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DETERMINANTS OF SUCCESSFUL LENDING DECISION FOR ULTRA-MICRO SEGMENT IN P2P LENDING PLATFORM

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Abstract—A new alternative form of loan services, known as Peer-to-Peer Lending (P2P lending), is growing rapidly in Indonesia. The purpose of this research is to analyze all factors that influence lending decision for ultra-micro segment on P2P platform in Indonesia. As a quantitative research, primary data were collected through questionnaire. Validity and reliability test were measured using Confirmatory Factors Analysis (CFA) and logistic regression. The independent variables, which consisted of transaction cost, safety protection, information quality, social capital, loanable fund, service quality, repayment period, and interest rate, were analyzed to know their influences towards lending decision in a P2P lending platform. The result of the research showed that transaction cost, safety protection, and interest rate had significant and positive effect. Loanable funds had a negative effect while service quality, information quality, social capital, and repayment period had no effect towards lenders lending decision in P2P lending platforms in Indonesia.

Keywords—Lending Decision, Ultra-Micro Segments, Peer-to-Peer Lending Platform

I. INTRODUCTION

The advance of information technology has encouraged the increase of innovation in many business and financial sectors. Financial technology is an innovative digital financial technology that offers financial services using information technology. As a new platform, financial technology offers more than simplifying financial transaction, minimizing cost and increasing financial services (Lee & Shin, 2018). Peer-to-Peer Lending (P2P lending) is a form of crowdfunding without involving any financial institution as the intermediaries (Cinca et al., 2015) using an online platform (Ritter et al., 2009). The P2P lending platform offers flexibility to both parties: lenders and borrowers (Meng, 2016). The lenders, as investors, expect a higher return from their investment in a P2P lending platform. Meanwhile, the borrowers can take advantage of the low transaction cost. There are some risks of P2P lending, such as: uncertainty, anonymity, lack of control between lender and borrower, and potential opportunism since the lender and borrower do not know each other (Chen et al., 2014). Previous study has explained that the main risk of P2P lending activities is the risk of incoming information asymmetry among lenders, borrowers and intermediaries (Meng, 2016).

The financial technology is expected to fill the gap of financing needs and increase financial inclusion for Indonesians who were unbankable but had potential business. The financial technology could be seen as an alternative source of financing, especially for the ultra-micro segments to grow their business. The ultra-micro segments are characterized by their low daily income sales, doing business in densely populated housing areas and having simple self-owned trading business. In the year 2018, the total financial technology market in Indonesia reached US$ 22 million with increasing rate at 16.3% yearly, in which lending occupied 31% of the total industry (Fintechnews.sg, 2018). Therefore, there is a huge potential market for P2P lending platforms in Indonesia. The objective of this study was to analyze the factors affecting lenders' decision in lending to ultra-micro segments in a P2P lending platform, which consists of: the characteristics of platform, borrower and loan.

II. LITERATURE REVIEW

Financial technology is defined as mobile based technology to increase financial system efficiency (Kim *et al*., 2015) and a new type of information technology-based financial services (Lee & Shin, 2018). P2P lending is defined as all lending and borrowing activities among individuals using a technology platform without any intervention from a traditional financial institution (Lee & Shin, 2018; Ritter *et al.*, 2009) and related to the internet-based financing platform (Stern *et al.*, 2017). There are some factors which influence lenders' decision (Meng, 2016), including: the characteristics of the platform (transaction cost, service quality, safety protection); the characteristics of borrowers (information quality, social capital) and characteristics of the loan (loanable funds, repayment period, and interest rate).

Transaction cost refers to all cost and time spent to do financial transaction. P2P lending charges the transaction cost when the lenders give a loan to borrowers or both lenders and borrowers top-up the fund in their platform account (Meng, 2016). Service quality is defined as the quality of services and their supporting activities provided by the intermediaries in a P2P lending platform to improve lending and borrowing activities (Chen *et al.*, 2014; Dabholkar *et al.*, 2000). Excellent service quality would increase lenders' trust in terms of reliability, capability and integrity towards a P2P lending platform (Eisingerich & Bell, 2008) and would be expected to have the same experience in the future (Chen *et al.*, 2014). Safety protection is a lender's perception towards the responsibility of the P2P lending platform in fulfilling the legal or security aspects in doing the financial transaction, such as: authentication, integrity, encryption (Chen *et al.*, 2014), confidential information when doing an online financial transaction (Kim *et al.*, 2015) and would increase the trust in risky activities in mobile payment and digital transaction (Meng, 2016).

Information quality refers to the lenders' perception about the accuracy of information given by the borrowers when filling the application forms (Chen *et al.*, 2014) and describes the credibility of the borrowers to repay the loan (Kim *et al.*, 2015). The lenders are able to access the borrowers' information related to the loan's nominal, interest rate, loan duration, borrower's income, credit affordability and the reason to borrow. The comprehensive information will reduce the uncertainty and risk of loan default (Chen & Han, 2012). Social capital is related to the borrower's resources which could be accessed easily through social media in P2P Lending (Chen *et al.*, 2014) and is defined as the lender's perception towards the availability of the borrower's potential resources in social media (Greiner & Wang, 2009). Social networking provides the necessary information about the borrowers (Lin *et al.*, 2009) which is an important trust signal of the lender's borrowers (Chen *et al.*, 2014) and becomes a major consideration when making lending decision (Chen & Han, 2012).

Loanable funds are the nominal loan given by the lender during a period of time (Lin *et al.*, 2009). Repayment period is the duration of time given to the borrower to pay back the loan (Gebremedhin, 2010). Previous research found that both repayment period and certified securities were significant factors to detect the default rate (Kumar, 2007; Mild & Wockl, 2015). Default rate refers to the failure to meet the obligation in lending-borrowing activities (Sullivan, 2003) and happens if the borrower fails to repay the loan in the promised time (Meng, 2016). Interest rate covers all costs that must be paid by the borrower related to the loan and is calculated as percentage of the loan par-value (Mishkin, 2007). The higher the interest rate, the higher the possibility of default (Cinca *et al.*, 2015). Based on the explanation of the above theories, this study was able to develop a theoretical framework and research hypotheses as follows:

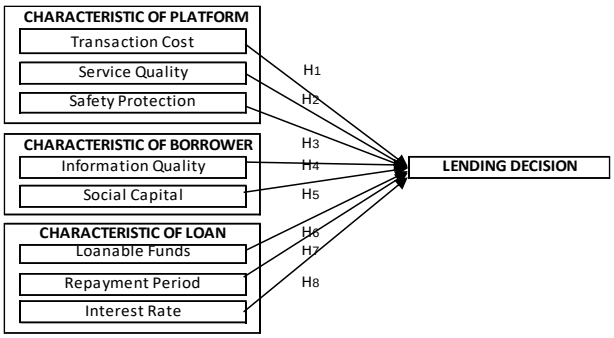

Fig 1. Research Theoretical Framework

H_1: Transaction cost has a positive effect on lending decision for ultra-micro segments in Indonesia's P2P lending platforms. The P2P lending platforms offer low transaction cost compared with the traditional financial institution (Bachmann *et al.*, 2011) and become the incentive for the lender in diversifying the investment portfolio (Meng, 2016).

H_2: Service quality has a positive effect on lending decision for ultra-micro segments in Indonesia's P2P lending platforms. Excellent service quality will increase the lender's trust towards the platform in terms of reliability, capability and integrity (Eisingerich & Bell, 2008).

H_3: Safety protection has an influence on lending decision for ultra-micro segments in Indonesia's P2P lending platforms. Lenders in P2P lending platforms look for safety protection, which is measured by sufficient security to protect the user, safety transactional information and secured financing transaction (Meng, 2016).

H_4: Information quality has a positive influence on lending decision for ultra-micro segments in Indonesia's P2P lending platforms. The valid information of the borrower influences the success rate of loan approval (Meng, 2016) and reduces the uncertainty perception and risks of digital financing (Kim *et al.*, 2015).

H_5: Social capital has a significant influence on lending decision for ultra-micro segments in Indonesia's P2P lending platforms. Social capital shows the credibility of borrowers (Chen & Han, 2012), since the lender would be able to review the information recorded in the borrower's social networks in order to minimize the information asymmetry (Meng, 2016).

H_6 : Loanable Funds has a positive effect on lending decision for ultra-micro segments in Indonesia's P2P lending platforms. The smaller nominal of loanable

funds shows the higher successful rate of loan repayment (Zhang *et al.*, 2017).

H_7: Repayment Period has an influence on lending decision for ultra-micro segments in Indonesia's P2P lending platforms. The longer the duration of repayment, the higher the default rate (Zhang *et al.*, 2017).

H_8: Interest Rate has a significant influence on lending decision for ultra-micro segments in Indonesia's P2P lending platforms. Higher interest rate gives higher return and higher risk associated with the default rate (Meng, 2016).

III. RESEARCH METHODOLOGY

This research was a hypotheses testing study to describe the causality among the lending decision as dependent variable with independent variables consisted of: transaction cost, service quality, safety protection, information quality, social capital and loanable funds, repayment period and interest rate (Cooper & Schindler, 2014). Lending decision was measured with the following equation:

$$\log\left(\frac{Willing\ to\ Lend}{Not\ Willing\ to\ Lend}\right) = log\left(\frac{P}{1-P}\right) \quad (1)$$

Meanwhile, to measure the probability willingness to lend (P) the following equation was used:

$$P = \frac{1}{1+Exp(-Z)} \quad (2)$$

In which Z refers to the linear function of independent variables:

Z= β_0 + (β_1 x Transaction Cost) + (β_2 x Service Quality) + (β_3 x Safety Protection) + (β_4 x Information Quality) + (β_5 x Social Capital) + (β_6 x Loanable Funds) + (β_7 x Repayment Period) + (β_8 x Interest Rate)

Primary data were collected using non-probability sampling with convenience sampling method (Zikmund *et al.*, 2013) with the criteria of sampling being: respondents familiar with the P2P lending platform as an investment model; had an account and had extensive knowledge about the lending activities in P2P lending activities in P2P lending platforms, and resided in Jakarta and suburban areas. The sampling size of this research followed the rule of thumb stated by Hair *et al.* (2010) and this research was able to collect 182 respondents. The study conducted reliability test to measure consistency of the research indicator and was shown by the value of Cronbach's Alpha > 0.5 (Meng, 2016). Validity test was done using Factor Analysis (Ghozali, 2013). The goodness of fit model was analyzed using the Nagelkerke's R Square value (Ghozali, 2013). Multicollinearity was done to analyze the correlation among independent variables and showed the Variance Inflation Factor (VIF) and the value of tolerance (Meng, 2016). Logistic Regression was used to know the relationship between the independent variables and the dependent variables.

IV. RESULTS AND DISCUSSION

Demographic data explained the profile of the respondents; 55% respondents were female with the majority age being 21-25 years old (53%); 35% respondents had monthly income at 5-10 million Rupiah; 28% had income between 3-4.9 million Rupiah; 24% had income below 3 million Rupiah and only 13% had income more than 10 million Rupiah per month. The respondents' profile was the main target market of Indonesia's financial technology ventures, namely: millennials with age range between 25 to 30 years old with average monthly income 5-10 million Rupiah and familiar with the usage of gadgets (Ghozali, 2013). There were 75% respondents had extensive knowledge about the P2P lending platform as investment activities, but only 61% of them had an account in a P2P lending platform. Forty-two respondents refused to become a lender because of the following reasons: default risk (50%), late payment (32%); safety (14%); illegal platform (4%). The mean value showed that information quality (4.63) and transaction cost (4.02) had the highest average value. Meanwhile, social capital had the lowest average value, 3.42. Reliability testing showed the value of Cronbach's Alpha was 0.727 and it concluded that, if all variables were tested continuously to different respondents, the result of testing would be the same (Meng, 2016). The validity testing indicated that service quality, safety protection, information quality and social capital had valid indicators with KMO value 0.705, 0.551, 0.697 and 0.605, respectively. Furthermore, the Sig.values were less than 0.05, MSA values were more than 0.5 and loading factors were more than 0.5 (Ghozali, 2013).

The research used Nagelkerke R Square to test the goodness of fit regression model which showed the value of 0.329, and was able to predict 81.6% of the observation result and is shown in the following table:

TABLE 1. CLASSIFICATION TABLE

OBSERVED	PREDICTED		
	REFUSE	ACCEPT	% CORRECT
REFUSE	3	39	33.3%
ACCEPT	38	102	93.9%
OVERALL PERCENTAGE			81.6%

(Source: Data Analysis 2018)

TABLE 2. MULTICOLLINEARITY TESTING & LOGISTIC REGRESSION RESULT

Variables	Colliniearity Statistic		Log Regression (Sig 95% Confidence Level)			
	Tolerance	VIF	B	Wald	Sig.	Exp(B)
TC	0.923	1.089	0.797	5.837	0.016**	2.219
SQ	0.821	1.243	-0.804	3.467	0.063	0.448
SP	0.791	1.297	0.898	4.256	0.039**	2.456
IQ	0.854	1.188	0.217	0.248	0.618	1.242
SC	0.799	1.263	0.602	2.146	0.143	1.825
LF	0.586	1.730	-0.791	3.939	0.047**	0.453
RP	0.576	1.821	-0.498	1.646	0.200	0.608
IR	0.849	1.187	0.638	5.400	0.020**	1.892

(Source: Data Analysis 2018)

Logistic regression indicated that the transaction cost had an estimated coefficient 0.797 with significance level of 0.016. The result proved the first hypothesis that stated there was a significant effect between the transaction cost and lending decision. Odds ratio (Exp (B)) showed the value of 2.219. It meant that the lending decision would increase 2.219 times and influence by 1-unit lower transaction cost with the assumption that all independent variables were stable. It concluded that the lower the transaction cost charged by the P2P lending platform, the greater the lender was willing to give lending through that platform. This hypothesis supported the previous research by Meng (2016) who found that low transaction cost had positive influence to lending decision.

Service quality had coefficient -0.804 with significance level of 0.448. The result did not support the second hypothesis since there was no significant effect between service quality and lending decision. Odds ratio showed the value of 0.448 in which service quality had the lowest effect to lending decision compared with other independent variables. The result of this research contradicted previous research that stated that service quality had positive effect on trust (Meng, 2016), but did not significantly influence the lending decision (Chen *et al.*, 2014).

Safety protection had an estimated coefficient of 0.898 with significance level of 0.039. The result supported the third hypothesis: there was positive and significant effect between safety protection and lending decision. Its odds ratio showed the highest value of 2.456, which meant that the lending decision would increase 2.456 times if level of safety protection increased by 1 unit. A higher safety protection level would increase the level of the lending decision through a P2P lending platform. The safety protection had the highest influence on lending decision. The result supported previous study that explained that the safety protection had significant effect on lending decision (Chen *et al.*, 2014; Meng, 2016). P2P lending platforms are a new concept in Indonesia financial business and there is an urgency for government to set-up a clear regulation to protect the interest of all stakeholders.

Information quality had coefficient 0.217 with significance level of 0.618 and odds ratio of 1.242. The result did not support the fourth hypothesis since there was no statistically significant influence between information quality and lending decision. The lenders paid greater attention to the higher return, lower transaction cost and safety protection in doing the financial transaction. The finding was contrary to research by Chen *et al.* (2014) who explained that information quality had positive and significant effect to lenders' trust in making lending decisions.

Social capital variable had coefficient 0.602 with significance level of 0.143 and odds ratio of 1.825, which showed it did not have any effect on lending decision. This finding did not support the fifth hypothesis. Meng (2016) mentioned that social capital did not have significant influence on lending decision, but friends and families' recommendation had positive effect on lending decision.

Loanable funds had (B) value of -0.791 with significance level of 0.047 and odds ratio value of 0.453, which supported the sixth hypothesis. If there was an increasing 1 unit in loanable funds, there would be decreasing loanable funds 0.047 times. The lender preferred to give loans in smaller amount to avoid the default rate risk. This finding supported Kumar (2007) who found that the bigger the nominal of loanable funds, the higher the default rate risks. The logistic regression testing showed that estimated coefficient for repayment period was -0.498 with significance level of 0.200 and odds ratio value of 0.608. Therefore, the finding did not support the seventh hypothesis. Length of repayment period did not have any significant effect on lending decision (Meng, 2016).

Interest rate variable had coefficient 0.638 with significance level of 0.020 and odds ratio value of 1.892 and showed a significant effect between interest rate and lending decision. The finding supported the eighth hypothesis. The increasing interest rate of 1 unit would increase lending decision 1.892 times. Higher interest rate attracted the lenders because of the higher return of the investment (Meng, 2016).

V.CONCLUSION

It can be concluded that lower transaction cost, safety protection and higher interest rate have a positive effect and would attract lending decision. Loanable funds had negative significant influence on lending decision, which meant the bigger the proposed loan nominal, the lower probability for the lender to give lending. Service quality, information quality, social capital and repayment period did not have any effect on lending decision. This study had an objective to give insight about the growth of P2P lending from the perspectives of lenders. Since the study still has

some limitation, the future research should consider other independent variables that could influence the lending decision, such as trust, and also discuss the determinants of a successful P2P lending platform from the perspectives of borrowers.

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