DISCUSSION PAPER SERIES

The Effect of Partnership on Access to External Finance: The Case of Micro Enterprises in Indonesia

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Abstract

Using unique data on the amount of money held by the Indonesian three largest banks in each district and firm-level data of Indonesian micro enterprises in 2013 and 2014, we examine effects of four types of partnership with a private company, NPO/NGO, bank, and the government on access to finance of micro enterprises. Previous studies consider social capital as unofficial connection with other organizations. However, we newly examine an effect of official contracts as partnership and contribute to the literature by investigating many types of partnerships which have never considered and considering effect of supplier's side by utilizing data on bank's money in our estimation. It is found that firms with partnership with NPO/NGO are more likely to obtain loaned money as well as that with a bank. However, indicators of firms' performance and ability, such as ROA, entrepreneurs' education, and firms' size are statistically insignificant for loan approval. In addition, the amount of banks' money does not have statistically significant effect on loan approval. Therefore, it becomes explicit that Indonesian banks cannot effectively allocate loans to private sector because of corruption between specific private companies and public institutions and a simple policy like increasing money holdings of banks has no effect on distributing corporate loans to enterprises.

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1 Introduction

Recently, the huge amount of research on non-agricultural sector's problem has been conducted, especially which is related to credit constraints, infrastructure, informal sectors, and the low level of entrepreneurship. On the other hand, it has been showed that in the low- and middle-income countries, the growth of their MSEs is an important factor to improve country's productivity and achieve economic development (Akoten et al., 2006; Ayyagri et al., 2011; Kuntchev et al., 2013; Mead & Liedholm, 1998).

Despite such importance of MSEs, they are facing several kinds of obstructions which hinder their growth (Bass & Schrooten, 2006). Credit constraints, one of the obstacles, induce a low investment and at the end, it leads huge difference in profitability and growth rate between micro and large company (Ayyagari, 2006). Moreover, Ayyagari et al. (2008) prove that credit constraints have the strongest negative impact on MSEs' growth compared with other sorts of obstacles, such as a lack of infrastructure, inefficient restriction or taxation system, political corruption or characteristics. Hence, it is significant assignment for future to engage in research on factors of MSEs' credit constraints alleviation.

These interferences have been come up because of information asymmetry among enterprises and finance institutions, then they block firms' growth, and at the end impair countries economic growth (Wang, 2016). To tackle this problem, it is said that MSEs create long-run business relationship or business network with other enterprises or financial institutions to make banks easy to access to their information (Baas & Schrooten, 2006). Nichter and Goldmark (2009) also prove that a network between companies, as well as between company and a bank, has a positive effect on growth of SMEs and this effect is not only found in developed countries but also developing countries.

In this recent trend, many researchers have found relationship between social capital and access to external funds for reinforcement of MSEs' performance. For example, Biggs and Shah (2006) show that it is one of the most important factors for MSEs in developing countries to participate in social network and entrepreneurs of MSEs which normally have several problems mentioned above need to obtain social network in order to acquire business opportunity. Joining in business network can be one of the tools to share information on previous and current enterprises' business performance or reputations, and consequently it can reduce information asymmetry between firms and banks. It also has been found that entrepreneurs who have more relatives working in the same sector or have their wife, which widely mean those who have more social capital, have more advantage of an access to credit and their firms are more productive than others (Akoten et al., 2006), and social network is of importance to obtain access to credit, managerial advice, knowhow, and connection (Hampel-Milagrosa et al., 2015). Additionally, Pham and Talavera (2018) have acknowledged that relationship with government officials and other entrepreneurs have a great role in obtaining a better condition of a loan because bankers utilize their own social capital to gather information about loan applicants as their screening process. Finally, as our most related previous study, there is Fu et al. (2017), which finds that firms which have political connections tend to be approved their loan application from state-owned banks. Moreover, it states that "The improvement in access to finance from political connections is more prominent for SMEs than for large firms."

However, these previous research considered only firm's connection with bankers and government officials as an external relationship. Hence, it does not examine a possibility that connections with other types of organizations influence an access to

finance empirically and does not also consider official contract with other organizations, such as partnership. Therefore, this study considers partnership with a private company, NPO/NGO, bank, and the government which have never been considered because it is showed that bankers utilize their connection, which is not exclusively public partnership, to fully evaluate loan applicants (Pham & Talavera, 2018; Nichter & Goldmark, 2009). Hence, it is one of our contributions to newly consider partnership with a private company and NPO/NGO in our estimation.

Finally, it is one of the most important points in this study that we uniquely consider the impact of suppliers' (banks') holding amount of cash on success of loan application. This aspect has never been considered in empirical estimation in this type of economics research because of limitation of data on financial sector structure. Therefore, this point is also our significant contribution to previous research.

This paper proceeds as followings: Transfers and current condition of Indonesian economy, current situation of Indonesian MSMEs and financial system, and policies for their credit constraints in Section 2. Section 3 introduces the economic model referred for building empirical equations. Section 4 presents data descriptions and econometric model. Section 5 shows our findings on factors of success in loan application in Indonesia. Conclusion, policy implication, and limitation of this paper is introduced in Section 6.

2 Situation of Indonesian Micro Enterprises

2.1 Economy in Indonesia

OECD (2018a) advocates that Indonesia is the largest economy in Southeast Asia and rich in all kinds of natural resources as well as cultural diversity. It is a young and dynamic democracy, which is urbanizing and modernizing dramatically. Compared with most OECD countries and many emerging economies, around half of the population is under 30 years old, and the working-age population ratio is anticipated to rise during the next decade. Two decades after the 1998 Asian Financial Crisis, and one decade after the Global Financial Crisis, Indonesian living standards are far higher than before (OECD, 2018a). GDP per capita has risen by 70% during the past two decades (see Figure 1). Moreover, GDP growth has remained around 5% and per capita income has increased by almost 4% annually. Therefore, it can be notified that macroeconomic condition in Indonesia is enough healthy.

Figure 1: Transfer of Indonesian GDP per capita
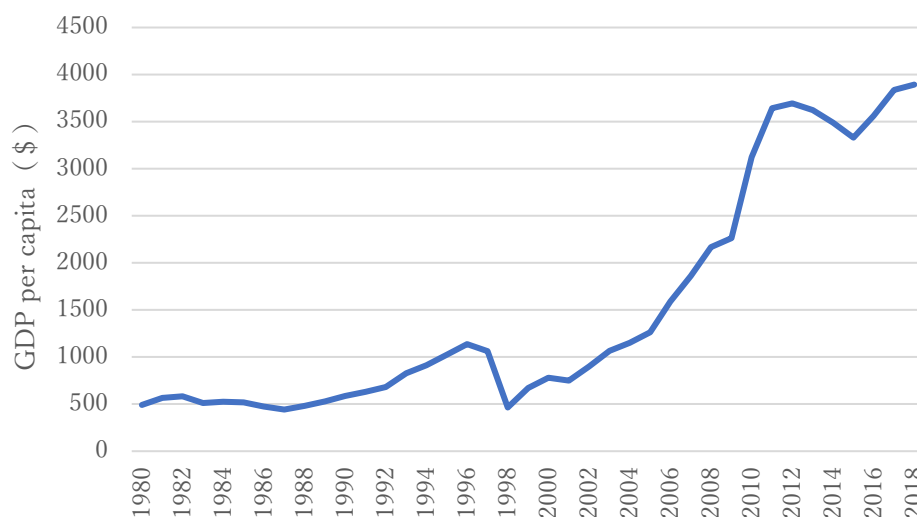
Source："World Bank national accounts data, and OECD National Accounts data files"

2.2 SMEs in Indonesia

In Indonesia, there are 57 million micro, small, and medium-sized firms, which account for almost all employment in Indonesia (97.2 percent), but accounts for just about 56.7 percent of Gross Domestic Product as a whole (World Bank, 2017). Moreover, the growth rate of Indonesian MSEs is overwhelmingly slow or even going backward compared with countries which have the same level of income and Asian countries which is located close to Indonesia (see Figure2).

Figure 2: Comparison of Employment growth and real sales (% of annual)
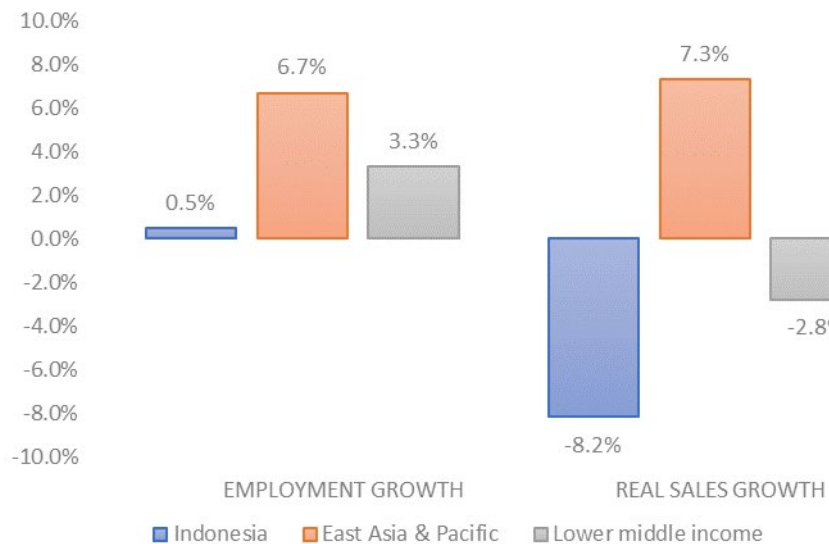
Source：World Bank "Indonesia Country Profile 2015."

Figure 3: Comparison of source of fund to purchase fixed asset (% of investment)

In addition, the percentage of loaned money in an enterprise's sources of financing for purchases of fixed asset is only 13% (see Figure 3), which is not too low compared with East Asia & Pacific and Lower middle-income countries, but this rate is not enough for Indonesia to grow up furthermore.

Figure 4: Rate of enterprises using financial service by its size (% of firms)

Looking at the ratio of financial services used by Indonesian SMEs by company size, while 96% of large-scale companies use bank accounts, 73% of medium-sized companies use it (see Figure 4). However, only just over half of small- scale companies use it. Regarding the use of bank loans, only 56% of large-scale companies use it, 32% for medium-sized companies and 25% for small-sized companies, which are overwhelmingly low compared to using rate of bank accounts. This suggests that small businesses, especially in Indonesia, are lack of access to credit. Although not directly shown in this data, it can be inferred from the fact that the utilization rate tends to be lower as the company size becomes smaller, so that it can be assumeed how small the utilization rate of micro enterprises in Indonesia is from this trend.

In addition, OECD (2018b) reports that, while Indonesian MSMEs are characterized by the fact that many companies own current assets, financial institutions generally tend to ask borrowers for fixed assets as collateral. This is due to the uncertain legal status of MSMEs and the information asymmetry between financial institutions and them. In addition, Fiducia, the official moveable asset mortgage registry, has 157 branch

offices in 33 regions, but lacks the standards for integration, technology, and tools, and is less transparent in managing these registries. In terms of the types of collateral that can be accepted, most of the liquid assets are concentrated on vehicles and heavy equipment. This is because banks have only the ability to evaluate specific current assets, the Asian currency crisis has negative impact on dealing with current assets as collateral, and many employees have little knowledge or experience in lending money with current assets. As a result, this registry does not play a role as a help boat for small businesses that do not own large amounts of fixed assets.

2.3 The Indonesian Financial System

The largest segment in Indonesian financial system is banking. As it is shown in Table 1, just over three-quarters of assets in financial sector has been dominated by banks over about 10 years. We can also immediately see that other financial institutions occupied less than a quarter, which means when looking at credit or financial access to Indonesian MSEs, it is necessary to mainly consider banks as an institution who has a significant power to lend loaned money to private companies. Besides, the ratio of financing to private sector between Bank and Non-bank has not been nearly changed from 2012 to today. Between 2010 and 2014, between 68% and 78% of private sector financing was provided by the banking sector (Volz, 2015).

Table 1: Bank and Non-bank institutions assets to financial sector assets [3]

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bank	76.4%	77.1%	76.6%	76.6%	75.7%	77.3%	77.7%	77.3%	77.0%
Non-bank	23.6%	22.9%	23.4%	23.4%	24.3%	22.7%	22.3%	22.7%	23.0%

Source: Indonesia Financial System Statistics Period April 2020

Table 2: Bank industry operations, 2012- 2018

	2012	2013	2014	2015	2016	2017	2018
Total asset (in bn IDR)							
Commercial banks	4,262,587	4,954,467	5,615,150	6,095,908	6,729,799	7,387,643	7,964,605
Rural banks	67,397	77,374	89,878	101,713	113,501	125,945	135,570
Total banks							
Commercial banks	120	120	119	118	116	115	115
Rural banks	1,669	1,653	1,653	1,636	1,633	1,619	1,593
Total bank offices							
Commercial banks	14,797	16,625	18,558	32,949	32,730	32,376	31,609
Rural banks	4,425	4,678	4,895	5,982	6,075	6,192	6,014

Source: Indonesia Banking Statistics December 2015 and February 2020

The banking institutions in Indonesia mainly has two types, which are 115 commercial banks and 1593 rural banks in 2018, and they are owned by regional governments (see Table 2). Commercial banks include the four state-owned banks, Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI), Bank Tabungan Negara (BTN), and Bank Mandiri, which hold approximately a third of all earning assets in the whole banking sector, 35 foreign exchange banks, 30 non-foreign exchange banks, 26 regional development banks (Bank Pembangunan Daerah, BPDs), 14 joint venture banks, and 10 foreign-owned banks. 11 of the commercial banks are Islamic banks in 2015 (Volz, 2015).

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3 The number in 2020 represents January 2020.

Although it has two tiers in banking sector, rural banks dominate only 2% of total assets of this sector.

Finally, the percentage of domestic credit to private sector is substantially low and, compared with other east Asian and pacific countries' average, we can immediately know how weak Indonesia's banking system is in terms of lending loaned money to private companies (see Figure 5). It is far lower than neighboring emerging countries, such as Vietnam, Malaysia, Thailand, Singapore, whose percentage are 142, 144, 124, and 137%, respectively.

Figure 5: Domestic credit to private sector in 2018 (% of GDP)
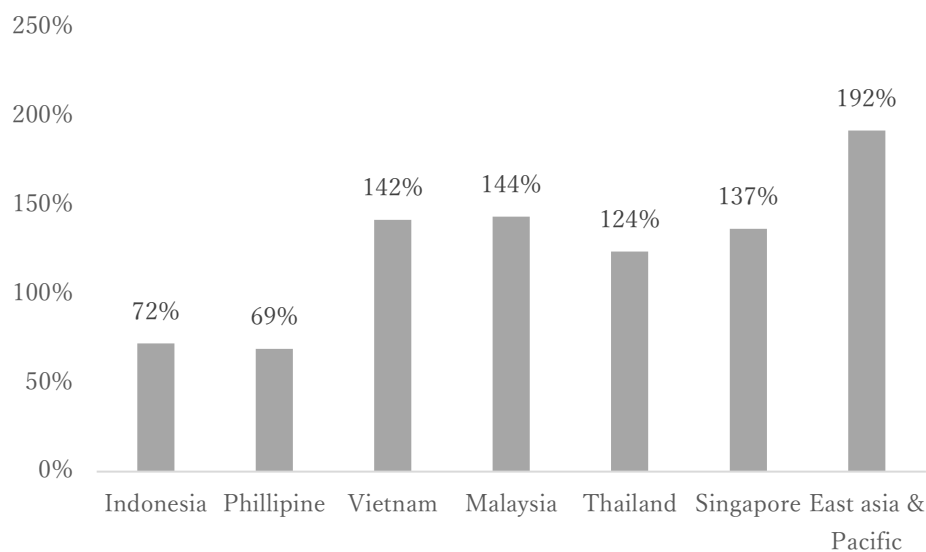
Source: World Development Indicators for 2018

2.4 Previous Policies for Credit Constraints in Indonesia

In this subsection I explain details and effects of 3 policies implemented for credit constraints in Indonesia and then discuss how it was effective or not even enough, referring OECD (2018a) and OECD (2018b) statement.

In 2012, the World Bank Group, in partnership with Switzerland and Japan,

engaged with the Government of Indonesia to improve access to finance for the small-scale sector by enabling the use of current collateral for formal lending. The use of current collateral, such as vehicles, machinery, equipment, inventory, or livestock, makes it possible for enterprises and individuals who lack fixed collateral, such as land and property, to access finance. It also supports the growth of the financial sector, as it promotes portfolio diversification.

The use of current collateral requires a legislative framework for secured transactions and the establishment of a collateral registry. The World Bank Group's secured transactions specialists have helped set up such secured transactions regimes in 25 countries around the world as of August 2016, helping to increase access to finance to boost inclusive economic growth and shared prosperity. The registry has facilitated over $30 billion in financing for more than 200,000 small-scale businesses. In total, there were 19.3 million registrations of corporates, SMEs, micro-businesses, and consumers in the three years since the launch, compared to only three million registrations in total during the ten years of operation of the manual registration system that preceded it.

Kredit Usaha Rakyat (KUR) is the largest SME program in Indonesia by government's budget. It is a microcredit program which combines a loan guarantee with an interest rate subsidy that allows banks to lend to SMEs at a capped interest rate. The KUR Program has succeeded in increasing the credit flow to SMEs and is contributing to poverty alleviation and social inclusion through economic activity. However, there are also some concerns surrounding its high opportunity cost (i.e., some of the resources committed to this single large program could be spent on other policy initiatives), the sustainability of the initiative (i.e., the cost has increased by ten times since the interest rate subsidy was added to the loan guarantee in 2015), the possible crowding out of

unsubsidized lending, and potential misuse of program backed loans. Therefore, the possibility to sustain is a biggest problem for this program.

There are also smaller-scale programs which promote access to credit for SMEs and entrepreneurs. The Ministry of Finance has recently launched a microcredit program for firms that are too small to qualify for the KUR Program. Although the agency has five local branch offices, loan decisions are centralized at the headquarters in Jakarta, which is likely to contribute to an over representation of the island of Java in the distribution of loans.

The Beginner Entrepreneur Program provides loans for new entrepreneurs. This program has experienced significant budget fluctuations over the years but has only reached an annual average of 2000 beneficiaries.

As described above, although many types of credit program have been implemented in Indonesia and one of them has succeeded, they could not change the situation in a large extent that there are few enterprises which can obtain a bank loan, which is showed in our data we introduce in Section 4 as well as World Bank (2015). And it reveals that many credit constraints problems are still existing as a severe problem in Indonesia.

3 Theoretical Model

In this paper, we do not employ the normal credit constraints model which assumes perfectly competitive credit markets but a model which consider imperfectly credit markets because it is necessary to consider developing economies market condition, which is usually imperfect in this research. Therefore, this study employs a credit constraints model used in Bigsten et al. (2003) and it is introduced below following their

paper.

They do not take the same route as a standard neoclassical investment model which does not consider whether a situation of credit constrained is due to failure to join the credit market or problems of credit market functioning. They construct a model which shows the firms' demand for external funds and can assess the decision criteria of financial institutions to approve firms' loan applications. This model is created by two stages. In first stage, a firm decides whether it wants to receive external funds and then, in second stage, they consider whether the firm can be met its demand for external funds by financial institutions.

They suggest how to interpret it for empirical analysis to identify the factors which effect on the firms' demand of external fund or the allocations of credits to firms. In imperfect credit market, firms may prefer external funds to internal funds, they may not be approved their application to external funds notwithstanding. This is because they think their amount of collateral is not enough to be approved or transaction cost related to loan application, such as time to wait for a result of their application and money for application etc., are too costly. Bigsten et al. (2003) acknowledge that factors affecting current collateral include assets, outstanding debt, but also opportunities for collateral substitutes, such as ethnicity, networks, legal status, ownership structure, firm age, whether it keeps accounts, links with the financial sector, such as through bank accounts, overdrafts, financing for start-up, etc. Besides, as it is mentioned above, transaction cost is one important factor of firms' hesitation to apply for a loan, and it may be influenced by firms' characteristics which, of course, include firms' managers characteristics. Therefore, it is desired to consider firms that did not apply for some reasons although they did not prefer internal fund to external fund and also firms that applied for but were not

accepted as constrained firms, same as Akoten et al. (2006), Baas and Schrooten (2006), Bigsten et al. (2003), Cole and Sokolyk (2016), Hampel-Milagrosa et al. (2015), Pham and Talavera (2018), and Talavera et al. (2012).

This model also implies a useful suggestion on financial institutions side for empirical analysis. Financial sectors utilize their available information on firms for maximizing their profit from lending money (Pham & Talavera, 2018). However, there is serious information asymmetry between firms and financial sector, hence financial sector needs to use limited observable information to assess firms. In that case, social networks play an important role to spread firms' own information to do signaling to financial sectors as well as affect current collateral.

Using the factors and implication for an empirical model induced from this theoretical model, we will try to create econometric model to specify real factors affecting demand and application for external funds and its success in a next section.

4 Empirical Analysis

4.1 Data and Sample

To conduct this study, we use firm-level survey data from Survei Industri Mikro Dan Kecil 2013 and 2014, which was collected by Statistics Indonesia (BPS). In each year, the samples of Indonesian companies were collected with two stage sampling. In this study, "micro company" is defined as an enterprise employing less than 4 employees. This data originally has approximately 50,000 enterprises for each year, in total 100,000. However, we use only micro enterprises[4] and hence, drop enterprises which are not appropriate to our study and have missing information on any key variables. At the end, approximately 83,104 micro enterprises are kept. Table 3 below shows their descriptive statistics.

We also use district-level data on financial sector characteristics obtained from Bank Indonesia and Otoritas Jasa Keuangan (OJK), the country's central bank and financial regulatory authority. Concretely, they are on the amount of funds the three largest banks of each district[5] held in 2013 and 2014.

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[4] Definition of micro company in this study is a company with no more than 5 employees same as World Bank enterprise surveys in Indonesia.

[5] At the time of 2013, the number of districts in Indonesia was 491 in total, which includes 398 kabupaten and 93 kota.

Table 3: Definition of each variable

Variable	Definition
Demand	One if the firm demands a loan, zero otherwise
Apply	One if the firm applys for a loan, zero otherwise
Approved	One if the firm obtains at least one loan, zero otherwise
Sex	One if the entrepreneur is male, zero otherwise
Age	Entrepreneur's age (in year)
Education	Entrepreneur's academic background
Firm size	The number of employees in the firm
ln Firm age	Log(Firm's age (in year))
ROA	Firm's ROA in Rupiah
Export	One if the firm has export activity, zero otherwise
Private company	One if the firm has contract with a private company as partnership, zero otherwise
NPO/NGO	One if the firm has contract with a NGO/NPO as partnership, zero otherwise
Bank	One if the firm has contract with a bank as partnership, zero otherwise
Government	One if the firm has contract with the government as partnership, zero otherwise
Informal fund	One if the firm has already obtained personal fund or fund from family, zero otherwise
ln Bank money	Log(three largest Indonesian banks' holding cash in Rupiah+1)

＊Education is catrgorical variable which has 7 categories.
1: "Not graduated from elementary school", 2: "Elementary school, 3: "Junior high school",
4: "High school", 5: "Vocational or Junior college", 6: "Bachelor", and 7: "Master or Doctor".

Table 4: Descriptive statistics for whole sample

	Obs.	Mean	Std. Dev.	Min	Max
Demand	83104	0.466	0.499	0	1
Apply	83104	0.117	0.321	0	1
Approved	83104	0.107	0.309	0	1
Sex	83104	0.529	0.499	0	1
Age	83104	45.7	11.7	10	99
Education	83104	2.35	1.11	1	8
Firm size	83104	1.84	0.934	1	4
ln Firm age	83104	2.92	0.524	1.79	4.89
ROA	83104	181	5060	-78184	1204063
Export	83104	0.004	0.065	0	1
Private company	83104	0.02	0.141	0	1
NPO/NGO	83104	0.001	0.037	0	1
Bank	83104	0.003	0.053	0	1
Government	83104	0.003	0.052	0	1
Informal fund	83104	0.086	0.28	0	1
ln Bank money	83104	10.29	12.92	0	29.67

The characteristics of this sample is that, as showed in Table 4, the number of employees is no more than 5 people. Although about a half of the firms demanded a bank loan, only 11.7% of them applied for it and those who could obtain a loaned money was only 10.7%. Many enterprises answered to demand a bank loan, but more than half of them did not obtain it at the end. In short, they are under credit constraints. This situation is almost same as that of Baas and Schrooten (2006) and Ayyagari et al. (2008). The proportion of male managers to female ones is 1 to 1 and they are frequently seen around 45 years old. Furthermore, the level of education of them is completely low, for example 98.5% is less than level 4, which means less than high school standard, and few entrepreneurs enrolled in more than level 5, which means more than undergraduate level.

4.2 Econometric Model

In the empirical analysis, we investigate factors which influence firm's demand for loan, apply for external finance, and its acceptance. In theoretical model, two parts of decision-making are taken into consideration done by demander and supplier side. To follow this model, it is necessary to estimate in 3 steps. This 3-step way of estimation is significant and advantageous in econometric analysis matter because a sample selection bias is removed from results. First, it is about firm's credit demand, secondly firm's credit application, and thirdly bank's credit allocation.

Therefore, in this study, there are three empirical equations for each part of firm's decision making (Demand, Apply) and a bank's decision making (Approved) same as previous studies (i.e., Pham & Talavera, 2018; Cole & Sokolyk, 2016). First, whether a firm demands loaned money or not is estimated with a probit model because a dependent variable is binary.

$$Demand_{ijpt} = \alpha_0 + \alpha_1 Partnership_i + X_i \alpha_2 + D_j + D_p + D_t + u_{1ijpt} \qquad (1)$$

In the estimation (1), Demand is a binary variable which is defined to be equal to 1 if a firm i in industry j, province p, and year t demands loaned money for some reasons. $Partnership$[6] is a binary variable representing whether firm i have partnership, and we consider four different types of partnership with a private company, NGO/NPO, bank, and the government. X_i is a vector of characteristics of a firm and its entrepreneur. D_j, D_p, and D_t are defined as fixed effects of industry, province, and year, respectively. u_{1ijdt} is the error term.

The second part of our analyses focuses on whether a firm which demands a bank loan applies. In this part, because only the data of firms which demanded a bank loan is selected for the estimation, non-random sample selection bias may arise. To tackle with this problem, we need to employ a bivariate probit selection model to a following equation with selection equation. However, there is a technical problem to correctly specify this part of estimation by employing a bivariate probit selection model with some exclusion restrictions. This is because if we choose one variable for exclusion restriction which affects decision making of Demand but does not affect Apply, it may highly influence Approved. Therefore, we cannot simply specify such variables and it is not appropriate

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6 Partnership variables, such as Private company, NPO/NGO, Bank, and Government, are one of our important points. They are measured by a question which is asked whether firms have partnership with the four different types of organizations and answered with yes or no.

in this three-step structural estimation. Hence, probit model is simply employed for this

estimation.

$$Apply_{ijpt} = \beta_0 + \beta_1 Partnership_i + \beta_2 \ln Bank\ Money_d + X_i\beta_3$$
$$+\beta_4 Informal\ Fund_i + D_j + D_p + D_t + u_{2ijpt} \qquad (2)$$

In second stage Eqn. (2), Apply is defined 1 if a firm i in industry j, province p,

and year t applies for a loan. $\ln Bank\ Money$ represents natural logarithm of the total

amount of cash the Indonesian three largest banks in district d and year t holds. The

definition of $Partnership$, X_i, D_j, D_p, and D_t are same as estimation (1).

Finally, we focus on whether a firm which applies for a bank loan is approved by

a bank. In this estimation, the bank's screening process is represented which is considered

in the 2nd stage of the theoretical model. This part has sample selection problem that if

firms do not apply, they automatically obtain 0 in a question of loan approval. Hence, a

bivariate probit selection model is employed to a following equation with selection

equation:

$$Approved_{ijpt} = \theta_0 + \theta_1 Partnership_i + \theta_2 \ln Bank\ Money_d + X_i\theta_3$$
$$+D_j + D_p + D_t + u_{3ijpt} \qquad (3.1)$$
$$Apply_{ijpt} = \beta_0 + \beta_1 Partnership_i + \beta_2 \ln Bank\ Money_d + X_i\beta_3$$
$$+\beta_4 Informal\ Fund_i + D_j + D_p + D_t + u_{2ijpt} \qquad (3.2)$$

which is denoted as estimation (3.1) and (3.2).

In second stage Eqn. (3.1), Approved is defined 1 if a bank application of firm i in

industry j, province p, and year t is approved. The definition of $Partnership$, $\ln Bank\ Money$, D_j, D_p, and D_t are same as estimation (1). The Eqn. (3.2) is a selection equation for sample selection bias in the second stage estimation (3.1). $Informal\ Fund$ is a binary variable which is defined to be equal to 1 if a firm i in industry j, province p, and year t applies for informal loaned money from family and friends. Pham and Talavera (2018) discuss that if firms apply for informal loans which mostly represents a loan from family members or friends in their samples, they do not tend to apply for formal loans. In addition, it is an unobservable factor for banks in their decision making on formal loan applications. Hence, $Informal\ Fund$ in the equation (3.2) is used as an exclusion restriction, which can capture the same effect as their study. The definition of the terms in the Eqn. (3.2) other than $Informal\ Fund$ is same as the Eqn. (1).

As mentioned above, utilizing the banks' holding amount of cash in 2013 and 2014 in these estimations is significantly meaningful in terms of dramatically alleviating an omitted variable bias which must be emerged but was not considered because of data limitation in previous studies (e.g., Akoten et al., 2006; Baas & Schrooten, 2006; Bigsten et al., 2003; Cole & Sokolyk, 2016; Fu et al., 2017; Hampel-Milagrosa et al., 2015; Pham & Talavera, 2018; Talavera et al., 2012).

In the next subsection, the results of these three estimations, its robustness checks, and an interpretation of the results are given.

5 Effect of Partnership on an Access to Credit

5.1 Main Results

Table 5: Results of estimation of Demand

	Demand			
	(1)	(2)	(3)	(4)
○Partnership				
Private company	0.093***			
	(0.022)			
NPO/NGO		0.072		
		(0.063)		
Bank			0.453***	
			(0.064)	
Government				0.092***
				(0.023)
○Entrepreneur				
Sex	0.056**	0.056**	0.056**	0.056**
	(0.028)	(0.028)	(0.028)	(0.028)
Age	-0.002***	-0.002***	-0.002***	-0.002***
	(1.86e-04)	(1.87e-04)	(1.88e-04)	(1.86e-04)
Education	-0.003*	-0.003*	-0.003**	-0.003*
	(0.001)	(0.001)	(0.001)	(0.001)
○Firm				
Firm size	0.043***	0.044***	0.043***	0.044***
	(0.004)	(0.004)	(0.004)	(0.004)
ROA	-2.45e-09	-2.97e-10	-2.15e-08	5.53e-10
	(3.85e-07)	(3.84e-07)	(3.79e-07)	(3.83e-07)
ln Firm age	-0.009	-0.010	-0.009	-0.010
	(0.010)	(0.010)	(0.010)	(0.010)
Export	-0.018	-0.015	-0.014	-0.016
	(0.025)	(0.023)	(0.022)	(0.022)
Observations	83104	83104	83104	83104
Pesudo R-sq.	0.037	0.037	0.038	0.037
Province FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Ownership structure FE	Yes	Yes	Yes	Yes
Log-likelihood	-55274.251	-55302.319	-55231.215	-55299.73

Note: (ⅰ)This table presents regressions' results from the probit model. (ⅱ)The dependent variable is Demand, which equals zero if a firm applies for a loan. (ⅲ)*,**,and*** denote significance at 10%, 5%,and 1%, respectively. (ⅳ)Numbers in parentheses are clustered robust standard errors at the industry level. (ⅴ)Each column reports the marginal effects and clustered robust standard errors for each variable. (ⅵ)Additional regressors include year dummy, dummy variables on each province, industry sector dummy variables, and ownership structure dummy variables, such as limited liability, limited pretnership, cooperative, sole proprietership, and goverment permitted. Coefficient estimates on these variables have been dropped for brevity.

Table 6: Results of estimation of Apply

	Apply			
	(1)	(2)	(3)	(4)
〇Partnership				
Private company	0.033***			
	(0.009)			
NPO/NGO		0.022		
		(0.019)		
Bank			0.341***	
			(0.051)	
Government				0.060***
				(0.014)
〇Entrepreneur				
Sex	0.027***	0.027***	0.025***	0.027***
	(0.007)	(0.007)	(0.007)	(0.007)
Age	-2.63e-04***	-2.68e-04***	-2.72e-04***	-2.72e-04***
	(1.02e-04)	(1.01e-04)	(1.05e-04)	(1.01e-04)
Education	0.012***	0.013***	0.012***	0.012***
	(0.002)	(0.002)	(0.002)	(0.002)
〇Firm				
Firm size	0.037***	0.037***	0.036***	0.037***
	(0.003)	(0.003)	(0.003)	(0.003)
ROA	9.41e-08	9.54e-08	5.71e-08	9.64e-08
	(1.27e-07)	(1.28e-07)	(1.28e-07)	(1.28e-07)
ln Firm age	-0.006	-0.007	-0.006	-0.007
	(0.004)	(0.004)	(0.004)	(0.004)
Export	0.035	0.036	0.036*	0.035
	(0.022)	(0.022)	(0.020)	(0.021)
Informal fund	-0.064***	-0.064***	-0.063***	-0.064***
	(0.016)	(0.016)	(0.016)	(0.016)
〇Bank				
ln Bank money	-1.58e-04	-1.70e-04	-1.49e-04	-1.69e-04
	(1.24e-04)	(1.24e-04)	(1.35e-04)	(1.24e-04)
Observations	83104	83104	83104	83104
Pesudo R-sq.	0.141	0.141	0.149	0.141
Province FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Ownership structure FE	Yes	Yes	Yes	Yes
Log-likelihood	-25768.453	-25780.783	-25528.231	-25773.789

Note: (ⅰ)This table presents regressions' results with sample salection. (ⅱ)We employ probit estimation for regressions of Apply. (ⅲ)*,**,and*** denote significance at 10%, 5%,and 1%, respectively. (ⅳ)Numbers in parentheses are clustered robust standard errors at the industry level. (ⅴ)Each column reports the marginal effects and clustered robust standard errors for each variable. (ⅵ)Additional regressors include year dummy, dummy variables on each province, industry sector dummy variables, and ownership structure dummy variables, such as limited liability, limited pretnership, cooperative, sole proprietership, and goverment permitted. Coefficient estimates on these variables have been dropped for brevity.

Table 7: Results of estimation of Approved

	Approved			
	(1)	(2)	(3)	(4)
○Partnership				
Private company	-0.006			
	(0.006)			
NPO/NGO		0.271***		
		(0.101)		
Bank			0.267***	
			(0.087)	
Government				0.014
				(0.018)
○Entrepreneur				
Sex	0.008	0.008	0.008	0.008
	(0.006)	(0.007)	(0.006)	(0.006)
Age	-1.77e-04	-1.75e-04	-1.77e-04	-1.77e-04
	(1.43e-04)	(1.43e-04)	(1.47e-04)	(1.46e-04)
Education	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
○Firm				
Firm size	6.62e-05	1.07e-04	1.27e-06	1.78e-04
	(0.002)	(0.002)	(0.002)	(0.002)
ROA	-1.59e-07	-1.57e-07	-2.65e-07	-1.57e-07
	(2.40e-07)	(2.37e-07)	(2.97e-07)	(2.35e-07)
ln Firm age	-0.003**	-0.003**	-0.003**	-0.003*
	(0.001)	(0.002)	(0.001)	(0.001)
Export	-0.006	-0.005	-0.006	-0.006
	(0.014)	(0.013)	(0.014)	(0.013)
○Bank				
ln Bank money	-1.22e-04	-1.18e-04	-1.22e-04	-1.17e-04
	(1.14e-04)	(1.13e-04)	(1.20e-04)	(1.13e-04)
Observations	83104	83104	83104	83104
Selected observations	9725	9725	9725	9725
χ_2 test	12.02	10.84	12.62	10.83
P-value of χ_2 test	0.001	0.001	0.000	0.001
Province FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Ownership structure FE	Yes	Yes	Yes	Yes
Log-likelihood	-28087.77	-28098.48	-27829.17	-28091.98

Note: (ⅰ)This table presents regressions' results with sample salection. (ⅱ)We employ Heckprobit estimation for regressions of Approved, and their sample equations are regressions of Apply. (ⅲ)*,**,and*** denote significance at 10%, 5%,and 1%, respectively. (ⅳ)Numbers in parentheses are clustered robust standard errors at the industry level. (ⅴ)Each column reports the marginal effects and clustered robust standard errors for each variable. (ⅵ)Additional regressors include year dummy, dummy variables on each province, industry sector dummy variables, and ownership structure dummy variables, such as limited liability, limited pretnership, cooperative, sole proprietership, and goverment permitted. Coefficient estimates on these variables have been dropped for brevity. (ⅶ)The χ_2 test is a Wald test of independence between estimations in two stages under the null hypothesis that $\rho=0$.

Table 5, 6, and 7 report the three estimations' results. Table 5 shows the marginal effects estimated around mean points for differences in loan demand (estimation (1)). Table 6 shows the marginal effects estimated around mean points for differences in loan application (estimation (2)). Table 7 shows the marginal effects estimated around mean points for differences in outcome of loan application (estimation (3.1) and (3.2)).

In Table 6, we find significant differences in education, which means that entrepreneurs who are more educated have a higher probability of applying for loans than those who less educated. We also find the opposite trend about education in loan demand in Table 5.

In Table 5 and 6, all types of partnership other than that with NPO/NGO are less than 1% significant. It is implied that if enterprises have partnership with the organizations, they are likely to determine to demand and apply for a bank loan.

Regarding the differences in loan approvals in Table 7, only partnership with NPO/NGO and a bank are statistically significant. The effect of the other types of partnership has gone when decision making is turned to Approved from Apply. It is summarized as follows that having official partnership with NPO/NGO and a bank are significant factors for micro enterprises to obtain a bank loan.

When focusing on the marginal effects, both types of partnership have a significant impact on loan approval. This is because when comparing with mean of dependent variable, 0.107, their marginal effects are significantly large, 0.271 and 0.267, respectively. Hence, the effect of these partnership is outstanding to alleviate lack of access to loan. It is reasonable to understand the results because bank officials can utilize information on private firms which can obtain from banks' direct partnership history with them. In addition, there is a possibility that NGO/NPO may be likely to support private

companies for their access to credit although such behavior cannot be precisely proved from our data. Nichter and Goldmark (2009) and Pham and Talavera (2018) discuss that bankers utilize their connections to correctly evaluate loan applicants, which is not exclusively partnership with public institutions, and it is proved that partnership with NPO/NGO is a significant factor to obtain a bank loan as well as that with a bank.

The factors which indicate firms' ability and performance level, such as ROA, entrepreneurs' education, and firms' size are statistically insignificant for loan approval. Therefore, it can be concluded that management training or other intervention which aim to improve firm's performance may not have a significant effect on improvement in terms of their access to credit to invest firms' development, which is one of the most important factors for the development (Ayyagari, 2006; Ayyagari et al., 2008).

Finally, it is interesting to note that there is no statistically significant effect of amount of money banks hold on loan approvals and additionally, its marginal effect is negative. It means that even if banks have enough funds or the government place cash in banks in order to enhance liquidity as a policy, there is little possibility that firms can obtain enough money to invest for their growth.

These results are coincident with actual condition of Indonesia. There is a corruption between public institution and a private company. Therefore, if firms have no partnership with a bank and NPO/NGO, they have much less possibility to obtain a bank loan even if their performance is fare well or prosperous. Therefore, it can be concluded that Indonesian banks cannot effectively lend loans to a private sector and it results in the much lower lending rate compared with other countries as illustrated in Figure 5, and private companies cannot easily invest in input with loaned money to develop much further because of firms which corrupt with public institutions. However, there is still

possibility that firms can obtain external funds if they have a partnership with NPO/NGO. Thus, it is necessary to focus on how firms can receive or obtain partnership with NGO/NPO because it can be enormously difficult for micro companies which have never had any relationships with a bank to make a relationship with them from scratch. In this respect, our results are important for a future policy for micro companies.

To develop MSEs in Indonesia, it is ideally thought that they need to solve a problem of the corruption between specific firms and public institutions which is usually seen in developing countries. Moreover, Indonesian financial institution should carry on the policy to expand a value of current collaterals for loan application to effectively lend loans to micro private companies which have less fixed asset.

5.2 Robustness Check

Table 8: Robustness check of estimation of Approved

	Approved							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
○Partnership								
Private company	-0.006	-0.001	-0.005	-0.003	-0.003	-4.33e-04	2.38e-05	0.001
	(0.006)	(0.003)	(0.007)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
NPO/NGO	0.271***	0.171***	0.329***	0.139***	0.135***	0.153***	0.189***	0.170***
	(0.101)	(0.048)	(0.104)	(0.009)	(0.010)	(0.031)	(0.074)	(0.039)
Bank	0.267***	0.159***	0.301***	0.115***	0.109***	0.126***	0.173***	0.144***
	(0.087)	(0.042)	(0.090)	(0.007)	(0.007)	-0.027	(0.067)	-0.033
Government	0.014	0.005	0.018	0.003	0.003	0.003	0.007	0.004
	(0.018)	(0.009)	(0.020)	(0.006)	(0.006)	(0.008)	(0.012)	(0.008)
○Bank								
ln Bank money	-1.22e-04	-1.19e-04**	-1.34e-04	-3.56e-05	-2.54e-05	-8.89e-05***	-1.31e-04*	-9.37e-05**
	(1.14e-04)	(5.71e-05)	(1.39e-04)	(3.02e-05)	(3.07e-05)	(3.16e-05)	(7.71e-05)	(3.99e-05)
Observations	83104	83104	83104	83104	83104	83104	83104	83104
Selected observations	9725	9725	9725	9725	9725	9725	9725	9725
χ₂ test	12.02	5.41	15.99	12.30	12.95	9.23	4.79	13.73
P-value ofχ₂ test	0.001	0.023	0.000	0.001	0.000	0.002	0.003	0.000
Province FE	Yes	No	Yes	Yes	Yes	No	No	No
Industry FE	Yes	Yes	No	Yes	No	Yes	No	No
Year FE	Yes	Yes	Yes	No	No	No	Yes	No
Log-likelihood	-28087.77	-28300.81	-27986.52	-30261.58	-30485.34	-30748.89	-28497.32	-30982.73

Note: (ⅰ)This table presents regressions' results with sample salection. (ⅱ)We employ Heckprobit estimation for regressions of Approved, and their sample equations are regressions of Apply. (ⅲ)*,**,and*** denote significance at 10%, 5%,and 1%, respectively. (ⅳ)Numbers in parentheses are clustered robust standard errors at the industry level. (ⅴ)Each column reports the marginal effects and clustered robust standard errors for each variable. (ⅵ)Additional regressors include year dummy, dummy variables on each province, industry sector dummy variables, and ownership structure dummy variables, such as limited liability, limited pretnership, cooperative, sole proprietership, and goverment permitted. Coefficient estimates on these variables have been dropped for brevity. In addition,Coefficient estimates on all variables other than partnerships and Bank money also have been dropped because of comparison purpose of main results. (ⅶ)The χ₂ test is a Wald test of independence between estimations in two stages under the null hypothesis that ρ=0.

To check the robustness of our main results shown in Table 7, we estimated the estimation of Approved with different sets of fixed effect variables from Table 7 in order to check coefficient stability. Column (1) of Table 8 repeats our main results reported in Table 7 for the comparison purpose.

Comparing columns from (1) to (8) of Table 8, it is found that the significances of the coefficient estimate on all partnership variables are unchanged. Besides, the value of the coefficients on all partnership variables slightly gets larger or smaller as we include

or exclude province, industry, and year dummy variables in all possible ways. However, they are not essentially changed. Hence, stable, robust results are obtained.

Regarding $\ln Bank\ Money$, the values of the coefficient estimate are changed, and statistical significances are also substantially changed. However, because $\ln Bank\ Money$ is district-level data, it is only natural that its statistical significance and value of coefficient estimate largely changed as province fixed effect is excluded. Therefore, it can be stated that robust results are obtained when considering only Column (3), (4), and (5) of Table 8.

6 Conclusion

We investigated an answer for the question that firm's official partnership has an effect to mitigate micro companies credit constrained and to what extent this factor is significant in Indonesia. To investigate that, the effect of four types of partnership on relaxation of credit constraints was estimated with the data of Indonesian micro companies collected in 2013 and 2014.

As a result of it, it is proved that partnership with NGO/NPO and a bank have a significant positive effect on relaxation of micro companies' credit constraints. When we focus on an effect of firms' ROA, size, and entrepreneurs' education, they have no statistically significant effect on loan approval. Moreover, our hypothesis that the more banks hold money, the more possibility there is that firms' loan applications can be approved is not verified. Therefore, it implies that a policy for high liquidity, such as simply flow money to banks cannot solve this credit constraints problem in Indonesia.

From these results, it is necessary to focus on how firms can receive or obtain partnership with NGO/NPO because it can be enormously difficult for micro companies which have never had any relationships with a bank to make a relationship with them from scratch. Therefore, our result that there is enough effect of partnership with NGO/NPO for micro companies on obtaining a loaned money is invaluable for their future and future policy making.

As limitations of this study, we could not use this two-year data as panel data but used it as pooled cross section data. However, we considered an economic feature considering year fixed effect and considered regional feature using province fixed effect. Hence, there is no significant influence on our result. Furthermore, four types of partnership can simply capture whether a firm has a connection or not. Therefore, we

cannot know who the firm has the connection with from the data. Hence, there is a future possibility that we connect the partnership data with GPS and estimate with spatial econometrics ways.

However, it is hugely significant and beneficial for Indonesian future policy that estimating effects of such official partnership on alleviation of firms' credit constraints using the data of banks' holding cash for eliminating a bias emerged from removing the supplier side.

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