

# A Model for Lender-Borrower Trust in Peer-To-Peer Lending

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**Abstract** - This research examined factors that influenced lender's trust towards the borrower. The peer-to-peer lending platform facilitated lending mechanism between lender and borrower. However, the loan was often considered as an unsecured loan, since there was a lack of traditional financial data. Using literature review, this research analyzed the determinant factor to establish trust between borrower and lender. Based on Elaboration Likelihood Model (ELM), the result of this research proposes a model for trust building between lender and borrower. The model categorizes information to establish trust into hard information, soft information, and social capital.

**Keywords:** lender trust, borrower trust, peer-to-peer lending, Elaboration Likelihood Model (ELM)

## I. INTRODUCTION

Lending is not a new model. Through centuries, people borrow money. Peer-to-peer lending is a loan process which borrowers and lenders meet on internet platform without financial institution intermediary such as bank. The peer-to-peer website act as an intermediary between borrowers and lenders (Bachmann *et al.*, 2011). There is two type of peer-to-peer lending that already operates, commercial and non-commercial (Ashta & Assadi, 2009a). Non-commercial is driven by altruism. The lender does not expect any profit from this loan. Usually, this type of peer-to-peer lending supports specific project or helps poor community. Some platform also has the second intermediary such as local microfinance institution. As for the commercial type, the lender has an expectation. The lender receives repayment and interest.

Peer-to-peer lending began in 2005 when Zopa, a United Kingdom company became the first P2P lending platform. After that, Zopa business model was adopted in another country. Zopa's goal was matching borrowers and lenders directly. Borrowers in Zopa usually used the money for personal loan for wedding, car, and paying off the credit card. Zopa claimed that it could offer lower interest rate than bank. Borrowers in Zopa did not require collateral. For lender, Zopa also offered higher return than bank investment product. Another featured in Zopa was a

diversified portfolio. It means that Zopa managed lender's money and distributed it to many borrowers to lower the risk.

In the United States, Prosper.com became the most prominent P2P lending marketplace in 2010. Another P2P lending company in the UK, Marketinvoce started P2P lending by targeting Small and medium-sized enterprises (SMEs). It offered different method. The SMEs borrowers had to sell their unpaid invoice to the investor. This would give business the instant cash and a healthy return for lender.

Because of the nature of peer-to-peer lending, P2P lending is operated with individual lenders making lending decisions independently. Unlike financial institution (bank), P2P lending lacks risk assessment methodologies. Lenders are often dependent on their valuation to assess the creditworthiness of borrower (Lin, 2009). However, another factor also influences lender's decision. Soft information becomes a consideration for the lender to evaluate borrower's creditworthiness (Pöttsch & Böhme, 2010).

This research focuses on several research questions. From lender's perspective, it is about what factor that becomes the determinant in building lender's trust toward borrower. The researcher will examine the determinant factor in building trust between lender and borrower. Accordingly, first, the researcher studies about success factor and determinant for lender's trust and intention toward borrower. Second, the researcher categorizes those factors and builds proposed trust model. Eventually, based on this model, the researcher can construct empirical research for the future research.

Milne and Parboteeah (2016) mentioned the advantages of P2P lending. First, it offered higher return for lender rather than traditional bank and low cost for borrowers. Second, it gave access to credit for borrowers who could not gain from bank lending. Third, P2P lending had social value than traditional bank. Fourth, technology innovation improved the quality and speed of service. There is also some disadvantage of P2P lending according to Huang *et al.* (2014). First, it is the lack of credit data. The P2P platform does not have access to borrower financial history or credit by the bank. The asymmetry information will be the excellent disadvantage for lenders (Serrano-Cinca, Gutierrez-Nieto, & Lopez-Palacios, 2015). Second, it is poor management in SMEs (Huang *et al.*, 2014). Most of the SMEs have poor accounting practice. It makes their

repayment ability weak. Third, it is without the protection of the financial services compensation scheme. Moreover, there are two most popular of market mechanism in P2P lending. Those are auction (the rate determined by the bidding process) and posted price (platform determines the rate based on credit score) (Wei & Lin, 2016). When Prosper.com started in 2006, it used auction mechanism but left it in 2010. The researcher has found that auction model in Prosper.com does not give the cheapest loan for the borrower (Chen, Ghosh, & Lambert, 2014). Then, Wei and Lin (2016) had contradicted result from prior research. They posted that it had more benefit in short time because loans were more likely to be funded faster. However, in the long-term, the probability of default was higher because Prosper.com assigned higher interest rate for the borrower. Result loans are more likely to default under posted prices. Recently, another P2P lending platform such as Zopa and Lending Club has another market mechanism, diversification mechanism. The P2P lending platform acts like investment manager. The lender invests their money and the P2P platform manages lender's investment by putting their money in many loans.

Toward lender's intention for borrowing money to the borrower, there is some factor that influences lender's intention or the criteria that lender uses to choose the borrower. This is critical because most of the P2P lending sites have lack of traditional financial information about borrower especially if the borrower is the unbanked or first timer.

Most previous researches utilize the data from P2P lending platforms in the United States (such as Prosper.com and Lending Club) and China (PPdai and RenRenDai). There is determinant factor that influences lender's willingness and intention to loan. First, it is the detailed information about the borrower and their project helps to increase confidence from lender to the borrower. Hard information and soft information about borrower have an impact on lending outcomes. Second, trust and willingness toward borrower is the most important factor that influences lender in lending

According to Yum, Lee, and Chae (2012), previous loan and payment activities of borrower affect the investment decision by the lender. Another researcher found that social capital plays an important role in influence lender's intention. It is borrower's reputation through social media (Wang *et al.*, 2015). Moreover, Chen, Lou, and Van Slyke (2015) also found that social capital factor of borrowers enhanced lender's trust. Chen *et al.* (2015) and Chen, Lai, and Lin (2014) revealed that trust in borrower played an important role in lender's willingness to invest. The information of the borrower was also the most important factor influencing lender's confidence in the borrower. Yang and Lee (2016) also found that trust in borrowers had more essential role in perceived risk than trust in the platform.

The P2P lending site usually provides credit score data of borrower. Most of the major P2P lending platform works with credit scoring company. It provides them with credit scoring of the borrowers such as FICO in the United States or SCHUFA in Germany. Both companies provide credit scoring based on their analytical data. P2P lending also develops their credit rating based on the information they have about borrower including borrower credit and repayment history. Hard information is easy to quantify, transmit, and process. Otherwise for information that is difficult to convert to number is soft information. Hard information in lending process includes repayment history, financial statement. Soft information such as contains

opinions, ideas, rumors, economic projections, statements of management's plans, and market commentary (Liberti & Petersen, 2017).

Hard information in peer-to-peer lending includes credit rating, debt to income ratio, borrower credit history, repayment history, verified bank account, homeowner status, income, and monthly expenses (Klaft, 2008). Recent research shows by using data from Lending Club, the hard information is still the best predictor of borrower repayment behavior. However, it is not necessarily the same data that predicts the probability of borrowers in getting a loan. Credit scoring is one of the important factors that influence the lenders to loan along with another hard information factor such as verified bank account, borrower's monthly income, and car ownership (Tao, Dong, & Lin, 2017; Yum *et al.*, 2012; Greiner & Wang, 2010). Feller, Gleasure, and Treacy (2016) found that hard financial information had been identified as important on other platforms. However, it might have limited predictive power in another platform.

By using information technology, soft information can be hardened and quantified so that it can be more useful for the lender. Peer-to-peer lending is a particular market where the hard and soft information of the borrower have influences to each other. Even though, hard information still has the strong influences to lending decision. Many researches are emerged from studying the influence of soft information. Soft information is useful to expose the borrower information and it can act as supplement for hard information especially for borrowers with poor credit scoring or having no financial report. Then, hard information is usually unattractive. Soft information influences lender's decision to loan. The provision of soft information on the P2P lending platform has been argued to reduce asymmetry information and increased the perceived trust of those borrowers (Pötzsch & Böhme, 2010). Furthermore, when lender infers borrower's creditworthiness using this rich information, it results in 45% greater accuracy in predicting default rather than credit score (Iyer *et al.*, 2016). In peer-to-peer lending, soft information includes personal information (education, profession, qualification), self-picture, listing description, social media, race, gender, and age (Ge, Gu, & Feng, 2017; Ravina, 2012; Pötzsch & Böhme, 2010; Larrimore *et al.*, 2011). Then, social media information and connection become new types of soft information (Ge *et al.*, 2017; Freedman & Jin, 2008).

In studying about P2P lending in Germany Smava, de, Pötzsch and Böhme (2010) found soft information such as disclosure of borrower's personal information (education, profession, and qualification) and had a positive impact and trustworthy toward borrower. Social media information can be a signal of creditworthiness. For borrowers who disclosure their social media account, social media metric is useful for the prediction of borrowers' default probability (Ge *et al.*, 2017).

Furthermore, Ravina (2012) found that borrower who looked beautiful had 1,59% higher probability of getting a loan. However, the default risk between the beautiful ones and the average looking ones was the same rate. On the contrary, attractiveness could be hurt for the same gender. The evidence of "beauty is beastly" effect showed that male lender tended to give a small loan to the attractive male borrower.

Another characteristic such as race also affects the likelihood of getting a loan. Black and Asian borrower are less likely getting a loan. There is also gender discrimination in P2P lending. Women and the sign of military involvement are more likely get funded (Pope & Sydnor, 2011). Age is

another characteristic that influences loan decision. The perceived age of loan applicants seems to be an indication of experience and competence. Therefore, borrowers who are perceived as young are given smaller loans rather than borrowers who are seen as mature (Gonzalez & Loureiro, 2014). On the contrary, Feller *et al.* (2016) suggested on the Lending Club that soft information did not affect lenders' intention to loan.

Then, text and narrative also influence lender's intention to loan. Larrimore *et al.* (2011) analyzed how listing description generates trust from lender to the borrower. This is supported by existing research which suggests two strategies for the borrower to increase trust and get a loan. First, the borrower should reduce uncertainty and present more information to lenders. Second, borrowers should appeal to lenders by using more specific and rational arguments to demonstrate their creditworthiness and support their arguments with more factual details. For example, "my job pays \$2,500 a month, and I can save \$500 per month to pay back the loan," will sound better to describe a loan than saying "I love my children more than anything and go to church regularly." The appeal that seems to beg too much has a negative impact on loan probability.

Social capital refers to connections among individuals, social networks, and the norms of reciprocity and trustworthiness that arise. In that sense, social capital is closely related to what some have called 'civic virtue' (Putnam, 1995). In P2P lending, social capital refers to borrower's property. It is connected through social network and can be accessed by another user (Chen *et al.*, 2014). Social network concept in P2P lending is adopted from microfinance. It is P2P lending platform that accommodates lender and borrower to form a group. In most of the microfinance programs, borrowers are a member of the lending group. The member of lending group monitors each other to improve repayment rate (Everett, 2015). Social capital in peer-to-peer lending appears in "friendship" between borrower and lender, endorsement for the borrower, group membership, and group rating in the P2P platform (Greiner & Wang, 2009, 2010). Borrowers with more social capitals are considered more trustworthy. Thus, social capital can be a signal of trustworthiness in borrowers.

The social network in some P2P lending allows lender and borrower to make friends or build group of membership between borrowers. Friends can make a bid for a loan. People can give an endorsement to borrower using web 2.0 (Ashta & Assadi, 2009b). The mechanism of the social network in P2P lending (Prosper.com) is borrowers can join borrower groups led by group leaders. Group leaders can write public messages to endorse the borrower or pledge on the borrower to repay and can bid on group member's loans. Borrowers also can friend other registered Prosper.com users. Then, they can give an endorsement of listings. After listings are posted, lenders can browse through Prosper's website to bid. The bidding works like Dutch auction which lenders bid on a portion of the listing and set the lowest interest rate that they are willing to fund. The listing is closed and funded only if the total amount of money bid by lenders has the same amount or exceeds the loan request by the borrower. The final interest rate is settled by the highest interest rate among the lenders that successfully bid for the loan (Iyer *et al.*, 2016). The influence becomes stronger when more people bid on the borrower because other lender's behavior becomes more important (Lin *et al.*, 2015). P2P lending can take advantage of this technology to be a new source of information. Information technology can harness this information and make them

suitable to support lender's decision making.

Potential roles of social networks in P2P lending is explained by Freedman and Jin (2017). First, friends and colleagues who are familiar with the borrower may have some private information or they have an offline connection. For example, alumni group can also verify borrower's education. Thus, it will signal the lenders whether the borrower has good repayment prospects in the future even if borrower has a low credit score or not. Friends and colleagues may have the ability to monitor the borrower after the loan is approved. It can mitigate moral hazard. Social sanctions (shame or ostracism) are the enforcement mechanisms that can be imposed on borrower. Second, social networks have the potential to facilitate within-network charity. A group member may be good to each other because ones enjoy non-financial return (status, future benefit, or satisfaction). Third, social networks characterize meaningless cheap talk. It can be informative if the message sender reveals the truth. Freedman and Jin (2017) found that the most favorable form of social relationships on Prosper.com was the endorsement for borrowers and suggested that social networks could play a role in conveying quality information for financial interest.

Lin, Prabhala, and Viswanathan (2013) argued that social capital between individuals had another role. It facilitated transactions with third parties outside the social capital. They found that social capital in friendships had an impact on additional credit information to facilitate transactions with non-friend lenders. Their research on Prosper.com identified that friendship gave a better signal of credit quality. Therefore, lender adopted this into their lending decisions. Even though loans were more likely to be funded than the listing that had no group affiliation. Most fundings come from stranger lender (Freedman & Jin, 2008).

Another evidence from P2P lending in China, PPDai by Liu *et al.* (2015). It shows that friendship affected the economic decision in peer-to-peer lending. PPDai uses auction mechanism where lender bids on loan. Lender and borrower can make borrower get more friends bid by making more friends. However, "friend bids" turns away from another potential lender. Potential lenders acknowledge bids by borrower's friends as a signal of social obligation that potential lenders are less likely to bid. However, potential lenders look at bids by their friends as a positive signal. Friends of lender can be trusted to make economic decisions, but friends of borrowers cannot. The same thing also takes effect in an endorsement to the borrower. Lender trusts more if endorsement comes from lender's friend rather than borrower's friend. People intend to follow the "wisdom of crowds" in investing in P2P lending if those crowds include friends. They also find that lender tends to follow their offline friends rather than online stranger friends. Morse (2015) proposed that using big data and social media, and financial service provider could gain advantage for using the social circle as a proxy for credit risk.

In the nature of P2P lending, people give an unsecured loan to other people. Trust is an important factor because there are uncertainty and risk (Lee & Turban, 2001). Lender considers borrower's trustworthiness in deciding whether they should lend or not. In the case of P2P lending, the trustworthy borrower receives lower interest rate than the less trustworthy borrower (Duarte, Siegel, & Young, 2010). The P2P lending platform has objective to influence lender to make lending to the borrower. Trust has a positive impact on lender's attitude and consecutively increases lender's

intention (Yang & Lee, 2016).

There are three characteristics to establish the trustworthiness. Those are ability, benevolence, and integrity (Mayer, Davis, & Schoorman, 1995). Ability corresponds to skill and competency of a party. Benevolence is when trustee wants to do a good thing to the trustor. Then, integrity is the trustor's perception that the trustee will act appropriately with social norms or principles. Adler (2001) distinguished tripartite sources of trust. Those were familiarity with repeated interaction, assessment of vulnerability, trustworthy values, and norms. To adapt Adler's trust theory with peer-to-peer lending, Ashta and Assadi (2009a) proposed two sources of trust. First, it is trust to the borrower. It comes from knowledge, competence, and relational. It is directly through relational experience or via reputation. Second, it is trust to a third-party institution which comes from the cultural, politico-legal, and non-government organization. Several researches from China P2P lending (PPDai and RenRenDai) find that trust in borrower plays a central and essential role in influencing a lender's willingness to lend. The researchers discover that lending is mainly influenced by trust in the borrowers (Wang *et al.*, 2015; Chen *et al.*, 2014; Yang & Lee, 2016). Research on Renrendai also finds that it is not only the provided information is important, but also it is borrower's reputation and information integrity (Wang *et al.*, 2015). One of initiative initiated by the P2P lending platform in China (Renrendai) to alleviate the asymmetric information problem is to perform offline authentication. This can also influence lender's lending decision (Tao *et al.*, 2017). Offline authentication is expected to assure information integrity and borrower's reputation and subsequently improves borrower's trustworthiness.

Petty and Cacioppo (1986) proposed the Elaboration Likelihood Model (ELM) as dual process theory by describing how attitudes formed and changed. The elaboration means the extent to which a person scrutinizes the issue-relevant arguments. It is contained in the persuasive communication. The ELM theorizes that there are two relatively distinct routes to persuasion, the central route and the peripheral route. The central route means attitude change outcomes from a person's cognitive consideration of information and consists of thoughtful consideration of the arguments. The peripheral route implies to the attitude change. It is associated with positive or negative cues in the persuasion process or persuasion involves being persuaded in a manner that is not based on the arguments or the message content. The peripheral route to persuasion requires little cognitive effort and the central route requires more cognitive efforts (or elaborations). Assuming central route is about the content of the message, the peripheral route is related to peripheral cues such as how attractive the message is delivered

Greiner and Wang (2010) also investigated the trust behavior in the P2P lending marketplace using ELM. The researchers discovered, to establish trust, the hard information and social capital of the borrower influenced lender's trust toward the borrower. The hard information such as credit rating and verified bank account matters most.

## II. METHODS

This research uses Systematic Literature Review (SLR) method for trust on peer-to-peer lending. A literature review is not only a collection of synopsis of papers, but it also is the theoretical foundations and context of the research

question. The systematic literature review should include the several characteristics. First, it should methodologically analyze and synthesize quality literature. Second, it provides a firm foundation for a research topic. Third, it also provides a firm foundation for the selection of research methodology. Last, it demonstrates that the proposed research contributes something new to the overall body of knowledge or advances the research field's knowledge-base (Levy & Ellis, 2006). A stand-alone literature review is conducted using a systematic and rigorous standard. It is called as SLR (Okoli & Schabram, 2010). SLR is conducted in the input, processing, and output process. In the processing process, it includes, knows, comprehends, applies, synthesizes, and evaluates the literature (Levy & Ellis, 2006). It can be seen in Figure 1.

First of all, this research searches for research journal through Google Scholar and DeepDyve. It uses the keyword of "trust peer-to-peer lending". Because of the limited result for that keyword, researcher broadens the keyword with "intention", "peer-to-peer lending," and "lender's perspective." After read some of the research and extract another keyword, the researcher also adds the different keyword of "soft information", "Peer-to-peer lending", "social capital", and "peer-to-peer lending."

The papers from reputable journal and conference are selected, or papers which are cited by many reputable journals. Each selected papers are read, and the trust factor is an extract from these paper. Any paper that indicates answering research question about trust factor in borrower is collected. The interesting part of this process is the categorization process. This process is part of synthesizing the information from selected paper. Therefore, this research categorizes trust factor for borrower into three categories, hard information, soft information, and social capital."

From these findings, there are 18 journals from 2008 to 2017. These papers are tabulated in Table 1 (see Appendix). Moreover, it is categorized into three different factors. It corresponds to hard information, soft information and social capital (see Table 2 in Appendix). Then, this research proposes a model for assessing lender-borrower trust in peer-to-peer lending.

In modeling the trust from lender to borrower using ELM, this research will map feature and information in the P2P lending platform to central route and peripheral cues. It can be seen in Table 3 (see Appendix). The central route comes from a lender's careful and thoughtful consideration of the merits. In trust relationship cultivation, the borrower's creditworthiness serves as the central route of trust because it represents borrower's trustworthiness based on his or her historical records on the platform. The central route of information processing involves scrutinizing the content of information to determine its inherent merits before forming an attitude. Information quality is the main determinant of individuals' attitude (Petty & Cacioppo, 1986). The central route in issue-relevant information may include evidence regarding the superiority of a borrower's detail financial information and the quality of evidence that they have.

The peripheral route comes from lender's association with positive or negative cues in the stimulus or making a simple inference about the merits. The lender-borrower interactions represent the peripheral route in the trust as lenders can receive positive or negative cues. It can be the borrowers' arguments and pleas during interactions (Zheng *et al.*, 2016). The peripheral route involves the use of peripheral cues when it involves the message. It comes in the form of source credibility and attractiveness. Another variable that also has the impact is the number of people

who endorse a particular position (Petty & Cacioppo, 1986).

Individual uses both routes to make decisions in P2P lending. Because of the importance and financial risk, the lender should be more likely persuaded by central route as opposed to peripheral cues. However, the argument of peripheral cues works may influence the lender decision. For example, a lender may be persuaded by a centrally processed argument which includes additional financial details in the loan description, or the lender may be influenced by a peripherally processed argument such as how the borrower is a parent and how the loan will benefit their young children. Both strategies provide the increased information about the borrower and present a trustworthy image (Larrimore *et al.*, 2011).

The research about ELM experiments with some variable and finds attractiveness, source credibility, personal relevant influence in the way people make decisions.

### III. RESULTS AND DISCUSSIONS

Based on the literature review, this paper has developed proposed a model for trust building in P2P lending. It is summarized in Figure 2. This research does not try to acquire every possible factor that affects building trust. Based on the prior literature review, the evidence has shown that trust on intermediary is not significant than trust to the borrower (Chen *et al.*, 2011; Chen *et al.*, 2014). This

research attempts to analyze further about a variable that influences lender's trust toward borrower.

This research contributes to P2P lending research that investigates the interpersonal trust between lender and borrower. It examines the factors relating to the borrower and how trust can be convinced between lender and borrower by using ELM theory.

From the literature review, this research categorizes information into three categories. First, hard information is easy to quantify, transmit, and process. In the financial industry, this information becomes primary information to credit analysis such as credit rating/credit scoring, home ownership, income, debt-income ratio, and credit history (Liberti & Petersen, 2017). Second, soft information is not easy to convert to the number. Some researchers have examined the soft information influence in the credit decision. Pope and Syndor (2011) and Ravina (2012) investigated the effect of the attractiveness, race, and gender appearance of the borrower to the lender. Moreover, appeals and text narrative of the borrowers when they try to persuade the lender to lend them money are another factor that influences lender toward borrower. Third, social capital is the relationship and connection between borrower and lender. It appears to be a reliable signal that indicates borrower's trustworthiness (Chen *et al.*, 2011; Greiner & Wang, 2009; Liu *et al.*, 2015). They found that social network relationship and offline friendship (school or university alumni) served as a good predictor of trust.

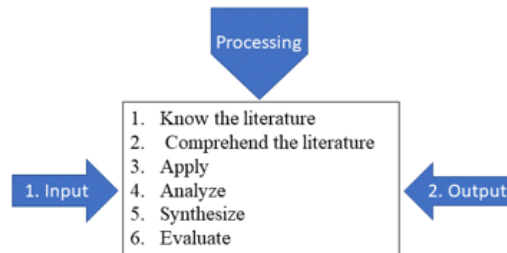


Figure 1 Systematic Literature Review Method

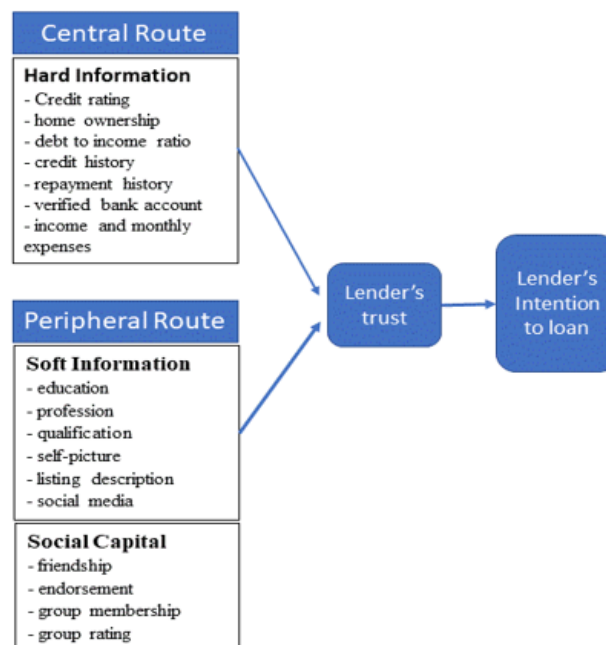


Figure 2 Proposed Trust Model

Adapting the ELM theory, the researcher puts hard information as a central route. It is because central route consists of rational argument and requires more cognitive effort. Central route processing consists of deep and thoughtful consideration of the true merits of the information. In P2P lending and crowdfunding platform, the central route is represented by borrower creditworthiness such as credit scoring, credit rating, and verified bank account (Zheng *et al.*, 2016; Greiner & Wang, 2010). Using central route, the lender can analyze borrower's capacity to repay the loan. Meanwhile, peripheral route relies on peripheral cues that use heuristics to influence individual decisions. In the P2P context, there are loan description and other humanizing details (friends, family, religions, leisure activities, and work activities). These details are likely unrelated to the borrower's capacity to repay the loan (Larrimore *et al.*, 2011). By examining the nature of soft information such as listing narrative and photograph (attractiveness, gender, age), the researcher proposes to put soft information as a peripheral route.

Greiner and Wang (2010) and Zheng *et al.* (2016) found that social capital influenced trust management in a lender-borrower relationship. Social capital played rules as peripheral cues in the lending process. Moreover, elements in ELM for peripheral routes, source expertise/attractiveness, and a number of the person for endorsing particular arguments are postulated. This research proposes to put soft information in peripheral routes due to similarity for this feature.

This model for lender-borrower trust puts information feature in the P2P lending platform and categorizes it into hard information, soft information, and social capital. Investigating trust management between lender and borrower adopts ELM theory as a theoretical framework. It guides the analytical process of persuasion. ELM is a relevant theory to explain lender processing information and trust management in lending based crowdfunding and P2P lending.

#### IV. CONCLUSIONS

Trust is essential in P2P lending business. It is trust behavior or process to gaining trust. Trust building should be developed so that the loan mechanism can continue. Using ELM, this research proposes a model to build trust in the P2P lending platform.

The model proposes that borrower processes trust using the provided information through peripheral or central route to persuade their trust towards the lender. The research suggests that central route variables such as the borrower's economic status. It may significantly influence lender's trust. In addition to central route variables, lenders also use peripheral cues provided by the borrower's soft information (picture, age, gender, and personal information), listing narrative, and social capital.

Consequently, the researcher has to investigate P2P lending platform. It is to assure that the model will be acceptable. Trust factor does not predict borrower's repayment behavior. However, they predict lender's trust to the borrower and lead it to the probability of borrowers in getting a loan.

For future research, there are two kinds of data collection method. First, it gathers the questionnaire from lenders to investigate their intention. Second, it analyzes the data from the lending transaction. Therefore, the actual behavior of the lender can be concealed.

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## APPENDIX

Table 1 Peer-To-Peer Lending Model for Journal Reference

No	Journal	Author	Title	Year publication
1	Rev. Corporate Finance Stud	Liberti and Petersen	Information: Hard and soft	2017
2	SSRN Electronic Journal	Klafft	Online peer-to-peer lending: A lenders' perspective	2008
3	PACIS 2015 Proceedings	Lin, Cai, Xu, and Fu	Judging online peer-to-peer lending behavior : An integration of dual system framework and two-factor theory	2015
4	International Conference on Trust and Trustworthy Computing	Pöttsch and Böhme	The role of soft information in trust building: Evidence from online social lending	2010
5	Proceedings of the 50 <sup>th</sup> Hawai International Conference on System Sciences	Ge, Gu, and Feng	Borrower's self-disclosure of social media information in P2P lending	2017
6	Mimeo Columbia University	Ravina	Love & loans: The effect of beauty and personal characteristics in credit markets	2012
7	International Journal of Industrial Organization	Freedman and Jin	The information value of online social networks: Lessons from peer-to-peer lending	2017
8	The Journal of Human Resources	Pope and Sydnor	What's in a picture ? Evidence of discrimination from Prosper.com	2011
9	Journal of Behavioral and Experimental Finance	Gonzalez and Loureiro	When can a photo increase credit? The impact of lender and borrower profiles on online peer-to-peer loans	2014
10	MIS Quarterly	Liu, Brass, Lu, and Chen	Friendship in online peer-to-peer lending: Pipes, prisms, and relational herding	2015
11	Management Science	Iyer, Khwaja, Luttmer, and Shue	Screening peers softly: Inferring the quality of small borrowers	2016
12	Journal of Information Technology	Feller, Gleasure, and Treacy	Information sharing and user behavior in internet-enabled peer-to-peer lending systems: An empirical study	2016
13	International Journal of Electronic Commerce	Greiner and Wang	Building consumer-to-consumer trust in E-finance marketplaces: An empirical analysis.	2010
14	International Conference on Information System (ICIS)	Greiner and Wang	The role of social capital in people-to-people lending marketplaces	2009
15	Electronic Commerce Research and Applications	Yum, Lee, and Chae	From the wisdom of crowds to my own judgment in microfinance through online peer-to-peer lending platforms	2012
16	Information Systems Frontiers	Tao, Dong, and Lin	Who can get money ? Evidence from the Chinese peer-to-peer lending platform who can get money?	2017
17	Management Science	Lin, Prabhala, and Viswanathan	Judging borrowers by the company they keep: Friendship networks and information asymmetry in online peer-to-peer lending.	2013
18	Journal of Applied Communication Research	Larrimore, Jiang, Larrimore, Markowitz, and Gorski	Peer to peer lending: The relationship between language features, trustworthiness, and persuasion success	2011



Table 2 Peer-to-Peer Lending Factor toward Borrowers

Author	Hard information	Soft information	Social capital
Liberti and Petersen (2017)	<ul style="list-style-type: none"> <li>- Repayment history</li> <li>- Financial statement</li> </ul>	<ul style="list-style-type: none"> <li>- Opinions</li> <li>- Rumors</li> <li>- Economic projections</li> <li>- Management's future plans</li> </ul>	
Klafft (2008)	<ul style="list-style-type: none"> <li>- Credit scoring</li> <li>- Debt to income ratio</li> <li>- Borrower credit history</li> <li>- Repayment history</li> <li>- Verified bank account</li> <li>- Homeowner status</li> <li>- Income</li> <li>- Monthly expenses</li> </ul>		
Lin <i>et al.</i> (2015)	<ul style="list-style-type: none"> <li>- Credit scoring</li> </ul>	<ul style="list-style-type: none"> <li>- Personal verified information (phone number, photo)</li> </ul>	<ul style="list-style-type: none"> <li>- Herding effect, more bids on listing attract another lender</li> </ul>
Pöttsch and Böhme (2010)	<ul style="list-style-type: none"> <li>- Credit scoring</li> <li>- Borrower demographics (age, work status, gender)</li> </ul>	<ul style="list-style-type: none"> <li>- Borrower appeals</li> <li>- Disclosure of personal data</li> </ul>	
Ge <i>et al.</i> (2017)		<ul style="list-style-type: none"> <li>- Disclosure of social media information</li> </ul>	
Ravina (2012)		<ul style="list-style-type: none"> <li>- attractiveness</li> <li>- race</li> </ul>	
Freedman and Jin (2017)		<ul style="list-style-type: none"> <li>- Private information</li> <li>- Verified information (education background) through offline connection</li> </ul>	<ul style="list-style-type: none"> <li>- Borrower friendship with lender in social network</li> <li>- Endorsement of borrower</li> </ul>
Pope and Sydnor (2011)		<ul style="list-style-type: none"> <li>- Picture</li> <li>- Race</li> </ul>	
Gonzalez and Loureiro (2014)		<ul style="list-style-type: none"> <li>- Age</li> <li>- Gender</li> <li>- attractiveness</li> </ul>	
Liu <i>et al.</i> (2015)			<ul style="list-style-type: none"> <li>- endorsement from lender's friend</li> <li>- offline friendship</li> </ul>
Iyer <i>et al.</i> (2016)		<ul style="list-style-type: none"> <li>- borrower's picture</li> <li>- Description of reasons for the loan application.</li> <li>- Borrower's reservation interest rate</li> </ul>	
Feller <i>et al.</i> (2016)	<ul style="list-style-type: none"> <li>- Credit scoring</li> </ul>		
Greiner and Wang (2010)	<ul style="list-style-type: none"> <li>- Credit scoring</li> <li>- Verified bank account</li> </ul>		
Greiner and Wang, (2009)			<ul style="list-style-type: none"> <li>- Group endorsement</li> <li>- Online friendship</li> </ul>
Yum <i>et al.</i> (2012)	<ul style="list-style-type: none"> <li>- Certified information (marriage, home, income)</li> <li>- Credit scoring</li> </ul>		
Tao <i>et al.</i> (2017)	<ul style="list-style-type: none"> <li>- Credit scoring</li> <li>- Monthly income</li> <li>- Car ownership</li> </ul>	<ul style="list-style-type: none"> <li>- Offline verification</li> </ul>	
Lin <i>et al.</i> (2013)		<ul style="list-style-type: none"> <li>- Image</li> <li>- Text (narrative)</li> </ul>	<ul style="list-style-type: none"> <li>- Online Friendship</li> </ul>
Larrimore <i>et al.</i> (2011)		<ul style="list-style-type: none"> <li>- Text (narrative)</li> <li>- Listing description</li> </ul>	

Table 3 ELM and Information Mapping

	Variables	Central route		Peripheral cues	
		Information Quality	Source credibility	attractiveness	Majority opinions
Hard Information	Repayment history	V			
	Credit scoring	V			
	Credit history	V			
	Debt to income ratio	V			
	Homeowner status	V			
	Verified bank account	V			
	Monthly income	V			
	Car ownership	V			
Soft Information	Race			V	
	Attractiveness			V	
	Education		V		
	Picture			V	
	Age & gender			V	
	Text (narrative)			V	
	Listing description			V	
Social Capital	Borrower friendship with lender in-social network				V
	Endorsement from lender's friend-Offline friendship		V		
	Group endorsement		V		
	Group rating				V