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Lending Relationship in the Traditional Credit Market — Implications for Credit Risk Management Strategy in Micro Credit Institutions

Embun Suryani[*,‡], Hermanto[*,§], Siti Aisyah Hidayati[*,¶], I Nyoman Nugraha Ardana Putra[*,‖] and Donny Oktavian Syah[†,**]

[*]*University of Mataram, Kota Mataram, Indonesia*

[†]*Politeknik LP3I Jakarta, Jakarta, Indonesia*
[‡]*embunsuryani@unram.ac.id*
[§]*hermanto2307@gmail.com*
[¶]*sitiaisyahhidayati@unram.ac.id*
[‖]*nyoman.nugraha@unram.ac.id*
[**]*oktaviansyah@gmail.com*

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Asymmetric information increases the credit rationing of micro-enterprises. Lender–borrower relationships help to provide this information, thereby increasing the availability of loans. This study aims to investigate the relationship between micro-lenders and micro clients. It is accomplished by describing how such relationships are developed, and analyzing these relationships' impact on the availability and credit term using multivariate regression. The results showed that the strength of lender–borrower relationships positively impacted credit access, but it did not significantly impact the credit term. Furthermore, the amount of income and loan purpose, as the proxies of business characteristics, negatively impacted credit access. These results highlight the critical role of the lender–borrower relationship and business characteristics in the risk management strategy and the sustainability of microfinance institutions.

Keywords: Asymmetric information; relationship intensity; loan access; interest rate; microfinance; micro borrower.

JEL Classifications: G21, G23, G40

1. Introduction

Small and Medium Enterprises (SMEs) have been proven to significantly increase a country's economic performance due to their capability in creating jobs and the ability to survive during a financial crisis (Etuk *et al.*, 2014; Tatiana and İlyas, 2012; Abor and Quartey, 2010). In developing countries such as Indonesia, SMEs that are mainly categorized as an informal sector multiply and contribute to job creation. The Indonesian Ministry of Cooperatives and Small and Medium Enterprises or *Kementerian Koperasi dan Usaha Kecil dan Menengah* (KKUKM) recorded that in 2018, there were 64.2 million SMEs — equivalent to 99.99% of all businesses in Indonesia, which contribute to 61.07% of the country's Gross Domestic Product (GDP) (KKUKM, 2020).

However, one of the main challenges to the growth of SMEs in developing nations is a lack of access to the credit market (Quartey *et al.*, 2017; Ferrando *et al.*, 2015; Gerlach-Kristen *et al.*, 2015; Huang *et al.*, 2014; Oncioiu, 2012; Abor and Quartey, 2010). Research shows that SMEs face more obstacles in accessing loans than large businesses due to their relative opaqueness and scarce assets that can be used as collateral (Saadani *et al.*, 2011; Beck and Demirguc-Kunt, 2006; Cull *et al.*, 2007). The Indonesian Central Bank (*Bank Indonesia*) reported that only 19.85% of loan aggregate from the national and private banks in Indonesia were allocated to Micro, Small, and Medium Enterprises (MSMEs) (Bank Indonesia, 2019).

Consequently, various microfinance institutions (MFIs) in the traditional credit market, such as cooperation, informal moneylenders, loan brokers, and informal credit unions, play a critical role in assisting SMEs to start up. Previous studies have shown that MFIs play a crucial role in helping to bridge the financing gap faced by SMEs, thereby positively influencing their development (Taiwo *et al.*, 2016; Quaye *et al.*, 2014; Anane *et al.*, 2013; Glisovic and Martinez, 2012; Vetrivel and Kumarmangalam, 2010). This role takes advantage of business opportunities in developing economies. In Indonesia, most SMEs increase their capital by borrowing from non-bank institutions or non-formal financial sources such as savings and loan cooperatives, personal contacts including relatives, venture capital, and other sources (Suryani, 2018).

Asymmetric information problems between lenders and borrowers which leads to adverse selection and moral hazards are the crucial reason for credit rationing faced by SMEs, especially in developing countries (Kirschenmann, 2015; Huang *et al.*, 2014; Karapetyan and Stacescu, 2014; Sengupta, 2014; Caneghem and Campenhout, 2012; Behr *et al.*, 2011; Bellucci *et al.*, 2010; Yifu and Xifang, 2006). SME owners are unable to provide written information about the state of their business, and as a result, Financial Institutions (FIs) struggle to assess their creditworthiness (Suryani, 2018; Sengupta, 2014; Lehmann and Neuberger, 2001). Consequently, FIs which overcome the information problem in financing SMEs have to gather "soft information" about the potential borrowers (Cole, 1998; Berger and Udell, 2002; Ono and Uesugi, 2009; Ono *et al.*, 2013). As the literature shows, informal financial transactions generally occur between agents having close relationships and are well informed with each other. Therefore, informal financial lenders usually utilize local personal information and implement the contracts effectively through reputation and group responsibility.

The relationship and frequent interactions between the small customers and the MFIs may overcome the lack of assets and sufficient information on the creditworthiness of the small borrowers (Kirschenmann, 2015; Behr *et al.*, 2011; Bellucci *et al.*, 2010). Some previous studies conclude that a strong relationship between small borrowers and the MFIs increased credit accessibility for such borrowers (Ono *et al.*, 2013; Cole, 1998; Petersen and Rajan, 1994b). Both micro-lenders and micro borrowers may benefit from extended and more intense relationships between them. The micro-lenders proceed with some benefits of the reduced information asymmetry, and consequently, they feel more secure to provide loans for borrowers. This relationship is

also significant in determining the willingness of small borrowers to pay back loans (Suryani, 2018). Due to this relationship, access to credit and better loan conditions are improved for micro borrowers. However, a study focusing on the impacts of the lender–borrower relationship on small borrowers' behavior remains inconclusive, and it has not been empirically analyzed for micro-lending.

Therefore, to fill this knowledge gap, this study investigates how relationships between micro borrowers and micro-lenders are created, and the extent to which these relationships impact credit accessibility and loan conditions for the small borrowers. Micro-enterprises in villages were surveyed in Lombok, Indonesia, where the local micro-lender is situated. A local MFI is established by a village government and utilizes its resources. It is locally based, as it is explicitly run to provide credit for micro and small borrowers in the village. This characteristic of MFIs enables them to cultivate relationships with these customers to decrease the institutions' risk and ensure their survival.

Specifically, this study first analyzes whether the probability of loan approval and credit term is affected by the micro-lender–borrower relationship. The micro-lender learns about the borrower's credit risk through this relationship. The second assumption of this study analyzed the development of the interest rate charged over the lifetime of the relationship, as this rate is a perception of the borrower's credit risk by the lender (Bellucci *et al.*, 2010; Kano *et al.*, 2011; Uchida *et al.*, 2012).

The results of this research imply that MFIs tend to feel more secure providing credit to customers with higher income, and therefore charge a lower capital cost to these customers. In addition, the purposes of loans for these institutions are to charge a capital cost to the customers. MFIs feel secure when the customers use the loan for providing their working capital, as this has shorter cash turnover than investment capital. Moreover, the cost of capital is influenced by the loan officer experience. The more experienced the loan officer, the more secure the loan will be. Regarding the cost of capital, the amount of loan provided for micro borrowers is also expressed by the risk perceived by MFIs. The higher the amount of loan provided for micro borrowers, the more secure the MFIs will be. The amount of loan also describes the accessibility of micro borrowers to the loan. This access is influenced by several factors, which include the intensity of the relationship between micro borrower and loan officer, income, total asset, and loan experience.

This study provides two literature contributions. The first is the empirical evidence of the strength of the relationship between micro-lenders and borrowers as a driver of credit access in developing countries, as several research examined similar banking issues in developed economies (Degryse and Cayseele, 2000; Harhoff and Körting, 1998; Berger and Udell, 1995). Second, this research complements scarce empirical data on the impact of relationships between micro-lenders and borrowers on access to finance and lending terms for SMEs in developing countries (Uchida *et al.*, 2012).

2. Review of the Literature

2.1. *The role of microfinance*

Microfinance provides financial services, mainly savings accounts or loans to low-income customers (Legerwood, 1999). Robinson (2001) defined it as small-scale financial services, primarily loans and savings accounts provided to micro and small business owners, farmers, fishermen, and various local people and groups in both rural and urban areas. Furthermore, Mwenda and Muuka (2004) stated that microfinance provides multiple financial services such as fixed-term deposits, loans, payment services, fund transfers, and insurance to poor and low-income families as well as micro business owners.

In practice, apart from acting as intermediary FIs, they also provide social services such as forming groups, developing self-confidence, financial literacy training, and management training to group members (Legerwood, 1999). The role of these institutions is to benefit low-income sections of the community. This means that apart from access to credit, these communities' skills require further development. Therefore, the modus operandi of MFIs cannot be a minimalist approach, offering only financial services. Instead, it has to be a multi-pronged approach, providing financial as well as other aforementioned services (Legerwood, 1999).

MFIs are considered as a tool for poverty alleviation, as they increase the accessibility of finance and related services. According to Basu *et al.* (2004), their existence complements the formal banking sector by providing monetary assistance to micro-entrepreneurs and the poor. Increasing financial access to the poor empowers them to generate income, thereby enabling them to escape various aspects of poverty and also reduces their vulnerability to unexpected events (Davis *et al.*, 2004).

However, research conducted by Ahlin and Jiang (2008) demonstrated that the purpose of MFIs will be reached given that the poor remain customers. Therefore, these institutions have to consider how they can empower their customers to escape ongoing dependence in order to support long-term development. Therefore, microfinance will then succeed in eradicating poverty.

2.2. *Overview of lender–borrower relationships*

The financial intermediation theory shows that in the operations of a bank or creditor, collecting information about customers and writing appropriate contracts is emphasized, in order to make credit decisions. The more information about a customer obtained by a bank/creditor, the smaller the incentive for customers (in terms of the interest rate and collateral requirements) (Hanedar *et al.*, 2014; Karapetyan and Stacescu, 2014). In the credit market, a guarantee or collateral either from an individual or organization plays an important role. Under perfect conditions, creditors distinguish various types of customers. Consequently, lenders analyze the risk associated with these customers and make correct credit decisions (Sengupta, 2014). They will not require a collateral or a guarantee from an individual or a corporation.

However, in reality, asymmetric information exists. This collateral can be used to reduce adverse selection, as high-quality borrowers are most likely to pledge assets, thereby signaling their creditworthiness (Hanedar *et al.*, 2014; Menkhoff *et al.*, 2012; Beck *et al.*, 2006; Chan and Kanatas, 1985; Besanko and Thakor, 1987). Empirical studies have shown that collateral requirements are widespread in practice (Bodenhorn, 2003). Furthermore, it has been observed that there is an inverse relationship between collateral and interest rates (Berger *et al.*, 2011; Cerqueiro *et al.*, 2012), and that collateral indeed seems to be used in selecting borrowers ex-ante (Jimenez *et al.*, 2006; Berger *et al.*, 2001). Therefore, collateral requirements play an essential role in credit allocation (Kirschenmann, 2015; Behr *et al.*, 2011; Ono and Uesugi, 2009).

The existence of asymmetric information is very significant in the microfinance market. Consequently, banks and other FIs increase the collateral requirements for microcredit clients. However, such clients often lack viable assets that can be used as collateral. Therefore, developing lender–borrower relationships is one of the solutions to such issues (Kirschenmann, 2015; Uchida *et al.*, 2012; Behr *et al.*, 2011; Bellucci *et al.*, 2010). Through lender–borrower relationships, creditors understand and evaluate their customers' conditions, thereby decreasing the asymmetric information (Diamond, 1991).

The lender–borrower relationship also helps the creditors (loan officers) to collect valuable information about the customer, which cannot be obtained in a traditional financial market. This is known as 'soft information', it is not easily observed, verified, or shared with other parties, as it is difficult to measure and share through organizational structures (Berger and Udell, 2002). Prior literature stated that small banks were more active in producing soft information than large ones (Berger *et al.*, 2005; Uchida *et al.*, 2012).

However, Uchida *et al.* (2012) observed that there is no significant difference between loan officers in large and small banks in producing 'soft information', although large banks tend to do less of it. This means that when such officers are more active, they produce more soft information than the officers do at small banks. Moreover, Uchida *et al.* (2012) suggested the possibility that large banks may have chosen to allocate their resources in the SME market in favor of transaction lending over relationship lending.

Lender–borrower relationships are developed through individual interactions which serve to strengthen cooperation as well as decrease long-term obstacles caused by a lack of trust. The relationships are built up over a relatively long period, as the creditor provides financial services to the customer (Ono *et al.*, 2013; Ono and Uesugi, 2009; Berger and Udell, 2002). Dynamic interactions between the creditor and customer require positivity from both parties. In these relationships, creditors gain an understanding of each customer's operational characteristics as well as insights into the company's managerial aspects, and the business's prospects (Suryani, 2018). Additionally, this will enhance the creditor's understanding of the customer's needs and resources better. Lastly, lender–borrower relationships create a better

understanding between both parties, which leads to a reduction in monitoring costs and interest rates of the loan (Berger and Udell, 2002; Suryani, 2018).

Several researchers have presented empirical evidence associated with the existence of lender–borrower relationships. Ono *et al.* (2013) concluded that lender–borrower relationships might help decrease asymmetric information and increase the availability of credit to small and medium businesses. This relationship is also significantly related to credit terms, such as the credit period, collateral requirements, and the interest rate of a loan (Menkhoff *et al.*, 2012; Berger and Udell, 2002; Lehmann and Neuberger, 2001). Furthermore, other researchers have found that trust, self-confidence, and satisfaction play an essential role in strengthening the lender–borrower relationship (Uzzi, 1999; Ganesan, 1994).

The characteristics of lender–borrower relationships significantly affect the quality and quantity of information provided to account officers. Uzzi (1999) investigated how the quality of the relationship and social interactions affected the ability of microcredit customers to obtain credit and reduce associated costs. These relationships lead to cooperation, which eventually becomes characterized by mutual trust. As Fisman and Khanna (1999) concluded, when there is a lack of confidence, individuals tend to obtain more information and increase monitoring, to decrease opportunism.

3. Data and Empirical Strategy

3.1. *Data*

In this study, the MFIs are established and run by local government officials and their communities. MFIs are established to provide access to capital for micro and small entrepreneurs, and residents of the area in which these institutions are located. Such people face challenges in accessing capital from, and doing transactions with formal FIs like banks. Therefore, the respondents of this research are all of the micro customers of the MFIs. Loan officers were also interviewed to collect data on the microlending of 12 MFIs, which were spread around the regencies of West, Central, East, and North Lombok.

Interviews were conducted with 164 micro-entrepreneurs, while in-depth interviews were conducted with the loan officers. These interviews were aimed at gaining a thorough understanding of how these officers of MFIs initiate interactions and develop relationships with their customers as a method of managing risk. The survey was conducted in 2019. The primary variable in this research is the strength of lender–borrower relationships. The amount of credit applications provided by MFIs to micro clients in 2018 was used as a proxy in this variable.

This indicator is a representative measurement of the periodic relationships between lender and borrower. Based on this rationale, the more credit applications made by the borrower, the more frequent interactions occur between both. This study further uses the duration of the micro-lender–borrower relationship measured in years in order to

strengthen the analysis (Berger and Udell, 1995; Behr *et al.*, 2011). As conducted by Behr *et al.* (2011), this variable indicates the time from the date of the first loan application until the date of the last.

This research also investigates the effect of the relationship intensity on two outcome variables, which are the amount of provided loan and the real interest rate. A wide variety of borrower characteristics such as lender, business-specific, and loan officer characteristics were included as control variables for our regression analyses. Balogun *et al.* (2016) find out that business characteristics have a correlation with a firm to access credit. Cole and Mehran (2009) examined the role of gender in the availability of credit and they concluded that female-owned businesses are slightly more likely to be credit constrained since they are less likely to apply for credit and are more likely to be denied credit when they do. Meanwhile, Ogeisia *et al.* (2014) found that the borrower characteristics have significant effect on loan repayment, and it may enable commercial banks to identify the credit management policies and assessment of loan risk management. In this study, the borrower's characteristics include age, gender, education, number of loan applications, and the business sector in which the borrower operates (trade, transportation, development, construction, etc.). Loan characteristics are loan use (working capital, fixed assets, a combination of both, and consumption), loan length in a month, and loan size expressed. Company attributes are the total assets and revenue. The loan officer attribute is measured as the amount of applications treated as a proxy for loan officer experience.

The majority of respondents in this study are in the manufacturing industry, which has a considerable influence on Indonesia's economy. This industry has a significant ability to create jobs and presently makes a sizable contribution to Indonesia's GDP. Therefore, the Indonesian government supports all forms of finance, providing loans to this industry.

3.2. *Empirical strategy*

Furthermore, this study analyzes a multivariate setting to estimate the effect of relationship intensity on the likelihood of loan approval. This involves estimating a regression model through the following form:

$$\text{Loan Access}_{i,n} = \beta_0 + \beta_1 X_{1,2} + \beta_2 A_{i,n} + \beta_3 B_{i,n} + \beta_4 C_{i,n} + \beta_4 D_{i,n} + \varepsilon_{i,n}, \qquad (1)$$

where Loan Access$_{i,n}$ is a dependent variable comprising the amount of the loan and the real interest rate. $X_{1,2}$ approximates the relationship intensity between micro-lender and micro borrower and the duration of the relationship. $A_{i,n}$ is a vector of borrower characteristics, $B_{i,n}$ is a vector of business characteristics, $C_{i,n}$ is a vector of loan characteristics, $D_{i,n}$ captures loan officer experience, and $e_{i,n}$ denotes the error term. Marginal effects were reported in order to assess the statistical and economic significance of the estimates.

The multivariate regression analysis examined the influence of the relationship intensity variable on the two output variables, namely the amount of provided loan and the real interest rate. The influences of several control variables on both output variables were also considered. These control variables are in four categories, which are borrower, loan, business, and loan officer characteristics.

4. Result and Discussion

4.1. *Descriptive statistics*

The descriptive statistics in Table 1 indicate that most loan applicants are on average 39 years old. Furthermore, borrowers have to wait on average 2.6 days before they are notified that the loan has been accepted. The quickest loan approval decisions took one day, and the slowest was seven days. Borrowers have an 11-month average maturity loan, with an average interest rate of 16.8% per annum, and the average loan size is

Table 1. Descriptive statistics.

Variable	Mean	Std. dev.	Min	Max
Dependent variables				
Amount of loan	6.345	0.396	5.48	7.18
Interest rate	1.4	0.602	0	2
Independent variables				
Intensity of relationship	1.7	0.8295	0	4
Duration of relationship	2.917	0.907	1	4
Control variables				
Borrower' characteristics				
Gender	0.5	0.504	0	1
Education	3	1.135	1	5
Age	0.9	0.303	0	1
Business' characteristics				
Income	5.471	0.468	4.7	6.7
Business sectors	1.983	0.431	1	3
Total asset	6.722	0.427	6.18	7.85
Loan characteristics				
Credit period	11.183	3.544	5	24
Loan use	1.7667	0.998	1	4
Default loan	0.8167	0.390	0	1
AO' characteristics				
AO' assistance	0.917	0.279	0	1
AO' experience	1.833	1.531	0	5

Notes: Descriptive statistics for dependent variables (amount of loan and interest rate); independent variables (intensity of relationship and duration of relationship); and control variables (borrower' characteristics, business' characteristics, and loan characteristics).

US$ 173. The highest interest rate charged to customers of MFIs was 2% monthly. However, several did not charge any interest on loans. The majority charged an interest rate of 1% monthly.

The firm-specific variables such as total assets and income indicated that the lender specializes in micro-enterprises. Specifically, borrowers have total assets of roughly 633 USD. The majority of respondents used the loans for working capital to develop their business, which was impossible without the loans, and it is highly likely that their businesses may not have survived without it. The role of working capital received from the MFI can be observed in the increase in income experienced by their customers, as shown in Fig. 1.

From Fig. 1, it is also observed that only 8 out of 164 respondents did not experience an increase in their income after obtaining a loan from MFIs. The income increase range experienced by the most significant number of respondents (45% of total respondents) was that of 6.67–33.33 USD. Twenty-eight respondents experienced the most significant increases of over 66.67 USD monthly. The average increase in respondent's income is 39.33 USD monthly. Meanwhile, the average expenditure per capita monthly in Indonesia in 2018 is 90 USD for all Indonesian people (Badan Pusat Statistik, 2019). Therefore, this implies that the income increase after provision with capital loan by the MFI significantly improved the village community's quality of life, primarily for micro-entrepreneurs.

Moreover, with the ability to access capital, it is expected that micro-entrepreneurs will be able to develop their businesses, obtain increased productivity, and an increase in the number of their employees. However, based on the data, micro-entrepreneurs who had accessed capital from MFIs had not yet been able to employ more employees, as shown in Fig. 2.

The majority of respondents (73%) were unable to employ more staff after obtaining a loan from MFI, as shown in Fig. 2. Only 44 out of 164 respondents were able to add to their staff, between one and four employees. Furthermore, only 28 respondents experienced the most significant increases of four employees. Based on the data, these 28 respondents were also the same 28 who experienced the highest increases in income, and they also had more significant business experience than the others.

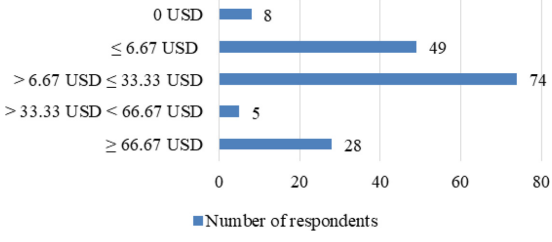

Figure 1. The number of respondents who experienced an increase in income per month after obtaining a loan from MFI.

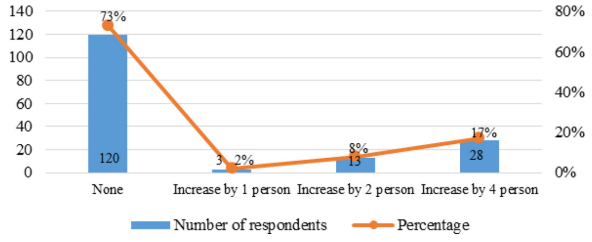

Figure 2. The number of respondents who were able to increase the number of workers after obtaining loans from MFI.

Table 2 shows the correlations between all relevant variables. It indicates that the interest rate is negatively correlated with the loan intensity of the relationship. It is more likely that a borrower with a close relationship will pay a lower interest rate than one having a weaker relationship with the lender. Furthermore, older borrowers are more likely to get a higher interest rate than younger ones. This is because the lender perceives that the older borrower has more credit risk than the younger one, as the level of interest rate is an indication of lender perception of borrower's credit risk. Interest rates are also negatively correlated with income and total assets. A positive and significant correlation between the age of the applicant and the loan officer's experience was also observed.

4.2. *Access to credit and relation intensity*

The results of the multivariate regression analysis show the marginal effects resulted from the estimation of Eq. (1) shown in Table 3. These results demonstrate that the relationship intensity, measured by the number of loan applications, has a highly significant and positive influence on the amount of loan. Specifically, the loan application number increases the likelihood of more loan amounts by 8.7%. The stronger the lender–borrower relationship, the more accessible the loans are for micro borrowers, which is described by the amount of provided loan. This is due to the fact that the stronger the relationship and interactions cultivated between the customer and MFI, the more secure the MFI feels, and consequently provides more loan to these customers. Additionally, this result is consistent with previous research in that lender–borrower relationships influence the credit terms of microfinance (Petersen and Rajan, 1994a; Berger and Udell, 2002; Cole, 1998; Lukas *et al.*, 2012; Lehmann and Neuberger, 2001).

Furthermore, the total assets and income were observed to raise the loan sum by 22% and 40%, respectively. These results are highly significant, statistically and economically, and suggest that total asset and income metrics are an efficient method for MFIs to track borrowers' creditworthiness. The total asset and income are the proxies of the borrower characteristic, and the lender employs these indicators to measure the borrower's ability to repay the loan. These results implied that if the borrower's character was favorable to the banks' credit terms and the borrowers

Table 2. Correlation matrices.

Research variables	Interest rate	Intensity of relationship	Gender of applicant	Education of applicant	Age of applicant	Total income	Business sector	Loan maturity	Loan officer's experience
Duration of loan approval decision							0.279*		
Intensity of relationship	−0.497*								
Duration of relationship	0.279*						−0.263*		
Education of applicant			0.385*				−0.381*		
Age of applicant	0.223**			−0.346*					
Total income	−0.332*	0.661*	0.301*						
Business sectors									
Loan maturity		0.252**				0.217**			
Default loan						0.291*			
AO's help					0.302*				
AO's experience	0.312*	−0.372*	−0.263*	−0.273*	0.293*			0.219**	
Total asset	−0.239**	0.552*	0.304*	0.508*	−0.312*	0.485*			−0.305*

Notes: This table contains the pairwise correlations for the dependent variables, independent variables, and control variables.

Table 3. Marginal effects for regression models.

Independent variables	Marginal effects for regression models
Relationship intensity	0.087**
Gender	−0.089
Education	0.015
Age	−0.033
Industry	0.104
Income	0.399*
Total asset	0.220*
Loan purpose	−0.001
Loan period	0.004
LO experience	−0.051**
Adjusted R^2	0.58
Observations	164

Notes: This table contains marginal effects of multiple regressions with the amount of loan as the dependent variable. *Significant at α 5%. **Significant at α 10%.

followed them, the loan repayment will be affected. Consistent with a previous study by Ogeisia *et al.* (2014), it is found a significant positive relationship between borrower characteristics on loan repayment.

Interestingly, this study found that the loan officer's experience gave a negative and significant impact on the loan approval. It implies that more skilled loan officers are more selective in approving loans and may larger loan applications are most likely to be rejected. This result is consistent with the previous study by Behr *et al.* (2010).

4.3. *Interest rate and relation intensity*

The regression results are shown in Table 4. The interest rate is the second outcome variable in this study, and it showed that the number of loan applications do not influence the interest rate. These findings are consistent with that of Petersen and Rajan (1994a) and Elsas and Krahnen (1998) that interest rate is not affected by the relationship intensity. In contrast, income gives a significant negative impact on the rate of interest; the amount of income decreases the interest rate by 58%. This gives a strong indication that the financial capacity of borrowers may be the crucial indicator for their creditworthiness, while the loan application of the higher income borrowers is more likely to be approved with lower interest rates.

Furthermore, it was observed that loan purposes also significantly and negatively influence the likelihood of interest rate by 19%. Indicators of loan purpose are (1) capital working, (2) capital investment, (3) mix capital working and investment, and (4) maintenance. According to indicator and analysis results, it implies that if the loan is used to finance working capital, the loan is more likely to be approved with lower

Table 4. Marginal effects for regression models.

Independent variables	Marginal effects for regression models
Relationship intensity	0.016
Gender	0.220
Education	0.010
Age	0.441
Industry	−0.255
Income	−0.581*
Total asset	0.009
Loan purpose	−0.185*
Loan period	0.016
LO experience	0.114*
Adjusted R^2	0.25
Observations	164

Notes: This table contains marginal effects of multiple regressions with the interest rate as the dependent variable. *Significant at α 5%. **Significant at α 10%.

interest rates. The experience of loan officers also indicates the significant result. It implies that experienced loan officers are more cautious in granting loans by imposing higher interest rates on borrowers. However, this result is still robust since the institutions already set up the interest rate of MFIs, and a loan officer is usually unable to alter it.

More than that, the interest rate results are less convincing than that of the amount of loan likelihood. Consistent with the previous study by Behr *et al.* (2011), the interest rate as outcome variable is both less conclusive and economically less important. Previous studies give different results, Berger and Udell (1995) reported a negative impact of longer relationships on loan interest rates, but Angelini *et al.* (1998) and Degryse and Cayseele (2000) reported a positive impact. Moreover, Blackwell and Winters (1997), Harhoff and Körting (1998), and Behr *et al.* (2010) reported no impact.

4.4. *The correlation between the role of loan officers and firm characteristics*

The link between firm characteristics and soft information production is an essential issue in lending literature. Micro, smaller, and more opaque firms are more likely to need banks that produce soft information and employ relationship lending. Grootaert and Bastelaer (2002) concluded that local money lending is a method for dealing with imperfect information in a segmented financial market. In this study, MFI is a kind of local money lending involving relationships with the local borrowers. These relationships are long term in nature based on an arrangement of personal interactions with the borrowers and families. Therefore, MFI possesses adequate personal information about the borrowers to trace their creditworthiness. Suryani (2015) suggested that the

Table 5. Summary statistics for relationship characteristics by firm type.

	Big firm (Asset>=median)				Small firm (Asset<median)				Diff in means tests
	Mean	Stdev.	Max	Min	Mean	Stdev.	Max	Min	
Credit duration	2.74	1.24	7	1	2.4	1.15	7	1	**
Interest rate	1.34	0.58	2	0	1.48	0.64	2	0	**
Loan amount	6.51	0.35	7.18	5.7	6.12	0.34	6.7	5.48	**
Relationship duration	1.71	0.75	3	0	1.68	0.95	4	1	*
	Big firm (Income>=Med)				Small firm (Income<Med)				Diff in means tests
	Mean	Stdev.	Max	Min	Mean	Stdev.	Max	Min	
Credit duration	2.72	1.19	7	1	2.38	1.24	7	1	**
Interest rate	1.27	0.54	2	0	1.64	0.65	2	0	***
Loan amount	6.51	0.31	7.18	6	6.04	0.36	6.7	5.48	**
Relationship duration	1.85	0.81	4	0	1.43	0.81	4	1	***
	Old firm (age firm>=median)				Young firm (age firm<median)				Diff in means tests
	Mean	Stdev.	Max	Min	Mean	Stdev.	Max	Min	
Credit duration	2.67	1.24	7.00	1.00	2.56	1.21	7	1	**
Interest rate	1.55	0.50	2.00	1.00	1.33	0.64	2	0	**
Loan amount	6.24	0.36	6.70	5.70	6.38	0.83	7.18	5.48	*
Relationship duration	1.52	0.81	3.00	0.00	1.79	0.83	4	1	***

Notes: Columns A1 show income is in the median and more, indicated as a big firm; columns A2 show income is less than the median, indicated as a small firm. Columns B1 show total asset is in the median and more, indicated as a big firm; columns B2 show income is less than the median, indicated as a small firm. Then, columns C1 show firm age is in the median and more, indicated as an old firm; columns C2 show firm age is less than the median, indicated as a young firm. *Significant at α 1%. **Significant at α 5%. ***Significant at α 10%.

loan officers play an essential role in the creation of a relationship between lender and borrower, which differs depending on borrower characteristics in relation to the opacity of the firm.

In this study, this issue is analyzed by stratifying the relationship characteristics by firm type in Table 5. The result showed a higher number of significant differences in relationship characteristics by firm. The prediction that lender–firm relationships are stronger holds true for bigger firms that are likely to have more access to loans and less cost of capital.

This study also ran the baseline regression by splitting the sample by firm size and age. Smaller and younger firms are more opaque than bigger ones. According to Table 6, the results for small firms based on assets and income are similar to Table 3, which signifies that lending relationships are essential for such firms. The results show that the small asset firms and the young firms have more intensive relations with the

Table 6. Split regression result.

	Firm income			
	A1. Small income only		A2. High income only	
Independent variable	Unstandardized coefficients	Std. error	Unstandardized coefficients	Std. error
Relationship duration	0.138	0.096	0.023	0.063
Observation number		57		107
R^2		0.098		0.003
	Firm asset			
	B1. Small asset only		B2. High asset only	
Independent variable	Unstandardized coefficients	Std. error	Unstandardized coefficients	Std. error
Relationship duration	0.194*	0.064	0.035	0.081
Observation number		68		96
R^2		0.286		0.006
	Firm age			
	C1. Young firm only		C2. Old firm only	
Independent variable	Unstandardized coefficients	Std. error	Unstandardized coefficients	Std. error
Relationship duration	0.175***	0.092	0.074	0.077
Observation number		57		107
R^2		0.159		0.025

Notes: This table contains marginal effects of simple regressions by splitting the sample by firm size (income and asset) and age with the amount of loan as the dependent variable. *Significant at α 1%. **Significant at α 5%. ***Significant at α 10%.

lender than their counterpart from the large asset firms and the old firms. These intensive relations give them more opportunity to be provided with a loan from MFIs. Consistent with lending literature, the small asset firms and the young firms are characterized as opaque firms and more likely to need banks that produce soft information and employ relationship lending. A firm's asset is a proxy for the firm's size; therefore, it is a useful tool for MFIs to manage risk passed on to these micro borrowers.

To sum up, the statistical test results on company characteristics suggest that loan officer activities' value does not depend on the borrower or demand variables. Alternatively, the company's characteristics influence the marginal effect of loan officer activities.

The primary goal of MFIs is to support micro-entrepreneurs as well as the poor in accessing capital or finances, and its characteristics are relatively homogeneous. Loans provided by MFIs do not require collateral, and most respondents that applied for loans had not failed to obtain it, thereby reflecting the importance of their social aims over that of making profit. Their social aim is to serve as many micro and poor clients as possible by providing financial access with the hope they might improve their quality of life.

5. Conclusion

The level of risk is expressed by the possibility of a loan default that a customer may experience. When there is an increased possibility of a customer experiencing loan default, that customer will be classified as a greater credit risk. The existence of lender–borrower relationships plays an essential role in microcredit customers' ability to access loans for capital from MFIs. The lender–borrower relationship's intensity gives a significant contribution to the micro borrower's ability to access the loan. The stronger the lender–borrower relationship, the more accessible the loans are for micro borrowers, described by the loan amount. This conclusion is due to the fact that the stronger the relationship and interactions cultivated between the customer and MFI, the more secure the MFI feels, and consequently provides more loan to these customers.

In contrast, as a loan term, the interest rate is not affected by the relationship intensity. More than that, the interest rate results are less convincing than the amount of loan likelihood. The interest rate as an outcome variable is less conclusive and economically less important since the MFIs in this study already set up the interest rate. A loan officer is usually unable to alter the interest rate, even by employing intensive relations with micro borrowers.

Moreover, the firm size of micro borrowers is a useful tool for MFIs to manage risk passed on to these customers. As the firm size of a particular customer increases, MFIs feel secure to provide more loans to them. The level of risk is expressed by the possibility of a loan default that a customer may experience. When there is an increased possibility of a customer experiencing loan default, that customer will be classified as a greater credit risk.

The existence of lender–borrower relationships plays an essential role in microcredit customers' ability to access loans for capital from MFIs. They are mainly established and run by the village government as well as the community. Hence, the majority of customers are familiar with the manager and loan officers of these institutions. Furthermore, when customers experience difficulties making repayments, the loan officer assists in both mentoring and rescheduling. Lastly, due to these conditions, almost all credit schemes provided by MFIs have a low rate of loan default, which is close to zero. The ability to access loans is also influenced by the size of firms described by income and total assets. The size is an essential indicator used to trace the creditworthiness of borrowers. The more creditworthy the micro customer, the more

secure the loan officer of MFIs will feel. Therefore, the MFI provides more loans to this customer.

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