in Argentina, Chile, Colombia, Mexico and Peru. According to the findings, interest margin is affected by the concentration of the banking market structure significantly. Furthermore, domestic banks is more cost efficient in producing a higher NIM than foreign banks. There is a significant difference on the rate of interest margins in Latin America from other developing countries in the study by Gelos (2006). The results showed that in Latin America, due to weak competition, the bank is less efficient and having relatively high interest rates caused by the higher NIM. The risk of changing interest rates on money market and the uncertainty of the net profits earned from lending will faced by Banks. Therefore, banks will protect against such risks by setting interest rates (savings, output lending and non-traditional output)

as a margin above money market interest rate. It is assumed that the banks set interest rates constantly until the end of the period before transactions. According to Ho and Saunders (1981), it is also assumed that the size of transactions of loans, deposits and non-traditional output remains constant Q.

The literature of the margins is still hardly available for Islamic microfinance institutions. Therefore, this study is mainly referring to mainstream economics literature. In banking sector, a rapid growth in terms of the number of institutions and the number of customers faced by islamic microfinance sector and therefore affecting the vast growth from islamic MFIs operation itself. Meanwhile, there are also some empirical evidence, one of them is the study done by Asimakopoulos et al. (2009), which conducted on conventional sector. It had found that while growth induces more profits for small firms but it is insignificant for large ones. Therefore, the impact of MFI growth, in terms of its operations on the performance of the MFI has not been made sure yet.

Maudos and Fernández de Guevara (2004) extent the study from Ho and Saunders (1981), they examine that in Europeans banking sector which consider the average operating costs as a determinant of net interest income. Lerner index as a direct measurement of market power which indicates the degree of competition used in the study by Maudos and Fernández de Guevara (2004). The study showed that the net interest margin positively affected by the increase in the Lerner index in European banks. However, the effect is opposed by a decrease in average operating costs, credit risk and implicit interest payments, as well as lower market interest rate volatility. Therefore, they found that the low intermediation margin situation is compatible with increasing market power.

One of the most important features of industrial economics is the interdependence of competition and profit margins (Melmies, 2015). Intense market competition results in smaller profit margins, consistent with mainstream economics literature. Long-term profits are contingent on

competition and market imperfections. Therefore, perfect competition presumably reduces profits to zero in the long run.

There is one interesting note about high net margin. Fry (1995), Randall (1998) and Barajas et al. (1999) conducted studies in developing countries found that it is due to 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. In contrast to the lower net margin, the expected social cost incurred by the public to finance institutions intermediation activities undertaken will also be low. Low rates indicate the efficient intermediation costs and reflect the effectiveness of monetary policy, well maintained financial stability, and competitive finance institution system. Hadad et al., (2003) found that the high intermediation costs would reduce the incentive for economic factors

Building on previous studies in mainstream economics literature and conventional finance literature (Maudos and Fernández de Guevara, 2004; Raharjo et al., 2014; Trinugroho et al., 2014) which studies the determinants of net interest margin, this study will try to examine the impact of the Indonesian Islamic MFIs growth, degree of competitions, and efficiency on their net-profit- and-loss sharing margin (NPLS). The following section presents the proposed research method.

RESEARCH METHODS

This section comprises three sub-sections i.e. sampling of this study, variables used, and regression model.

Sample

This study used the sample that are collected from OJK (*Otoritas Jasa Keuangan*) database accessed from www.ojk.go.id. The study is conducted on Indonesian Islamic MFIs. The period of this study is from 2011 to 2016 with initial sample consists of 160 MFIs. Finally, due to incomplete data on the variables selected, the final sample used in this

study is amounted to 157 firms with a total of 2160 firm-quarter year 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 MFIs	Number of Observations
Aceh	10	118
North Sumatra	7	100
West Sumatra	7	96
Riau	2	25
South Sumatra	1	12
Bengkulu	1	13
Lampung	8	108
Bangka Belitung	1	15
Riau Islands	3	42
DKI Jakarta	1	17
West Java	26	360
Central Java	26	363
DI Yogyakarta	11	155
East Java	30	415
Banten	8	122
Bali	1	13
West Nusa Tenggara	3	49
Central Kalimantan	1	5
South Kalimantan	1	16
East Kalimantan	1	4
South Sulawesi	7	102
North Maluku	1	10
Full sample	157	2160

Table 1 showed 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, it could also be concluded that most MFIs in Indonesia is still mostly in Java Region.

Variables

Variables used in this study are independent, dependent, and control variables.

a. Independent Variable

- **Growth (Grow).** Islamic MFI growth is measured by the calculating the logarithm of changes in revenues of the Islamic MFIs.
- **Degree of competition (HHI)**

Herfindahl-Hirschman Index (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 (or 1,500) indicates an unconcentrated industry.
- An HHI between 0.15 to 0.25 (or 1,500 to 2,500) indicates moderate concentration.
- An HHI above 0.25 (above 2,500) indicates high concentration and more monopolistic industry.

- **Efficiency (Effi).** Islamic MFI efficiency is measured by dividing operating cost to operating income.

b. Dependent Variable

- **Net-profit-and-loss sharing margin (NPLS)**. Islamic MFI net-profit-and-loss sharing margin is measured by the difference between operating income and operating expenses divided by earning assets.

c. Control Variable

- **Microfinance Institutions Size (Size)**. Islamic MFI size is measured by using total assets at year t, then calculated the natural logarithm.
- **Leverage (Lev)**. Islamic MFI leverage is calculated by dividing long-term liabilities to total assets.
- **Regional GDP (RGDP)**. RGDP are the Regional GDP of the province for each quarter year of the study period.
- **Inflation (Infla)**. Inflation are the Inflation rate for each quarter year of the study period.

Regression Model

This study uses panel data regression model analysis, which are fixed effect or random effect regression. Before doing the empirical

analysis, Hausman test is conducted to find out which is the most suitable panel data regression model between fixed effect and random effect regression.

The impact of MFIs growth, degree of competition, and efficiency on net-profit-and-loss sharing margin is tested using Model (1). The equation models used to test the relationship of variables in this study are as follows:

Model 1. The impact of MFIs growth, degree of competition, and efficiency on net-profit-and-loss sharing margin

$$NPLS = \beta_0 + \beta_1 Grow_t + \beta_2 HHI_t + \beta_3 Effi_t + \beta_4 Size_t + \beta_5 Lev_t + \beta_6 RGDP_t + \beta_7 Infla_t + \varepsilon_t$$

Where:

NPLS	= Net-profit-and-loss sharing margin
Grow	= Growth of MFIs
HHI	= Degree of competition
Effi	= MFIs Efficiency
Size	= MFIs size
Lev	= Leverage
RGDP	= Regional GDP of the province
Infla	= Inflation rate
ε_t	= error term

RESULTS AND DISCUSSION

Descriptive Statistics

Table 2 shows the descriptive statistics of the selected variables in this study. NPLS has a mean value of 0.06469 which indicates that the firms have a fairly average profit margin. Meanwhile, the variable Grow has a mean value of 13.83762. HHI has a mean value of 0.22853 and may be implied that the average degree of competition is fairly moderate. Subsequently, Effi has a mean value of 0.57813 and may be implied that most MFIs is not efficient enough. Overall, the descriptive statistics of each variable can be seen in Table 2 below.

Table 2. Descriptive Statistics of Selected Variables

Variable	Minimum	Maximum	Mean	Median	Std. Dev.
NPLS	0.00022	1.00846	0.06469	0.05992	0.04233
Grow	10.36722	17.51172	13.83762	13.73491	1.05960
HHI	0.06329	1.00000	0.22853	0.14148	0.21892
Effi	0.23186	0.99871	0.57813	0.56466	0.15821
Size	13.51263	20.40402	16.83236	16.73228	1.08402
Lev	0.20642	56.25643	6.55871	6.27295	3.98927
RGDP	4512390	390434577	165067401	180378573	118294962
Infla	0.03023	0.08600	0.05539	0.04830	0.01667

Hausman Test

Hausman test is a method used to select which one is appropriate between fixed regression or random effects in the panel data regression model (Gujarati and Porter, 2009). 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).

Table 3 shows the results of the Hausman test performed in this study. Based on the results of the Hausman test, this study used a fixed effect model to test the Model (1).

Table 3. Hausman Test Result

	Model 1
Full Sample	
X^2	**20.82**
Prob > X^2	**0.002**

Source: Output from STATA

MFIs Growth, Degree of Competition, and Efficiency as Determinants of Net-Profit-And-Loss Sharing Margin (NPLS)

The main purpose of this study is to answer the question whether microfinance growth, degree of competition, and efficiency could be the determinants of net-profit-and-loss sharing margin of Indonesian Islamic MFIs.

Table 4 showed the results of overall test conducted in this study. The result showed that Growth (Grow) has a significant positive impact on Net-profit-and-loss sharing margin (NPLS) with a coefficient of 0.0163219

at the level of α = 1 percent. This result indicates that the growth of MFI in term of its operation will lead to higher net profit margin of the islamic microfinance institutions.

It is already known that islamic microfinance sector also facing a rapid growth in terms of the number of institutions and the number of customers and therefore affecting the vast growth from islamic MFIs operation itself. The result of this study proved that rapid growth which happen in Indonesia MFIs is really give the MFIs ability to generate more net profits margin. This is consistent with the mainstream economic literature from Asimakopoulos et al. (2009) which had found that firm growth may induces more profits.

Unfortunately, the result of this study could not prove that HHI, which is the proxy of degree of competition, could affect net-profit-and-loss sharing margin (NPLS). This means that regardless of how the competition in the market, it will not affect the net profit margins of Indonesian Islamic microfinance institutions. This may be because in the sample of Indonesian Islamic MFIs that included in this study is mostly from Java, which is the area that the economics is more developed than other area in Indonesia, so that while it is true that MFIs from other area of Java facing a relatively low competition, the Java MFIs, while facing more competition, is more capable of generating the net margin because they used to be operated in the area that are developed enough from the sector of economics so that it force them to generate more profits even when the competition is high.

The result also showed that Efficiency (Effi) has a significant negative impact on Net-profit-and-loss sharing margin (NPLS) with a coefficient of -0.1554359 at the level of α = 1 percent. This result means that the higher efficiency of MFIs will generate less NPLS of the islamic microfinance institutions. It indicates that inefficient MFIs tend to seek for higher margin in order to cover the inefficiency costs. The results of this study are in line with the mainstream economic literature on finance

institutions and banking efficiency which explains that 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).

From the results, it also showed that the size of islamic microfinance institutions is negatively affect the Net-profit-and-loss sharing margin (NPLS) with a coefficient of -0.0131207 at the level of α = 5 percent. The leverage is also having a significant negative impact on Net-profit-and-loss sharing margin (NPLS) with a coefficient of -0.0004747 at the level of α = 10 percent. On the other hand, the regional GDP and inflation rate both do not affect Net-profit-and-loss sharing margin (NPLS).

Table 4. Data Panel Regression Test Results

Model 1		
Independent Variable	**Dependent Variable NPLS**	
	Coeff.	**T**
Const	0.1481929	2.27
Grow	0.0163219	6.22***
HHI	-0.0124999	-0.30
Effi	-0.1554359	-21.51***
Size	-0.0131207	-3.28**
Lev	-0.0004747	-1.80*
RGDP	3.03e-11	0.34
Infla	.0420537	0.22
R^2 Within		0.2281
F		117.92
Prob > F		0.0000

Notes: *** indicates significant at the 1%; **significant at the 5%; *significant at the 10%

Source: Output from STATA

CONCLUSIONS

This study has successfully answered the question of whether Net-profit-and-loss sharing margin (NPLS) of Islamic MFIs can be explained by some determinants which are the MFIs growth, degree of competition, and efficiency. The empirical results obtained from this study showed that Net-profit-and-loss sharing margins (NPLS) are able to be explained by

MFIs growth and efficiency but not with HHI, which is the proxy of the degree of competition.

The results found that the higher growth of MFIs it will generate more NPLS of the MFIs. The result of this study is consistent with the mainstream economic literature from Asimakopoulos et al. (2009) which had found that firm growth may induces more profits. It is also proved that rapid growth which happen in Indonesia MFIs is really give the MFIs ability to generate more net profits margin.

Islamic microfinance institutions NPLS could not explained by the degree of competition which indicates that regardless of how the competition in the market, it will not affect the net profit margins of Indonesian Islamic microfinance institutions. This may be because in the sample of Indonesian Islamic MFIs that included in this study is mostly from Java, which is the area that the economics is more developed than other area in Indonesia, so that while it is true that MFIs from other area of Java facing a relatively low competition, the Java MFIs, while facing more competition, is more capable of generating the net margin because they used to be operated in the area that are developed enough from the sector of economics so that it force them to generate more profits even when the competition is high.

The results indicate that the higher efficiency of MFIs will generate less NPLS of the MFIs. The results of this study are in line with the mainstream economic literature on finance institutions and banking efficiency which explains that the presence of inefficiencies in the banking system is often related to high net margin, 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).

The business implications that could be inferred from this study result is maybe the finance institutions or Islamic MFIs in this study should consider more about the institutions internal factor such as growth and

efficiency rather than focus only on the degree of competition they faced in the market.

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