

# Interest Margin versus Small-Medium Enterprise Financing: Does Bank Ownership Matter?

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## ABSTRACT

The Indonesian government wants to promote small and medium enterprise financing as a type of relationship lending while at the same time reducing interest margins. Otherwise, relationship lending tends to lead into high levels of interest margins. This paper examines the relationship between SME financing and interest margin in Indonesia using panel data on 124 banks in Indonesia from 2008 to 2014. Furthermore, we also identify the direction of SME financing in relation to the ownership of banks. We use panel data regression and GMM methods to ensure the robustness of the result. The overall results suggest that SME financing positively increases the interest margin since relationship lending charges greater margins for each transaction. The results confirm the regulatory conflict between the interests of promoting small/medium enterprise financing and reducing the interest margin. However, we find a difference in sign and significance level of SME financing for each type of bank ownership as the result of SME financing readiness.

**Type of Paper:** Empirical

**Keywords:** SMEs; Financing; Indonesia; Interest Margin.

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## 1. Introduction

Small, medium, and microenterprises play an important role in the Indonesian economy. According to data from the Ministry of Cooperatives and SMEs in 2013, the number of micro, small, and medium enterprises Indonesia amounts to 99.99% of all business units with a contribution to GDP of 60.34%. The proprietors of micro, small, and medium enterprises certainly need more financial attention because finance is one of the factors that affect the success or failure of a business (Lussier and Halabi, 2010).

In meeting the financial needs of micro, small, and medium enterprises, banks play a significant role by providing financing. Berger and Udell (2005) further explained that financing for small, medium, and microenterprises can be hard to provide with simple mechanisms. Both proposed the concept of financing for small, medium, and microenterprises by emphasizing the existence of lending technology; lending technology here is an innovative financial product that can be used by small and medium entrepreneurs to obtain financing.

The financing of micro, small, and medium enterprises itself has been a frequent subject of research. Stiglitz and Weiss (1981) argued that financing for micro, small, and medium-sized enterprises is still very precarious due to the difficulty of identifying the micro, small, and medium enterprises. This makes it difficult for the bank to assess the condition of the micro, small, and medium enterprises to be funded. This leads to the problem of adverse selection for the bank and moral hazard for the micro, small, and medium enterprises that receive financing. Berger and Udell (1995) conducted further research on this situation. The study found that good relationships between micro, small, and medium-sized enterprises and the banks that provide financing will have a positive impact on the level of credit availability and credit terms such as interest rates. Berger and Udell (2002) then sparked a lending technology solution called relationship lending, in which banks maintain close ties with the business actors they finance. This is done so that banks would be able to access information in the form of 'soft' data such as information about the competence and character of business owners, which is then often quantified, verified and processed by banks like 'hard' data.

On the other hand, low interest spread is a government target for financial institutions so that these institutions would be able to provide maximum intermediation services. However, a large interest spread is also required to ensure that a level of risk is maintained. Ho and Saunders (1998) said that a net interest margin will always exist due to the uncertainty of transactions faced by banks. Net Interest Margin itself is defined as the spread between interest revenue on assets and interest expense on liabilities in the bank.

There is thus a conflict between the government's desires to reduce the interest spread and to increase financing for micro, small, and medium enterprises. This is because the financing of micro, small, and medium enterprises according to Berger and Udell (1995) is classified as a relationship lending. Meanwhile, according to Arnold and E. van Ewijk (2012) the bank's relationship would trigger a high interest margin due to the small number of transactions that take place.

## 2. Literature Review

Net interest margins (NIMs), better known as spreads, have already become a fundamental part of the revenue system in financial intermediary activities. Demirgüç-Kunt *et al.* (2003) stated that the Net Interest Margin is one of the proxies of the financial intermediation variable. The Net Interest Margin itself is calculated by subtracting interest expenses out of interest income. The study by Ho and Saunders (1981) is the basic study that underlies existing research on the Net Interest Margin. This study found that a net interest margin would always exist due to the uncertainty of transactions faced by banks. This study undertook both theoretical and empirical studies. According to Ho and Saunders' (1998) results, there are four factors that affect the spread, namely the management's level of risk aversion, the size of the transactions, the market structure of the bank, and the variance of the interest rate.

In empirical studies, Ho and Saunders (1981) found that spreads were positively and significantly associated with the variance of bond rates according to theoretical models. In addition, it was found that small-scale banks had larger spread values than large-scale banks.

In other literature, spread can also be defined as the difference between the averages of asset income (interest income) and liabilities (interest expense) or commonly known as bank mark-

up (Allen, 1988). Research conducted by Allen (1988) found that the net interest margin had a relationship with the bank's portfolio, especially through the factor of loan amounts. Angbazo (1997) later found that the level of spreads taken by the bank is influenced by the magnitude of risk and pressure on the interest rate. This condition explains the relationships between net interest margin and the level of loan issuance by banks.

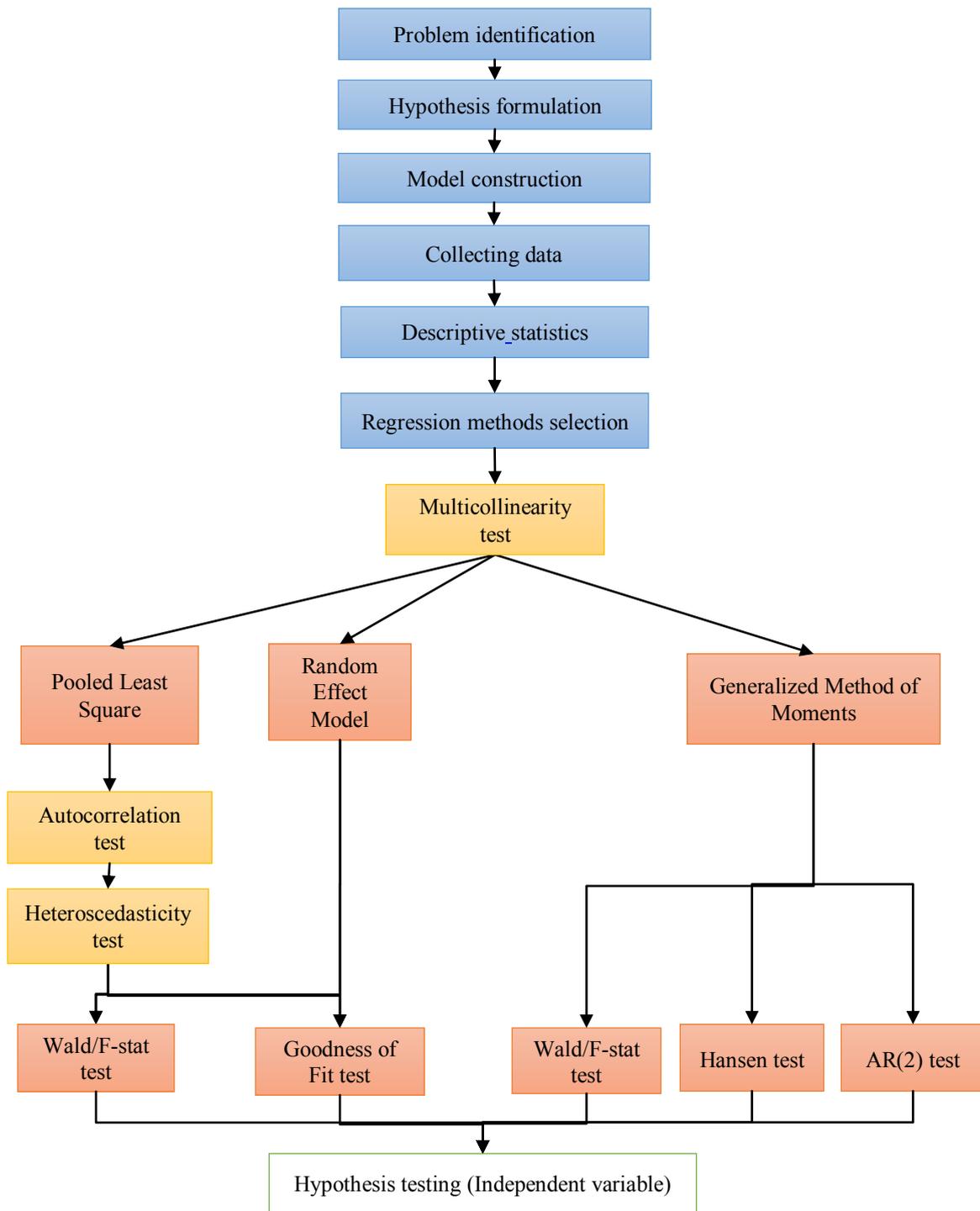
Arnold and E. van Ewijk (2012) conducted a study to analyze the factors that affect the interest margin. In addition to the commonly used factors, Arnold and E. van Ewijk (2012) included the bank model variables measured using deposit-to-liability ratios. According to Berlin and Mester (1998), this ratio aims to measure the level of bank relationship. If the deposit-to-liability ratio is higher, the bank has a relationship-oriented model (ROM). Conversely, if the deposit-to-liability ratio is lower, the bank indirectly has a transaction-oriented model (TOM). This is because TOM banks rely more on financing from securities and money market while ROM banks rely more on loans and deposits (Petersen, 2014).

The study also found that the deposit-to-liability ratio had a significant positive effect on interest margin. This confirms that the model of the bank significantly influences the determination of interest margins. Finally, the study found that interest margins would decrease as banks move away from ROM models. This is in line with Liebeg and Schwaiger (2009) who stated that banks with TOM models would be more capable of suppressing their interest margins. This is because ROM-based banks rely more on a smaller number of financing customers, so they need a higher interest income to cover their operating costs. The ROM is usually used as an approach to provide small and medium enterprise financing since it allows the bank to extract 'soft' information from the SMEs. In contrast, a TOM-based bank provides financing through securities and money market instruments that can be utilized on a larger scale.

### **3. Methodology**

This study was conducted to review the influence of SME financing upon net interest margins among Indonesian banks. The factors to be studied are the intermediary variable with the proxies of net interest margin and net core operating margin, the variable of bank ownership using a dummy variable, the capital adequacy variable with a proxy of the capital adequacy ratio, the bank size variable, the monetary policy variable with a proxy of the Bank Indonesia interest rate, the ex-post risk variable with a proxy of the ratio of PPAP (Provision for Earning Assets Losses) to total earning assets, the liquidity variable with the proxies of loan-to-deposit ratio and financing-to-deposit ratio, and the monetary variable with a lending rate proxy.

The data used includes data that became the proxy for the above variables. The data is then included in the previously formulated model and processed using several methods, such as Pooled Least Square (PLS), Fixed Effect Model (FEM) and also Generalized Method of Moment (GMM). We also tested the model according to the model used, including the F-statistic test, Goodness of Fit Test and Hansen Test, AR Test (2), and the Wald Test on Generalized Method of Moment method. This was intended to test the suitability and feasibility of the model to be used.



Source: Author (2016)  
Figure 1. Methodology Steps

In this study, the model used is based on Shaban *et al.* (2014) with adjustments especially for different dependent variables and study periods. This study has one main model tested in several ways. The research model is as follows:

$$NIM_{k,t} = \alpha_0 + \beta_0 LNIM_{k,t} + \beta_1 SBF PCT_{k,t} + \beta_2 CAR_{k,t} + \beta_3 LDR_{k,t} + \beta_4 PROV_{k,t} + \beta_5 SIZE_{k,t} + \beta_6 LRATE_{k,t} + \beta_7 ISL_{k,t} + \beta_8 GDPG_{k,t} + \varepsilon_{k,t} \quad (1)$$

where  $NIM_{k,t}$  is the net interest margin or net core operating margin,  $LNIM_{k,t}$  is the lag of net interest margin or net core operating margin,  $SBFPCT_{k,t}$  is the ratio of MSME financing to total financing,  $LDR_{k,t}$  is the loan-to-deposit ratio or financing-to-deposit ratio,  $CAR_{k,t}$  is the capital adequacy ratio,  $PROV_{k,t}$  is the provision of non-current asset removal,  $SIZE_{k,t}$  is the size of the bank,  $GDPG_{k,t}$  is the real GDP growth,  $LRATE_{k,t}$  is the interest rate of the Bank Indonesia,  $ISL_{k,t}$ .

In addition, there are five other models as developments of the main model that will be tested using the Generalized Method of Moment (GMM) method. In this model, the variable modification is done by adding a bank ownership variables and having it interact with  $SBFPCT$ :

$$NIM_{k,t} = \alpha_0 + \beta_0 LNIM_{k,t} + \beta_1 SBF PCT_{k,t} + \beta_2 CAR_{k,t} + \beta_3 LDR_{k,t} + \beta_4 PROV_{k,t} + \beta_5 SIZE_{k,t} + \beta_6 LRATE_{k,t} + \beta_7 GDPG_{k,t} + \beta_8 FB_{k,t} + \beta_9 LGOB_{k,t} + \beta_{10} SOB_{k,t} + \varepsilon_{k,t} \quad (2)$$

$$NIM_{k,t} = \alpha_0 + \beta_0 LNIM_{k,t} + \beta_1 SBF PCT_{k,t} + \beta_2 CAR_{k,t} + \beta_3 LDR_{k,t} + \beta_4 PROV_{k,t} + \beta_5 SIZE_{k,t} + \beta_6 LRATE_{k,t} + \beta_7 GDPG_{k,t} + \beta_8 FB \times SBF PCT_{k,t} + \beta_9 LGOB \times SBF PCT_{k,t} + \beta_{10} SOB \times SBF PCT_{k,t} + \varepsilon_{k,t} \quad (3)$$

In the second model, we replaced the added bank ownership variable.  $FB$  is the proxy of foreign bank dummy,  $LGOB$  is the proxy of local government bank dummy, and  $SOB$  is the proxy of state-owned bank dummy. After that, we look for the relationship between the bank ownership variables and small/medium enterprise financing in the third model.

A descriptive statistic test is conducted to find out the data characteristic descriptions of the research variables. The results of this descriptive statistics test is presented in Table 1 below.

Table 1. Descriptive Statistics of Research Variables

	SBFPCT	CAR	LDR	NIM	PROV	SIZE	GDPG	LRATE
Obs	697	697	697	697	697	697	697	697
Mean	0.3327	0.2535	0.9086	0.0641	0.0170	26.3434	0.0563	0.0710
S. Dev.	0.3015	0.1993	0.3239	0.0295	0.0131	5.9665	0.0058	0.0116
Min	0.0000	0.0802	0.1507	0.0078	0.0001	12.0219	0.0463	0.0575
Max	1.0000	2.0661	3.3497	0.3329	0.1645	34.2884	0.0622	0.0925

Source: Author (2017)

#### 4. Research Results

We used the pooled least-square and fixed effect model. According to some robustness checks we've done, we found some assumption violations such as autocorrelation and heteroscedasticity. Therefore, we use a robust coefficient correction to find the best-fit linear unbiased estimation. In addition, we also use GMM methods to ascertain our robustness results. The purpose of constructing several models was to confirm the robustness of this research. Furthermore, Table 2 presents the result of our regression with several independent variables.

Table 2. Research Results

	Model 1			Model 2			Model 3
	PLS	FEM	GMM	PLS	REM	GMM	GMM
SBFPCT	0.0226*** (0.0047)	0.0132*** (0.0046)	0.0788*** (0.0207)	0.0221*** (0.0045)	0.0156*** (0.0046)	0.0637*** (0.0219)	0.0501* (0.0281)
LDR	0.0024 (0.0022)	0.0033 (0.0031)	0.0063 (0.0039)	0.0055** (0.0023)	0.0036 (0.0031)	0.0122* (0.0067)	0.0023 (0.0036)
CAR	0.0011 (0.0036)	0.0167** (0.0072)	-0.0045 (0.0091)	0.0082** (0.0036)	0.0122*** (0.0047)	0.0104 (0.0101)	0.0057 (0.0091)
PROV	0.2677* (0.1457)	0.1644 (0.1214)	0.3549* (0.2101)	0.2207* (0.1264)	0.1669 (0.1167)	0.3205 (0.2656)	0.2845 (0.1864)
SIZE	0.0002 (0.0002)	0.0002*** (0.0001)	-0.0001 (0.0002)	0.0003* (0.0001)	0.0002** (0.0001)	0.0001 (0.0001)	0.0000 (0.0002)
LENDINGRATE	0.0305 (0.0778)	0.0295 (0.0400)	-0.1449 (0.1209)	-0.0175 (0.0679)	0.0229 (0.0409)	-0.4710*** (0.1657)	-0.0444 (0.1356)
GDP	0.1569 (0.1858)	0.2113** (0.0917)	-0.1377 (0.2415)	0.2183 (0.1617)	0.1964** (0.0939)	-0.0974 (0.2515)	0.3392 (0.3131)
FB				-0.0095*** (0.0030)	-0.0109* (0.0060)	-0.0635* (0.0367)	
LGOB				0.0303*** (0.0022)	0.0291*** (0.0046)	0.0546*** (0.0141)	
SOB				0.0076** (0.0032)	0.0070 (0.0075)	0.0042 (0.0911)	
FB x SBFPCT							-0.0414 (0.0321)
LGOB x SBFPCT							0.1003** (0.0398)
SOB x SBFPCT							0.0323** (0.0153)
C	0.0327*** (0.0120)	0.0307*** (0.0065)	0.0453*** (0.0183)	0.0218 (0.0099)	0.0264 (0.0069)	0.0512 (0.0259)	0.0166 (0.0226)
AR (1)			0.0210**			0.0080	0.76
AR (2)			0.3830			0.2550	0.787
Hansen			0.0800*			0.2700	0.99
Observations	707	707		707	707	546	546.0000
F-stat	4.34***	7.07***		34.90***			
Wald Chi2-stat			20.75***		125.60***	57.86***	90.74
R-squared	0.0695	0.0395		0.2646	0.2584		
Number of instruments			85			85	130

Based on the data processed with all of the methods, we consistently found that the SBFCPT variable influences the NIM variable at 99% significance. We also looked into the coefficient of the SBFCPT variable and found a positive effect upon the NIM variable. This condition shows that interest spread is affected by the bank financing preference of SMEs (Shaban, *et al.*, 2014). In addition, this result also support Arnold and E. van Ewijk's (2012) research, which found that the relationship lending used in SME financing could increase the interest spread.

According to Table 2, we also found that provision affected bank stability under the pooled least-square and GMM methods. Income diversification negatively affected bank stability due to the high risk from non-interest income. Islam and Nishiyama (2016) have found that riskier banks notified by a high level of provision would intend to increase their interest margins to cover their risks. The result also supports Ho and Saunders (1981) who stated that high regulation in credit distribution would lead to high interest margins.

In addition, if we focus on GMM results, we can see that most monetary regulations such as CAR and lending rate have a negative effect upon interest margin. This result supports Ho and Saunders' (1981) findings that monetary policies tend to decrease interest margin. However, over-restrictive regulation can also lead to high interest margins in the market. The negative sign of size also confirms previous research by Ho and Saunders (1981) and Trinugroho (2014). Bigger banks have economies of scale due to larger numbers of transactions than smaller banks. The large number of transactions increases efficiency so that the bank can charge small margins for each individual transaction. Unfortunately, the results in the model were not statistically significant.

Furthermore, we expand the model by adding a bank ownership variable in Model 2. In the second model we used a random effect model since fixed effect models face dummy trap variable problems. The results are consistent with previous research. The small medium enterprise financing variables are consistently significant using all three methods. In addition, the lending rate variable as a proxy for monetary policy is found to be significant.

In the second model, we categorized banks into 4 ownership categories, such as private banks, foreign banks, local government banks and state-owned banks. The basic condition of the second model is private banks. According to the result, non-private banks (both local government and state-owned banks) have significantly positive dummy coefficients, which mean that non-private banks would have higher net interest margins at the same amount of small/medium enterprise financing. This result was supported Karim (2001) who also found that private banks are more efficient than non-private banks.

In addition, we also find that foreign banks are more efficient than national private banks. This is because foreign banks usually have more established systems to mitigate risks so they have no need to cover the risk through the interest margin.

In the third model, we test the relationship between bank ownership and small/medium enterprise financing to find a quick conclusion about the relationship between bank ownership and small/medium enterprises. The result consistently shows that small/medium enterprise financing in government-owned banks (both local government and state-owned banks) would increase the net interest margin, which leads to inefficiency. This result support Karim (2001)'s study, wick also concluded that private banks are more efficient than non-private banks. This result is also in line with Tribagus (2014)' research, which found that net interest margins in

private banks are more efficient since they make more use of transactional financing rather than relationship financing.

## 5. Conclusion

Based on the discussion above, we can draw the conclusion that small/medium enterprise financing as a form of relationship lending would tend to increase the interest margin. This result supports Arnold and E. van Ewijk (2012), who also suggested that transactional financing would lead to lower interest margins. On the other hand, relationship lending can imply higher interest margins due to the increasing level of risk. In addition, bank operating expenses also increase. (Islam and Nishiyama, 2016; Trinugroho *et al.*, 2014).

This paper also examines the impact of bank ownership upon net interest margin. The result is consistently in line with previous research conducted by Karim (2001) in that private banks have lower interest margins since they prefer to distribute cash through transactional lending rather than relationship lending. This result was also confirmed by scrutinizing the relationship between the bank ownership variable and small/medium enterprise financing. We found that small/medium enterprise financing provided by private banks leads to a decrease in the net interest margin. According to Arnold and E. van Ewijk (2012), this finding means that small/medium enterprise financing from private banks probably constitutes transactional lending rather than relationship lending. Private banks need to be more aware of credit risk since small/medium enterprise financing can bring up the lack of information problem in the use of transactional lending.

The research in this paper can be improved by further research that makes use of certain approaches such as increasing the number of samples. In addition, future researchers can also consider some banking regulations such as minimum obligatory rates for small/medium enterprise financing. They may also include a dummy of crisis to get more robust results.

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