The Economic Scale of Small-Medium Enterprises Financing in Sharia Banking

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ABSTRACT

This paper studies factors determining small-medium enterprises financing and calculates economies of scale in sharia banking industry. To that end, we use monthly data from 2012.1 to 2017.6. The methodology used in this paper is multiple linear regression models. The result that showed third-party financing (TPF), labor (L), non-performing financing (TPF) and SMEs financing per branch office (SMEOFCt-1) have had a statistically significant impact on SMEs financing, while the number of branch offices (OFC) hadn't contributed to SMEs financing. The result of economies scale calculation shows the diminishing return of scale. Some variables like TPF, the number of employees, the number of offices, and NPF shows inelastic.

Keywords: Third Party Funds, Non-Performing Financing, SMEs Financing, Economies of scale, Sharia Banking
JEL Classifications: G2, G20, L250

1. INTRODUCTION

The role of small and medium enterprises (SMEs) in the Indonesian economy is very important. In Financial Crisis 1998, small and medium-sized businesses were relatively more resilient than large-scale enterprises. According to Hamzah & Gazali (2015) enterprise is a firm which aims to maximize profit by where of bringing the new economic activity with the solid business package to enter marketplace opportunities. Subsequently, the development of SMEs proved as the main driver of real sector and economic growth. The contribution of SMEs to gross domestic product is 60.34% based on current prices by absorbing labor about 97% of the total labor. The condition shows that SMEs can be regarded the safety valve of employment opportunities. Based on national banking financing side, sharia banks had a relatively large contribution to the development of SMEs.

Based on Bank Indonesia (2016) report, SMEs financing is given around 37.71% or Rp58.10 trillion. The distribution of SMEs decreased compared to 2015 where the SMEs financing distributed by sharia banks reached 39.06%. The declining is caused by the ratio of NPF Gross SMEs financing of banking in 2016 amounted to

7.39% with nominal NPF of IDR 4.30 trillion, an increase compared to the previous year of 7.01% with nominal NPF of Rp3.76 trillion. In addition, third-party funds (TPF), the number of bank offices, and the services of the employees will also determine the SMEs financing that is channeled through sharia banks (Indonesia, 2016).

The role of sharia banks towards the development of SMEs is captured by various financing product strategies issued. In addition, activities such as the opening of service centers and information micro-financing also often held individually by sharia banking. This reality is evidence that Islamic banks also provide solutions to various problems faced by SMEs. Especially, to solve the problem of SMEs capital sector, the current sharia bank has cooperated in the distribution of financing to the sector. The cooperation is in the form of financing cooperation using linkage concept, whereby larger Islamic banks distributed their SMEs financing through smaller sharia financial institutions, such as BPRS and BMT. Because of the reach of large Islamic banks that have not reached the corners of the small business community or small sharia financial institutions more directly touch with business actors MSMEs (Stigler, 1957; Yuliana and Abdul 2017).

Some literature has an interesting discussion about Islamic bank financing. Donna & dan Dumairy (2006), Andraeny (2011) and Rimadhani (2012) found that TPF has a positive effect to financing, while NPF has a negative effect to financing. SMEs financing in sharia banking has a positive impact on the development of SMEs through the production process. The proper and efficient combination of inputs in the production process will produce optimal output, in other words, the industry reaches economies of scale. The economic scale helps the industry in planning business development strategies (Goldberg, 1991). The economic scale is a condition where production costs fall per unit, in the long run, output increases. If production increases, it will have an effect on the increase of production capacity so that it will become more efficient. For MSMEs, the knowledge about economies of scale is important because every business or industry has cost data as a basis for making the decision (Berger & Humphrey, 1997). This study analyzes the determinants of SMEs financing channeled by sharia banking, such as TPF, NPF, number of offices and number of employees. Furthermore, this study also analyzes economics scale of SMEs financing.

The rest of the paper is organized as follows. In Section 2, provides a brief review of empirical literature. Section 3 discusses the methodology and explains sources and data. Section 4 reports the empirical results based on the econometric analysis. Section 5 discusses the results. Finally, Section 6 summarizes the main findings and conclusions of the study.

2. LITERATURE REVIEW

2.1. Economic Scale

The company gets at the economics of scale when it produces more output with low cost. The economic scale and dis economic scale also apply if the input proportion varies, the return scale only applies if the input proportion is fixed. If the output is aligned, the average cost of the firm to produce the output tends to decline at least to some degree. It can happen for the following reasons:

1. If the company operates on a large scale, the labor force will work under special conditions where conditions are most productive.
2. The scale of production can lead to flexibility. With variations of input to produce output, companies can manage more efficient production processes.
3. The company may obtain some inputs at a lower price because companies buy inputs in large quantities to obtain cheaper prices. This combination of inputs is likely to affect the scale of production if the corporation gains the advantage of the cheaper input price.

Nevertheless, at the point, the average cost of production will increase if output increases. There are several reasons as follows:
1. Managing larger companies becomes more complex and inefficient because of more duty.
2. The advantages purchasing a lot of large quantity of production inputs will be reduced to a certain amount. It is caused the main input supply is being limited and the price of the input eventually rises.

To analyze the relationship between production scale and company cost, it is necessary to know when the proportion of inputs is changing, the expansion of the company is no longer in proportion and the concept of return scale is no longer valid. In other words, companies are taking economies of scale when they can get more output at lower cost. Conversely, firms are on diseconomies of scale when the output produced requires more cost (Benston, 1972). The term economies of scale also include increasing returns in certain cases. Banking firms are subject to extensive regulation in nearly all facets of operations, raising the possibility that behavior consistent with cost minimization subject to market input prices may not occur (Evanoff et al., 1990). However, the term is known to be more general because it describes the proportion of inputs that change as the company changes its production level. Under such conditions, the long-run cost curve shows that firms are on an economic scale for relatively low levels of output and are on an economic scale at higher output levels.

The economic scale is often measured by output elasticity - cost, Ec. Ec represents a%age change in production costs due to a 1% increase in output.

$$Ec = (dC/C)/(dQ/Q) \qquad (1)$$

To see the relationship of Ec with cost, then equation (1) can be written as follows

$$Ec = (dC/dQ)/(C/Q) = MC/AC \qquad (2)$$

It is obvious that Ec is equal to one when the marginal cost and average cost are the same, then the costs increase proportionally along with the output and there are no economies of scale and dis economics (the return scale remains valid if the proportion of the input remains). If there is an economical scale (cost increase is less proportional to output), the marginal cost is less than average (both decrease), and Ec is <1. Finally, if there is economical dis scale, the marginal cost is greater than the average cost and Ec is <1.

2.2. Financing of Sharia Banking
To obtain business capital that is channeled by the banking system is actually relatively easy like sharia banking financing. Here are some types of Islamic banking financing.

2.2.1. Sharia capital financing
Sharia capital financing is the financing in the short or long term required by entrepreneurs in accordance with sharia principles. This financing is as an additional cost of production, purchase of raw materials or expands the marketing network. In other words, this financing is given to businesses that have good prospects, not violate the principles of sharia and existing laws and regulations. First, Murabahah financing (Sale and Purchase Scheme) with this sharia financing scheme. The sharia banking will finance the purchase of working capital needed by customers. The financing is equal to the cost of goods and added with a profit margin of sharia bank which has been approved by costumer party and bank. Second, Mudharabah and Musyarakah Financing (*partnership scheme*) based on the willingness of both parties (banks and customers) to cooperate in an effort to raise the value of assets.

In the contract of a written agreement is also about profit sharing scheme that has been agreed by both parties.

2.2.2. Sharia consumer financing
Shariah consumptive financing is a financing for non-business purposes and individual customer. Consumer financing is required for customers to meet secondary needs. The most common type of contracts used in shariah consumptive financing products is two murabahah and ijarah contracts. Murabahah is one of the main contracts in sharia financing. This is because the calculation with of this contract scheme is easier. Sharia Financing Under Ijarah Scheme. Basically, the principle in the ijarah contract is almost similar to the principle of sale and purchase, but the difference lies in the transaction object. If in the transaction of buying and selling transactions object is the type of goods. In ijarah agreement, the financing is given for a service.

2.2.3. Sharia investment financing
Sharia investment financing is a short-term or long-term financing to purchase the required capital goods to build new projects, expansion, relocation of existing projects and rehabilitation or replacement of factory machinery. Agreements typically applied in this type of Islamic financing are murabaha and Ijarah Muntahia Bit Tamlik.

2.3. Previous Study
Qolby (2013) concluded that in the long run TPF, Bank Indonesia Wadiah Certificates (SWBI) and return on assets (ROA) have a positive and significant effect on the financing. In the short term TPF, significant ECT value indicates that the short-term model can be used. The conclusion of this research is on long-term TPF, Bank Indonesia Wadiah Certificate (SWBI) and ROA have a statistically significant effect on the financing of sharia banking in Indonesia. In the short term, ROA has no statistically significant effect on the financing of sharia banking in Indonesia. While TPF and Bank Indonesia Wadiah Certificates (SWBI) have a statistical effect on the financing of sharia banking in Indonesia.

Yudistira (2004) found that almost all Islamic banks are efficient, and only 10% are inefficient. It is lower than in conventional banks. In addition to the crisis of 1998–1999 showed good performance. Some sharia banks have economies of scale and need to be merged. Jaffar & Musa (2014) examine the feasibility of the survey instrument in determining the attitude towards Islamic financing among micro and SMEs in Halal production. The survey instrument is appropriate in a wider study of a representative sample of the Halal industry

Dost (2011) conducted a study of Islamic banks in Pakistan in the period 2006–2009, using nonparametric methods (DEA). Dawood Islam Bank has an efficiency scale. In 2007, Islamic banks have a high level of efficiency, these findings as well as a first step to calculate the level of efficiency of Islamic banking in Pakistan.

Yusniar (2011) Using panel methodology and ordinary least square (OLS) as a method of estimation, the results provide evidence of a positive significant relationship between size, CAR, LOR and bank efficiency while status go public negatively significant

affects bank efficiency. The study, however, could not provide a significant relationship between NPL and bank efficiency. These results are consistent with prior empirical studies.

Rimadhani (2012) used secondary data for the monthly period 2008:01- 2011:12. The analysis technique used is the Multiple Linear Regression by OLS. Based on the research results that the TPF has positive and significant, profit margin negative and insignificant, NPF has a positive and significant effect, FDR has negative and insignificant.

By previous studies, most researchers studied the level of efficiency of sharia placement, both parametric and nonparametric methods. This study will extend previous literature by examining the specific financing of Micro SMEs sector that is channeled by the sharia banking. In addition, the series of data is from 2012 to June 2017 including some variable such as a number of sharia bank offices and number of employees. The problem is also added by calculating the level of economies of scale of each input variable. Noviarini et al. (2015) found that the concept of Islamic studies in BMT institutions has a profound impact on the economy by developing the micro and small enterprise in Indonesia.

3. METHODOLOGY

The scope of this study is to discuss SMEs financing in sharia banking. Variables in this study used such as TPF, NPF, Number of Employees and Number of Sharia Bank Offices, and Micro SMEs financing. The data used are all sharia banking databases of sharia commercial banks (BUS) and sharia business unit (UUS), which includes monthly data from 2012 to June 2017. To determine factors of SMEs financing on sharia banking this study calculated the level of productivity of each the input variables. Multiple linear regression methods and classical assumption test are used in this research. The model is as follows:

$$LnSMEF = a + b_1 LnTPF + b_2 LnL + b_3 LnOFC +$$

$$b_4 LnNPF + b_5 SMEOFC_{t-1} + e \qquad (3)$$

TPF = Third party funds (TPF)
SMEF = Small and Medium Enterprises FUNDS (SMEF)
OFC = Office channeling (OFC)
NPF = Non-Performance Financing (NPF)
$SMEOFC_{t-1}$ = Micro SMEs financing

4. RESULTS AND DISCUSSION

4.1. The Progress of Research Variables
The end of 2016 the development of sharia banking industry is relatively significant. It is recorded by 13 sharia commercial banks, 21 Sharia business units, 2201 number of network BUS and UUS offices, consisting of 1869 BUS office network and 332 network office of UUS (OJK, 2016). The declining in a network of BUS and UUS offices because of internal consolidation and utilization of the Bank branch office network in the form of Sharia Services Bank (LSB) and Sharia Services (LS) in the implementation of OJK

Regulation Number 2/POJK.03/2016 regarding the development of sharia banking office network in the national economic stimulus order for banks. The POJK is one of the incentive policies by OJK to the parent bank that supports the development of sharia banks by opening Sharia Bank Services in conventional bank offices.

In terms of funding, the main source of sharia banking is TPF. The amount TPF in 2016 is Rp227.80 trillion that increases compared to 2015 of Rp193.08 trillion. This shows that public interest in sharia banking products is increasing. Furthermore, the DPK UUS also increased by Rp18.9 trillion to Rp100.34 trillion from Rp81.39 trillion in 2015. The largest growth contribution was in deposits which grew by Rp16.65 trillion.

Various stimuli to customers and prospective customers, as well as the launch of banking products and partnership services, become an increasingly aggressive attraction. Thus, the growth of investment/financing that relies on the financing of the sharia bank as a catalyst will increase the number of business actors and the amount of capital support so that SMEs industry sector become one of the financing bases of sharia banking.

In the framework of financing distribution, sharia banking is bound by various regulations and banking principles that must be adhered to such as fiduciary principle, prudential principle, confidential principle, and know your customer principle. These four principles are related to one another. The relationship of banks and customers is based on the principle of trust, so it needs to be a relationship of trust between the customer and the bank. In order to gain mutual trust then the bank needs to know well the character of the customer. By conducting a feasibility study carefully, it means that the sharia bank has implemented the prudential principle so that in channeling SMEs financing.

Financing channeled by sharia banks for productive category during 2016 is dominated by non-MSME sector either in working capital or investment. Financing for business category provided for non-MSMEs reached 62.29%, while MSMEs financing disbursed only 37.71% or IDR 58.10 trillion. The portion of financing for MSMEs decreased compared to 2015 where the financing of UMKM distributed by Islamic banks reached 39.06%.

The ratio of NPF Gross SMEs financing in 2016 amounted to 7.39% with nominal NPF of IDR 4.30 trillion, slightly increased compared to the previous year which was 7.01% with nominal NPF of Rp3.76 trillion. The highest Gross NPF found in the medium scale of 8.10%, up from 6.22% in the previous year. NPF of MSMEs in the small and micro enterprises is about 7.65% and 5.75% decreasing from the previous year by 8.24% and 7.10%.

NPF is one of the measurements of financial performance on sharia banking. Islamic banks should strive to prevent an ascending NPF. There are several things that should be considered sharia bank related to NPF. Firstly, sharia banks must have qualified human resources and able to overcome problematic financing. Secondly, sharia banking should make a prudential policy in accordance with prudential principles in the provision of financing.

4.2. The Models of SMES Financing In Sharia Banking

Based on the regression output, the model of SMEs Financing in sharia banking can be written as follows:

$$LnSMEs = 2.73035 - 0.10036 LnTPF + 0.89645 LnL +$$

$$(0.42942) \quad 0.02256) \quad (0.03345)$$

$$0.00014 LnOFC - 0.0025 LnNPF + 0.0236 SMEOFC_{t-1}$$

$$(0.000094) \quad (0.000048) \quad (0.0033)$$

$R^2 = 0,99$
$F = 2028,909$ Prob F=(0,000)
DW = 1,672

4.3. Statistic Analysis

Based on the deterministic coefficient (R^2) of 0.09 indicates that all independent variables are able to explain the variation of MSME financing (SMEF) of 99%, the remaining 1% is influenced by other factors outside the model. The deterministic coefficient showed the strong effect of the independent variable on the dependent variable. The effect of TPF, labor (L), number of branch offices (OFC), NPF, and SMEOFC$_{t-1}$ to SMEs financing is about 99%. Simultaneously, the effect of independent variables is reinforced by F test of 39.36> F-table = 4.26 with probability 0.00 <α = 0.05. It means that the 95% confidence of the model can still be trusted and significant. Ho which capital and labor do not affect production is rejected.

The value of DW = 1.672 is between dL = 1.47 and dU = 1.73 or is an area without a decision. To confirm whether there is the problem of autocorrelation or not, this study used Lagrange Multiplier Test (LM Test). The result of F statistic value is not significant and Chi-square (Obsr * R^2) = 5.40 with probability Chi-square = 0.065> α = 0.0 that means the model does not have autocorrelation problem. It concluded that the model is quite good.

TPF, labor (L), NPF and MSME financing per branch office last year (SMEOFC$_{t-1}$) had a statistically significant effect on the level of 1%, while the number of branch offices (OFC) has an insignificant effect on MSME financing.

4.4. Economic Scale Analysis

Based on the coefficient, some independent variables have a positive sign, except LNTPF and LNNPF. The coefficient shows the elasticity of each variable and the number of parameters of the independent variables shows the scale of MSME financing. The marginal productivity of TPF is −0.10 which is inelastic and labor productivity is 0.89 which is also inelastic. While financing productivity is based on office amount of 0.0001 and problematic financing elasticity is also close to 0 or 0,002. It means that the number of offices and non-performing financing shows a small role in SMEs financing. The number of coefficients of the regression parameter of 0.82 indicates the production in the diminishing yield scale.

Economic scale = −0.100367 + 0.896454 + 0.000139−0.00025 + 0.02362 = 0.819602 <1 (Diminishing return)

Table 1: Statistic descriptive

Variable	Average	Maximum	Minimum	Standard Deviation
Financing (Billion Rupiah)	56.546	110.086	72,5	34.517
Third Parties Funds (Million Rupiah)	2.725.437	5.823.964	1.475.120	1.264.881
Labor (Person)	43.780	58.435	23.790	11.767
Bank Office (unit)	2.315	2.665	1.813	212
NPF (Percent)	3.7	5.2	2.2	0.82

Source: *Field research*, 2017. NPF: Non performance financing

The elasticity of TPF is −0.1 that means inelastic with negative coefficient where the increasing of TPF financing will proportionally decrease. It indicates that the ability of sharia banks to channel TPF to the public and investors are experiencing difficulties, so it is reasonable that the increase in deposits will be accommodated in demand deposits or accounts owned by sharia banks at Bank Indonesia.

The elasticity of labor 0.89 is also inelastic. It means that an increase in the number of workers in sharia banking will be able to increase SMEs financing. However, the increase in the number of workers is less proportional to the increase in financing. It is caused the low absorption of MSMEs and lack of education about sharia bank and sharia products in the community. Though SMEs is a big potential that has not been developed by conventional banks.

The effect of the elasticity of a number of branch offices (OFC) is also positive and insignificant on SMEs financing. It suggests that the existence of branch offices has not guaranteed the high intensity of SMEs financing. The factor is sharia banks also still behave the same with conventional banks that are choosing a business capable and worthy of financing. As a result, MSMEs are difficult to meet the requirements in this access to finance.

NPF elasticity is also inelastic with a coefficient of −0.0025. This parameter is statistically significant at the level of 1%. It concluded that the non-performing financing will reduce the amount of SMEs financing in sharia banking. MSMEs that cause loan repayment will not be financed again. The average financing elasticity per branch office (SMEOFCt-1) is 0.023 which is inelastic. This coefficient is significant at the level of 1% meaning if the average financing per branch of previous periods increased, the SMEs financing will also increase.

5. CONCLUSION

TPF, labor (L), NPF and Micro SMEs financing (SMEOFCt-1) had a statistically significant effect at the level of 1%, while the number of branch offices (OFC) is not significant on SMEs financing. Based on the economies scale calculation, the results showed a diminishing return on TPF, number of employees, number of offices. Finally, NPF suggests inelastic.

6. ACKNOWLEDGMENT

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APPENDIX

Appendix Table 1: Result of regression

Dependent variable: LNSMEF				
Method: Least squares				
Sample (adjusted): 2012M02 2017M06				
Included observations: 65 after adjustments				
Variable	Coefficient	Standard error	t-statistic	P
C	2.730351	0.429416	6.358295	0.0000
LNTPF	−0.100367	0.022557	−4.449563	0.0000
LNL	0.896454	0.033448	26.80133	0.0000
LNOFC	0.000139	9.38E-05	1.482057	0.1436
LNPF	−0.000250	4.85E-05	−5.153806	0.0000
SMEOFC(−1)	0.023626	0.003341	7.070849	0.0000
R^2	0.994218	Mean dependent var		9.955349
Adjusted R^2	0.993728	S.D. dependent var		2.549929
S.E. of regression	0.201949	Akaike info criterion		−0.273834
Sum squared resid	2.406228	Schwarz criterion		−0.073122
Log likelihood	14.89962	Hannan-Quinn criter		−0.194640
F-statistic	2028.909	Durbin-Watson stat		1.67220
P (F-statistic)	0.000000			