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# Communications of the Association for Information Systems

# Toward an Understanding of Online Lending Intentions: Evidence from a Survey in China

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# Abstract:

The online peer-to-peer lending marketplace has experienced rapid growth since its inception in 2005. It has played a significant role in helping small and micro-enterprises resolve financing problems. However, this marketplace is still in its infant stage. To better understand the lending activities associated with peer-to-peer lending, we need theoretically grounded empirical research. In this study, we investigate the perceptual drivers of online lending from the perspective of lenders. We empirically test our research model with survey data collected from 217 lenders in a major online peer-to-peer lending website in China. Our results reveal that trust was the most critical determinant of willingness to lend. Perceived information quality was important in mitigating perceived risk and enhancing trust, and perceived social capital impacted trust in borrowers. Furthermore, perceived risk did not significantly influence lending willingness, but had a negative impact on trust. These findings indicate that transaction behaviors in the peer-to-peer market may not be the same as that in the purchase-oriented e-commerce settings. We conclude by discussing the study's implications for research and practice along with the its limitations.

Keywords: Online Lending, Perceived Risk, Trust, Willingness To Lend.

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#### **I. INTRODUCTION**

Small and micro-enterprises (SME) often face financing problems in developing countries such as China. Although intensive efforts have been directed towards solving this issue, the situation is still deteriorating. As a new form of e-finance, online peer-to-peer lending (also termed as P2P lending, Internet lending, and social lending) has attracted attention since its inception. P2P lending platforms serve as an intermediary through which borrowers make unsecured loans (Lin, Prabhala, & Viswanathan, 2013). Since 2005, P2P lending has experienced rapid development. A variety of lending platforms have emerged worldwide, such as Prosper and Lending Club in the United States, Zopa in the United Kingdom, Italy, and Japan, Smava in the Germany, and PPDai in China.

Although P2P lending has experienced rapid growth, it is still not universally accepted as a sound way to invest. There might be many barriers that hinder its development, but how to drive people to lend in the market is the most critical one. Understanding the drivers of lending behaviors benefits lending websites, borrowers, and lenders. P2P lending is distinct from making online purchases in several ways. First, we can regard lending activities as investment activities; therefore, both risks and benefits are lenders' major concerns. In contrast, online purchases are a way of consuming; therefore, buying products at a reasonable price in a safe and comfortable manner is critical. Second, the "goods" the borrowers "sell" in this market are the loans that could generate revenues for lenders in the future. The collection of repayment may last for a long time such as one or two years; therefore, the uncertainties in the lending activities might be much greater than those in online purchases. As a result, trust is more critical in facilitating transactions. Moreover, the quality of the goods in lending markets is mainly determined by borrowers' creditworthiness, which is invisible and hard to measure compared to the visible products in traditional online purchase activities. Last, borrowers typically rely on multiple lenders, each of whom only contributes a portion of a loan; therefore, borrowers' social aspects play a significant role because each potential lender can easily observe how much funding others have contributed to a borrower (Lin et al., 2013). Therefore, transaction behaviors in this market may not be the same as those in traditional e-commerce business settings. As such, to better understand P2P lending behaviors, we require an appropriate transaction model.

Motivated by the unique features of online P2P lending and the central role that risk and trust play in the transaction process, we explore the factors driving people to lend online from the perspectives of risk and trust perception. While we build our research on existing literature, we also fill two research gaps. First, we examine how borrowers' social capital factors into the transaction process of online lending. Although social capital has been extensively studied in the field of management, we contribute by incorporating this construct into a behavioral model of online lending. As a signal to the creditworthiness of borrowers, social capital might play an important role in affecting risk perception and building initial trust. Our research model shows how social capital affects a lender's decision to lend or not. Second, we examine the relationship between perceived risk and trust in the context of online lending and investigate their impacts on willingness to lend. We discovered that the transaction process in P2P lending has unique features. Online lending is a form of investment, so lenders are concerned about both risks and returns. Perceived risk is not as negative as that in traditional e-commerce settings in determining transaction intentions due to the risk/return relationship. The results of our empirical study shows how perceived risk affects trust and lending intentions in P2P lending market.

This paper is organized as follows: in Section 2, we review the literature related to P2P lending and e-commerce, and, in Section 3, develop a conceptual model with hypotheses. In Section 4, we describe our research methodology. In Section 5, we test the hypotheses. Lastly, in Section 6, we discuss the findings, their implications for research and practice, the study's limitations, and directions for future research.

#### **II. THEORETICAL MOTIVATION AND LITERATURE REVIEW**

We can regard P2P lending as a special type of e-commerce that maintains the features of buyer-seller relationships in which borrowers are buyers and lenders are sellers. Therefore, from the standpoint of agency theory, one can apply the principal-agent perspective to the online auction relationship in which buyers act as principals and sellers act as agents (Pavlou, Liang, & Xue, 2007). In the online lending environment, lenders act as the principals and borrowers act as agents. Because lenders can neither obtain borrowers' complete information nor monitor their full behaviors, adverse-selection and moral problems may arise. Because borrowers have more or better relevant information than lenders, information asymmetry exists, which can cause the former to misinform the latter. In order to increase their chances of funding, borrowers may misrepresent true attributes or offer false credit information to

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potential lenders. Due to the spatial and temporal separation among borrowers and lenders, the problems of information asymmetry may be even more severe in the online auctions. Furthermore, because repayments take the form of equal installments of principal and interest, which may last over an extended period, the risk from moral hazards may be greater than in traditional online purchases.

To reduce the perceived risks originating from uncertainties of their investment in the online lending marketplace, lenders seek information about potential borrowers. Collecting, processing, and transmitting information is the major purpose of financial markets, financial institutions, and P2P lending's financial intermediary. According to financial information theory (Atkinson & Kydd, 1997, Pertersen, 2002), there are two distinct types of information in the financial market: "hard information" and "soft information". Financial information that can easily be reduced to numbers is called "hard information", while information that is difficult to summarize in a numeric score is called "soft information". Although soft information is hard to collect and process, it also plays an important role in investment decisions. For example, when lending to small business borrowers, banks often rely on information beyond credit scores, such as the borrower's reputation in the community. Small firms' relationships with a bank or supplier often increase their supply of credit (Petersen & Rajan, 1994). In fact, intermediaries such as banks are special because they produce soft information (Fama, 1985).

Hard information can be obtained directly through online lending intermediaries. Borrowers provide credit information to lending websites, such as credit level, house ownership, and monthly income. With the help of information technology, potential lenders can easily observe and synthesize such information. Therefore, the credit information that borrowers provide can be a proxy for "hard information". The quality of such hard information is critical to mitigating uncertainties arising from information asymmetry.

In the online P2P lending market, social networks can act as a source of "soft information" about borrowers (Lin et al., 2013). With the advancement of information technology, such as online social communities and discussion groups, obtaining and transforming such social network information has become much easier than in traditional lending. Web 2.0 technologies alter the way in which users interact and connect with each other, which, in turn, facilitates the growth of decentralized lending networks and makes exploiting the social networks of borrowers feasible. Because online networks have been integrated into the marketplace of P2P lending, lenders can obtain social network information to reduce information asymmetries at a lower cost. As an individual's social capital is typically identified using one's social networks (Lin et al., 2013), a borrower's social capital can be a proxy of "soft information".

Although information technology in online P2P lending helps to reduce uncertainties, it does not completely solve the fundamental issue of information asymmetry. Therefore, trust comes into play. Trust is the crucial strategy for dealing with an uncertain and uncontrollable future (Kim, Ferrin, & Rao, 2008). Kim, Ferrin, and Rao's (2008) trust-based consumer decision making model in electronic commerce indicates that trust and risk are the key drivers to the understanding of information asymmetry and transaction outcomes.

Combining the information asymmetry theory from economics and the trust theory from e-commerce, we propose the theoretical framework in Figure 1.



There are numerous online P2P commercial lending platforms nowadays, such as Prosper, PPDai, LendingClub, Zopa, and EasyCredit. These lending websites adopt similar lending mechanisms. Potential users who want to borrow or lend on these websites initially have to register and join by providing personal information, such as their name, address, phone number, and social security number. Some lending websites such as Prosper also require

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users to provide bank account information. The websites verify the information provided by users and generates a credit score for them. For Prosper users, the website directly extracts a credit score from FICO (Fair Isaac Credit Organization), but, for PPDai users, that website calculates users' credit scores based on the information they provide themselves. After successfully registering, a user can create a personal profile, through which they can borrow or lend.

Such a lending process involves high risks because some borrowers may not be able or willing to repay loans on time. Lenders are exposed to uncertainties and risks once the capital is lent out to the borrowers. Therefore, choosing the right borrowers is a critical concern for lenders. Existing P2P lending studies have focused mainly on this issue and revealed many insights.

One stream of research has focused on the impact of borrowers' financial profiles on borrowing outcomes. Researchers found that borrowers' financial profiles are important indicators for lenders to evaluate trustworthiness, assess default risks, and set interest rates (Collier & Hampshire, 2010). Through synthesizing data from Prosper, Lin et al. (2013) found that borrowing requests with lower credit ratings were less likely to be funded and more likely to default and end up with higher interest rates. Iyer, Khwaja, & Luttmer (2009) further discovered via Prosper data that lenders' decision were also significantly influenced by borrowers' default rate records, debt-income ratio, and the number of loan requests in the last six months. Borrowers' demographic information, such as gender, age, and race, also impacted lenders' lending behavior (Ashta & Assadi, 2010; Berger & Gleisner, 2009, Kumar, 2007). For instance, Barasinska (2010) found that lenders' gender affected their lending decisions: male lenders were more likely to choose risky borrowers than female lenders are.

The P2P lending literature has also examined the role information about a borrower's social network plays in influencing borrowing outcomes. Online lending platforms not only provide borrowers' personal and loan information, but also disclose information about their social networks (Lin et al., 2013). Such information presents a salient signal about borrowers' creditworthiness (Katherine & Sergio, 2009). Borrowers' social networks not only improve loan success rates, but also lower interest rates (Weiss, Pelger, & Horsch, 2010), which suggests that social networks can effectively reduce information asymmetry in the transaction process. Becoming a member of a trusted group can improve the success rate of a loan and help to increase low credit-score borrowers being funded at affordable interest rates (Lopez, Pao, & Bhattacharrya, 2009). For instance, Lin et al. (2013) estimate that friends in a borrower's social network with verified identities acting as lenders decreased the odds of default by 9 percent on average, and Berger and Gleisner (2009) found further support for the effect of social capital on default rate based on group membership by discovering that some participants acted as financial intermediaries, and that intermediation services significantly improved borrowers' trustworthiness.

While most researchers have focused on the lending outcomes such as funding probability and loan default rates, some scholars have focused on the rationality of lenders' decisions. Herzenstein, Dholakia, and Andrews (2011) found evidence of strategic herding behavior among lenders. Such herding in loan auctions was positively associated with its subsequent performance, which suggests that strategic herding behavior in P2P lending market benefits bidders, individually and collectively. Zhang and Liu (2012) extended Herzenstein et al.'s (2011) model and confirm the evidence of rational herding among lenders. They discovered that well-funded listings tended to attract more funding, and that lenders participated in active observational learning in the lending process. That is, herding behavior helped to mitigate information asymmetry between borrowers and lenders. Furthermore, they also discovered that a strong social network (e.g., friends' endorsements) weakened the herding effect. In summary, information about borrowers' social networks seems to influence potential lenders' perceptions of borrowers in a variety of ways.

The current literature of P2P lending that emphasizes addressing factors that mitigate information asymmetry between borrowers and lenders implies that perceived risk and trust are crucial for conducting transactions in the P2P lending market. Moreover, the current P2P literature lending also implies that research should examine the factors leading to online lending transactions at not only the personal profiles of borrowers, but also their social relations.

#### **III. RESEARCH MODEL**

Based on the theoretical framework, we propose that perceived risk (PR) and trust in borrower (TB) are crucial antecedents of willingness to lend (WL), which is a potential lender's willingness to provide a loan of funds to a particular borrower. We developed our research model by reflecting on the roles of borrowers' personal credit information and of social capital in influencing lenders' decisions (see Figure 2). We discuss the construct definitions and rationales for the relationships shown in the research model in the remainder of this section.



Note: PIQ: perceived information quality; PSC: perceived social capital; PR: perceived risk; TB: trust in borrower; WL: willingness to lend; BID: actual bidding behavior; CREDIT: borrower's credit level; RATE: interest rate of a listing; EDU: borrower's education level; INCOME: monthly income of a borrower; FREQ: frequency of using online P2P lending per month

#### Figure 2. Research Model

#### **Hard Information**

Perceived information quality (PIQ) refers to a lender's perception of the accuracy and completeness of the information that a borrower provides in their borrowing listings to demonstrate their creditability for loan repayment (Kim et al., 2008). Prior studies have shown that perceived information quality of a particular merchandise is crucial for purchase intentions (Barnes & Vidgen, 2002; Nicolaou & McKnight, 2006). Contrary to common belief, some scholars have discovered that more information leads to more revenue in some types of auctions, even if such information discloses the negative attributes of a commodity (Tadelis & Zettelmeyer, 2009). Studies in P2P lending have also revealed that the information related to a borrowing listing has a significant impact on lending outcome such as funding probability and interest rate (Berkovich, 2011; Herzenstein et al., 2011). Most lending websites allow users to upload additional information, which lets borrowers provide potential lenders with whatever materials borrowers, which may help mitigate information asymmetry, lower lending risks, and build confidence on lending decisions. That is, the more information borrowers provide, the fewer uncertainties lenders may feel, even if the information shows that borrowers are "bad" borrowers. Because in China (the focal country of this study) borrowers typically only post a borrowing listing once (Chen & Han, 2012), information shown in the listings is especially crucial. As such, we posit:

**Hypothesis 1**: A lender's perceived risk of a borrower is negatively influenced by the perceived information quality of the borrower's listing.

**Hypothesis 2**: A lender's trust in a borrower is positively influenced by the perceived information quality of the borrower's listing.

#### **Soft Information**

Perceived social capital (PSC) refers to a lender's perception of the sum of a borrower's actual or potential resources that are embedded in the latter's social networks in the lending intermediary (Nahapiet & Ghoshal, 1998). It is an individual attribute that may be identified by potential lenders using available information about the borrower's social networks (Lin et al., 2013). According to Nahapiet and Ghoshal (1998), there are three types of social capital: structural, relational, and cognitive. Structural social capital refers to the overall pattern of connections between actors, while relational social capital concerns the kind of personal relationships that people have developed with

each other through a history of interactions. Cognitive social capital refers to the resources that provide shared representation, interpretation, and systems of meaning among parties. Because we focus on understanding transactions between borrowers and lenders, the structural and relational aspects of social capital are appropriate in this research, while cognitive social capital is ruled out because it is not compatible with the online P2P lending context. A majority of lending websites have offered social networking services such as groups and communities, instant messages, discussion forums, and so on. Thus, users may use various ways to establish their own social capital. This social capital can be represented in two aspects (Lin et al., 2013): (1) the number of friends a borrower has, and (2) the amount of bids from a borrower's friends. The former reflects the structural social capital, while the latter reflects the relational social capital.

Social networks can influence transaction outcomes through two primary avenues. They can act as a direct channel for transferring information and resources, a role termed as "pipes" (Lin et al., 2009). Alternatively, social networks can serve as "prisms" that reflect otherwise unobservable characteristics (Podolny, 2001). That is, a borrower's social network provides soft information to potential lenders and serves as a signal to indicate trustworthiness. According to the signaling theory, two features of signals play a vital role in a marketplace: their cost to produce and their difficulty to assess. For a signal to be considered reliable by those assessing it (i.e., potential lenders), it must be costly to produce (Donath & Boyd, 2004). Moreover, because those assessing the signal do not have unlimited time and resources, the signal must be reasonably easy to access.

In an online P2P lending platform such as Ppdai, potential lenders can observe the number of friends borrowers have and the bid amounts their friends have made to infer information about the borrower's social networks. Although these statistics can be faked in an online environment, they can still serve as reliable signals to indicate borrowers' trustworthiness for several reasons.

First, it is often time consuming to register as a user in online P2P lending platforms. For instance, individuals' identities and personal credentials (e.g., academic credentials) need to be verified before granting the permission to borrow and lend. Therefore, given that the amount borrowers request is typically small, producing fake social network information to mislead potential lenders is relatively costly.

Second, because potential lenders can easily access the information of a loan request, including the personal profiles of existing bidders, experienced lenders can discover manipulated social connections. Therefore, fake social networks are not a serious problem on Ppdai. However, it is possible that this may be a more serious problem for platforms with fewer controls and different operating structures.

Third, it is costly to endorse borrowers by bidding on their loan requests. When a request is fully funded and becomes a loan, bidders have to pay service fees to the lending platform. Thus, manipulating by loaning funds to a particular borrower is not cheap relative to the potential gain, provided that the amount the borrower requested is small. Therefore, it is not worthwhile for borrowers to collude with their friends to produce fake bid amount signals.

Empirical studies have also confirmed that displaying connections to others and demonstrating social embeddedness in a community provides a reliable and easy-to-assess signal of trustworthiness (Collier & Hampshire, 2010). Collier and Hampshire (2010) discovered that, on the online P2P lending platform Prosper, both structural (e.g., community size) and behavioral (community stake in transaction) signals of social networks had significant impacts on risk perceptions, and behavioral signal, such as the bid amounts made by friends/community members, had a much larger effect size.

For the above reasons, we postulate that the number of friends a borrower has and the amount that they have bid could serve as reliable signals to indicate a borrower's creditworthiness. That is, the more social capital a lender perceives a borrower to possess, the more likely the lender will trust the borrower and the less risky the transaction will be perceived to be. As such, we posit:

Hypothesis 3: A lender's perceived risk of a borrower is influenced by the perceived social capital.

Hypothesis 4: A lender's trust in a borrower is influenced by the perceived social capital.

#### Information Asymmetry and Trust

Perceived risk (PR) refers to a lender's belief about the potential for negative outcomes from lending to a specific borrowing listing (Pavlou et al., 2007). Perceived risk is a primary concern when conducting transactions. The influence of perceived risk on transaction intentions is salient in online P2P lending markets where transaction partners are separated in time and space. Prior studies in e-commerce and IS research indicate that trust is the

foundation of social activities, and the uncertainties of the transaction environment would present significant barriers to building trust (Lim, 2003). Although most researchers posit that perceived trust helps to ease perceived risk in the online purchase activities (Pavlou, 2003), the direction of impact may be different in the setting of online P2P lending. Instead, we hypothesize that initial trust formation process may be affected by risk perception for several reasons. First, most borrowers post their borrowing listings to the lending websites only once in China, so there are seldom a chance for borrowers and lenders to foster understanding between themselves. Therefore, a lender's trust toward a specific borrower mainly comes from the former's calculating the benefits and costs they will obtain from the borrower, rather than from interpersonal affects. Such trust, called calculus trust, is formed in the initial stage of a trust-building process. Only when more interpersonal interactions are involved will personal affections gradually arise, at which point calculus trust may gradually turn into affective trust, which is more robust and more influential on an individual's behavior. For risk-averse investors, the higher uncertainty of their loan to a borrowing listing means higher potential costs from believing in a borrower, so the initial trust they place on the borrower is lower. In order to ensure the safety of their investment, lenders are more willing to lend to trustworthy borrowers given the same returns. That is, the lower risk a borrower is perceived be, the more likely the borrower will be trusted. As such, we posit:

Hypothesis 5: The perceived risk negatively influences a lender's trust in borrowers.

Hypothesis 6: The perceived risk negatively influences a lender's willingness to lend.

Trust in borrower (TB) refers to a lender's belief about a borrower's characteristics (Mayer, Davis, & Schoorman, 1995). It is the confidence of a lender's perception that the borrower has beneficial attributes (McKnight & Chervany, 2002). Different views have been provided regarding the relationship between trust and risk (i.e., whether trust is an antecedent of risk, the same as risk, or a by-product of risk) (Kim et al., 2008). Researchers commonly treat trust and risk as two different concepts (Kim et al., 2008). The concept of perceived risk is focused on the uncertainties of a specific lending decision, while the concept of trust concerns borrowers' characteristics. Numerous studies have confirmed that trust is the foundation of e-commerce activities (Gefen, Benbasat, & Pavlou, 2008; Harris, Rettie, & Kwan, 2005; Nah & Davis, 2002). Although trust may influence a lender's lending intention, some other factors, such as interest rate, are also critical in determining lending intention. When making lending decisions, investors may consider a variety of factors such as the lending environment, their own risk preferences, the respective borrower's trustworthiness, and so on. Among such factors, borrowers' trustworthiness may be the most critical one. As such, we posit:

**Hypothesis 7**: A lender's trust in a borrower positively impacts the lender's willingness to lend to that borrower.

#### **Transaction Outcomes**

Many e-commerce studies have shown that consumers' intention to engage in online transactions is a significant predictor of consumers' actual participation in e-commerce transactions (Pavlou & Fygenson, 2006). The intention and actual bidding behavior is closely associated because individuals' behavioral intention to perform a behavior, such as purchasing or lending, is the immediate determinant of their actual behavior based on the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980), and theory of planned behavior (TPB) (Ajzen, 1991). Because one can argue that online P2P lending is a special type of e-commerce, we argue that the a lender's willingness to lend to a borrower is a predictor of the lender's actual bidding behavior. As such, we posit:

**Hypothesis 8**: A lender's willingness to lend to a borrower positively affects the lender's actual bidding behavior.

#### **Control Variables**

According to the research findings in e-commerce, transaction intention is largely affected by the perceived benefits one expects to receive (Kim et al., 2008). In the case of online lending, willingness to lend is influenced by anticipated returns. In this study, we focus on two factors related to anticipated returns: the interest rate and the borrower's credit level. Therefore, a loan's interest rate and the borrower's credit level are control variables of willingness to lend.

Previous research findings also indicate that lenders' lending behavior is influenced by their personal characteristics (Liu, Lu, & Brass, 2013). Therefore, we treat lenders' educational level, income, and frequency of using online P2P lending per month as control variables for actual bidding behavior in our model.

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#### **IV. RESEARCH METHODOLOGY**

#### Measures

To ensure the content validity of our measures, we designed our questionnaire by following a rigorous scaledevelopment methodology that Moore and Benbasat (1991) suggest, which includes conducting a pilot test conducted prior to collecting the main study data. The finalized instrument included two parts. The first part collected basic information about respondents' characteristics and information about a borrowing listing that they judged before completing the questionnaire. The information regarding respondents' characteristics we collected included the following: gender, age, education, income, user ID in PPDai, length of time using online P2P lending, how frequently they used online P2P lending per month, and so on. The information we collected of the listings that they saw before filling out the questionnaire included the following: listing ID, interest rate, borrowing amount, the associated borrower's user ID, and their credit level. The second part comprised all the questions relating to the research model, including perceived information quality, perceived social capital, perceived risk, trust in borrowers, and willingness to lend.

Following Lin et al. (2013), we measured two aspects of perceived social capital: structural and relational. We measured the former by the number of friends a borrower had (PSC1), and the latter by the amount of bidding from a borrower's friends (PSC2). Structural and relational social capital formed the total amount of each borrower's social capital.

We modeled PSC as a formative construct rather than a reflective construct for several reasons. The reflective measurement model is based on classical test theory. According to this theory, measures represent the effects of an underlying construct. That is, reflective indicators can be viewed as a representative sample of all the possible items available in the construct's conceptual domain. As a consequence, indicators associated with a particular construct should be highly correlated with each other and should be interchangeable. In contrast, formative measurement models assume that the indicators cause the construct. One important characteristic of formative indicators is that they are not interchangeable because each indicator for a formative construct captures a specific aspect of the construct's domain. The measurement items in the formative measurement model jointly determine the meaning of the construct, which implies that omitting an indicator will potentially alter the construct's nature (Hair et al., 2012). In our study, PSC1 and PSC2 represent two facets of social capital. They jointly determine an individual's perception of social capital. Therefore, they are not interchangeable and are not necessarily correlated. For the above reasons, we modeled the two measurement items of PSC as formative indicators.

We also adapted the remaining constructs from the literature. We measured the constructs with 7-point Likert scales that ranged from 1 (extremely disagree) to 7 (extremely agree). Appendix A shows the measurement instruments and their sources.

#### **Data Collection**

The research participants were actual lenders on PPDai (www.ppdai.com), which is one of the largest P2P lending platforms in China. We collected our data through an online survey with PPDai's help. PPDai initially sent invitation emails to 500 randomly selected lenders. The message included a link to the online survey. To encourage participation, lenders were informed of the survey's importance and were told that any participants with valid responses could get a coupon for 50 RMB (approximately US\$8).

The survey first asked each participant to visit and evaluate a borrowing listing on PPDai (www.ppdai.com). The participants could choose to visit whatever borrowing listings they were interested in. Then, the survey asked them to complete the online questionnaire based on their evaluation of the listing they saw. After completing the survey, the survey asked participants to go ahead and conduct lending behaviors (either bid on making the loan or not). We traced their actual bidding behavior from PPDai's database after the survey was completed, based on the information participants provided. If the information related to a borrowing listing and user-provided information did not match the actual data from the website, we regarded the response as invalid. We also screened out any incomplete or duplicated responses to avoid any response bias. In total, we received a total of 286 responses, of which 217 were valid. We compared the demographic profile of the valid respondents with the profile of the entire population and found no large differences (see Appendix C for detailed information), which indicates that non-response bias was not a serious problem in this study and that the respondents were representative. Table 1 shows respondents' demographic information.

Percentage		
90.32		
9.68		
3.23		
23.96		
36.87		
29.95		
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70.97		3
10.14		2
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Та	ble 1: Demographic Profile of	Respondents	
		Frequency	Percentage
Conder	Male	196	90.32
Gender	Female	21	9.68
	Below 20	7	3.23
Age	21-25 years	52	23.96
-	26-30 years	80	36.87
	31-40 years	65	29.95
	Above 40 years	13	5.99
	Middle school or below	10	4.61
Education	High school	31	14.29
Education	College	154	70.97
	Graduate	22	10.14
	Below 2000	27	12.44
	2000-3000	41	18.89
	3001-5000	73	33.64
	5001-8000	34	15.67
	8001-15000	32	14.75
	Above 15000	10	4.61
	Less than 1year	153	70.51
Years using online P2P	1-2years	47	21.66
lending	2-3 years	11	5.07
-	More than 3years	6	2.76
	Less than 3 times	110	50.69
Frequency of using online	4-6 times	17	7.83
P2P lending per month	7-9 times	8	3.69
	More than 10 times	82	37.79

# V. DATA ANALYSIS AND RESULTS

#### **Measurement Model**

We used partial least squares (PLS) structural equation modeling (SEM) with SmartPLS 2.0 to analyze our data. We employed a bootstrapping estimation procedure was to assess the significance of the scales' factor loadings in the measurement model and the significance of the path coefficients in the structural model (Gefen & Straub, 2005).

We used PLS-SEM method in the current analysis for several reasons. PLS-SEM works efficiently with small sample sizes and complex models and makes practically no assumptions about the underlying data. In addition, PLS-SEM can easily handle reflective and formative measurement models and single-item constructs with no identification problems (Hair, Hult, Ringle, & Sarstedt, 2012). Therefore, PLS-SEM is widely used in IS research (Sheu, Chang, & Chu, 2008; Wasko & Faraj, 2005). Although formative measures can also be used with covariance-based SEM, but doing so requires construct specification modifications (e.g., the construct must include both formative and reflective indicators to meet identification requirements). Because we modeled PSC as formative construct, which includes only formative indicators, we used PLS-SEM. Moreover, our research model includes single-item constructs (e.g., CREDIT, RATE), which require PLS-SEM.

We measured the multi-item scales' reliability, convergent validity, and discriminant validity for the reflective constructs perceived information quality (PIQ), perceived risk (PR), trust in borrower (TB), and willingness to lend (WL) by following Fornell and Larcker's (1981) and Gefen and Straub's (2005) guidelines. We used Cronbach's alpha, which measures internal consistency, and composite reliability (CR), which measures the degree to which items are free from random error and therefore yield consistent results, to analyze reliability. The Cronbach's alpha values ranged from 0.64 to 0.83, which surpass the acceptable value of 0.6 (Hair, Anderson, Tatham, & Black, 2006; Kaiser, 1974), and the CR values ranged from 0.79 to 0.90, which surpass the recommended cutoff value of 0.70 (Fornell & Larcker, 1981). As such, the data had sufficient reliability.

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			la	bie 2: Rei	iability ar	nd Validity	y of Con	structs			
		M	ean	S.	D.	Alpha		CF	R	AVE	
PIQ		4.	47	1.	03	0.78		0.88		0.70	
PR		4.	30	1.	02	0.64		0.7	9	0.58	8
ТВ		4.	54	0.	97	0.8	33	0.9	0	0.7	5
WL		4.	65	1.	07	0.8	30	0.8	8	0.7	1
PSC		3.	83	1.	08	-		-		-	
BID		0.	32	0.	47	-		-		-	
		5.	26	1.	23	-		-		-	
		4.	10	1.	44 50	-		-		-	
		3.	00	1.	<u>96</u>			-		-	
RATE		18	59	3	<u>81</u>	-		-			
Correlation	matrix			0.	•						
	IQ	PR	ТВ	WL	SC	BID	EDU	INCOME	FREQ	CREDIT	RATE
IQ	0.84										
PR	-0.24	0.76									
ТВ	0.78	-0.28	0.86								
WL	0.66	-0.13	0.74	0.84							
SC	0.43	0.13	0.43	0.45	-						
BID	-0.10	0.12	-0.10	0.11	-0.18	-					
EDU	-0.22	0.10	-0.17	-0.08	-0.15	0.17	-				
INCOME	-0.08	0.08	-0.02	0.03	-0.05	0.11	0.33	-			
FREQ	-0.18	0.09	-0.16	-0.11	-0.16	0.27	0.10	0.24	-		
CREDIT	-0.15	0.03	-0.16	-0.12	-0.09	-0.02	0.09	-0.05	-0.02	-	
RATE	0.04	0.09	0.01	0.11	-0.01	0.06	0.03	0.02	0.06	0.39	-

We assessed convergent validity in terms of factor loadings and average variance extracted (AVE). Item loadings greater than 0.70 and significant at the p<0.01 level (Gefen & Straub, 2005) suggest convergent validity. All the items loadings were significant and greater than 0.7. In addition, we also assessed convergent validity via average variance extracted. All AVE values were greater than 0.5, the cut-off value that Fornell and Larcker (1981) suggest. Therefore, the constructs demonstrated acceptable convergent validity.

We assessed discriminant validity by (1) examining whether the square root of each construct's AVE was larger than any inter-correlation between this focal construct and all other constructs, and (2) examining whether each item loaded substantially higher on its principal construct than on other constructs (Gefen & Straub, 2005). The crossloading differences were higher than the suggested threshold of 0.1 (See Table 3) (Gefen & Straub, 2005). The square root of each AVE was larger than the inter-correlations of the construct with the others (See Table 2). These results indicate adequate discriminant validity.

Table 3: Loadings and Cross-Loadings for the Major Constructs							
	IQ	PR	SC	ТВ	WL		
IQ1	0.78	-0.30	0.32	0.61	0.45		
IQ2	0.84	-0.20	0.36	0.62	0.57		
IQ3	0.89	-0.21	0.40	0.73	0.65		
PR1	-0.06	0.69	0.05	-0.05	-0.01		
PR2	-0.20	0.85	0.06	-0.24	-0.13		
PR3	-0.30	0.92	0.11	-0.35	-0.17		
SS1	0.40	0.05	0.96	0.45	0.39		
SS2	0.34	0.19	0.70	0.29	0.39		
TB1	0.70	-0.27	0.44	0.87	0.68		
TB2	0.68	-0.33	0.42	0.89	0.60		
TB3	0.67	-0.27	0.31	0.84	0.67		
WL1	0.49	-0.07	0.38	0.52	0.80		
WL2	0.61	-0.21	0.38	0.66	0.88		
WL3	0.58	-0.14	0.35	0.70	0.85		

We measured the construct perceived social capital (PSC) by formative rather than reflective items, so covariancebased estimates such as reliability and AVE were not applicable for evaluating the items because they are not required to be correlated as is the case for reflective constructs (Chin, 1998). Instead, the weights must be examined to check if they significantly contribute to this construct (Petter, Straub, & Rai, 2007). The weight from PSC1 to PSC was 0.49 (p<0.01), and the weight from PSC2 to PSC is 0.50 (p<0.01). All measurement items had significant weights with acceptable magnitude (Chin, 1998), which suggests that the construct measured by these items can be used for hypothesis testing.

We also assessed the presence of common method variance (CMV). We conducted Harmon's single factor test by following Liang, Saraf, Hu, and Xue's (2007) analytical procedure. If one factor accounts for most of the covariance, then CMV is likely present. Moreover, we checked the correlation matrix. CMV is present if there are excessively high correlations (>0.9) (Pavlou et al., 2007). The result of these tests showed that the results were not severely impacted by CMV.

#### **Structural Model**

We used the structural model to test the interactive influence between each constructed variable our hypotheses. The structural model analysis included two components of interest here: path coefficients and R<sup>2</sup>. The former shows the interactive influence between each constructed variable, while the later shows the variance explained in each predicted variable. The results show that a borrower's perceived information quality had a significant negative impact on perceived risk (b = -0.42, p<0.01) and a significant positive impact on trust in the borrower (b = 0.64, p<0.01). As such, H1 and H2 were supported. Perceived social capital of a borrower had a positive effect on trust in a borrower (b = 0.21, p<0.01), but its influence on perceived risk was insignificant (b = 0.29, p>0.10). As such, H4 was supported, but H3 was not. Perceived risk had a negative significant impact on trust in borrowers (b = -0.17, p<0.01), and trust, in turn, influenced a lender's willingness to lend (b = 0.77, p<0.01), but the direct path from perceived risk to willingness to lend (b = 0.08, p>0.10) was not significant. As such, H5 and H7 were supported, but H6 was not. A total of 14 percent of the variance of perceived risk was explained, 69 percent of the variance of trust in the borrower was explained, and 58 percent of the variance of willingness to lend was explained.

The nature of the dependent variable, BID, dictates that it is measured with a single dichotomous (bid or not bid) indicator. PLS assumes that variables are scalar rather than dichotomous (Chin, 1998); therefore, using the PLS method would underestimate the magnitude of an effect on a dichotomous variable. Therefore, to accurately estimate the effect of willing to lend on actual bidding behavior, we conducted a logistic regression analysis. We found that willingness to lend was indeed a significant predictor of actual bidding behavior (b = 0.34, p<0.01). As such, H8 was supported.

Figure 3 shows the path coefficients and R<sup>2</sup> values for the structural model. Table 4 summarizes results related to our hypotheses.

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#### Figure 3. Structural Model

Table 4: Results of Hypothesis Testing	
Hypothesis	Result
H1: A lender's perceived risk of a borrower is negatively influenced by the perceived	Supported
information quality of the borrower's listing.	
H2: A lender's trust in a borrower is positively influenced by the perceived information	Supported
quality of the borrower's listing.	
H3: A lender's perceived risk of a borrower is influenced by the perceived social capital.	Not supported
H4: A lender's trust in a borrower is influenced by the perceived social capital.	Supported
H5: The perceived risk negatively influences a lender's trust in borrowers.	Supported
H6: The perceived risk negatively influences a lender's willingness to lend.	Not supported
H7: A lender's trust in a borrower positively impacts the lender's willingness to lend to that	Supported
borrower.	
H8: A lender's willingness to lend to a borrower positively affects the lender's actual	Supported
bidding behavior.	

# **VI. DISCUSSION**

## Major Findings

Using a research model based on information asymmetry theory and trust theory, we examined the factors affecting lending behavior in the online P2P lending market in China. The results suggest that trust is a key factor influencing individuals' willingness to lend online. Further, trust is influenced by borrowers' perceived information quality, perceived social capital, and perceived risk. Contrary to our hypothesis, the impact of perceived social capital on perceived risk does not appear to be significant, nor is the impact of perceived risk on willingness to lend. These findings suggest that transaction behaviors in the P2P lending market may not be the same as that in the purchase-oriented e-commerce settings.

Our empirical findings suggest that, in addition to perceived information quality, perceived social capital information also plays an important role in the lending process by enhancing trust in borrowers. A large number of previous studies on social capital have shown that social capital is critical in extracting and using resources for individuals and groups embedded in social networks (Guiso, Sapienza, & Zingales, 2004; Nahapiet & Ghoshal, 1998, Robert, Dennis, & Ahuja, 2008, Tsai & Ghoshal, 1998), but its impact on investment decisions is still not fully understood (Cassar, Crowley, & Wydick, 2007). Our findings compliment previous research studies that focus on how social capital influences lending decisions. We found that perceived social capital was a critical determinant of potential lenders' perceptions of the creditworthiness of borrowers. Online P2P lending is an emerging investment market that was introduced in China in later 2007, so the laws and regulations that protect lenders' right have not yet matured. Our findings are consistent with previous studies that have found that social capital is especially important in the markets with less-developed institutions (Ahlerup, Olsson, & Yanagizawa, 2009). This study enhances the P2P literature by empirically confirming that social capital is a complementary factor for evaluating borrowers' creditworthiness and that it has a significant impact on the funding likelihood. Such findings are important to

understand lending activities of micro-lenders in less-developed countries where financial institutions are not mature and personal credit information of borrowers is harder to obtain.

Contrary to our theoretical expectations, the results show that the relationship between perceived social capital and perceived risk was not significant, which suggests that, although perceived social capital of borrowers helps to gain trust from lenders, it has no impact on mitigating transaction uncertainties. To further investigate the underlying reasons for this, we conducted a series of interviews with PPDai lenders. The post-hoc interviews revealed that the requirement of friendships on this lending website was quite loose. A registered user could add anyone to be their online friend only if the person agreed to be added. Moreover, a registered user could create a new group at any time, and some others could join such groups without any stringent verifications. Online friends were not able to impose sanctions that were as influential as what offline friends could do against a borrower if they didn't payback their loans on time. Therefore, lenders considered that the impact of borrowers' social capital on mitigating loan default risks was not that significant. But still, lenders believed that friends could get more of a borrowers' private information than other lenders, so social capital information could still be a valuable signal to indicate a borrower's trustworthiness. The post-hoc interview also showed that the lending risks were not only from borrowers, but also from a lack of structural assurances from the lending platform and legal risks from violating Chinese regulations. There are tight controls over financial activities in China. According to a legal interpretation on a trial of illegal fundraising issues by the Chinese High Court, fund raising between strangers is illegal if the lenders are public individuals and the lending does not have governmental approval. Therefore, lenders may worry about the legitimacy of such investment activities. For the above reasons, social capital was not the primary concern for lenders when judging risks.

We also found that perceived risk had a significant impact on lenders' trust in borrowers. Contrary to prior findings, our findings indicate that perceived risk is an antecedent of trust in borrowers, which suggests that initial trust guides lenders' decisions. Such trust originates from the concerns about the benefits and risks associated with lending activities rather than from affections developed through interpersonal interactions. Such findings imply that trust may become impersonal and the lending activities will no longer have to be confined to acquaintances. That is, the online P2P lending market would be superior to the traditional micro-loan market in which transactions only take place between relatives and acquaintances. As long as sufficient lenders and borrowers join in, a large, universal lending market could be developed. Such a market would be revolutionary to the development of financial ecosystems.

Finally, we discovered that perceived risk had no influence in determining lending intentions. Such finding portrays a different picture of lending related e-commerce from what researchers have found with purchase oriented e-commerce. A majority of e-commerce studies show that trust and perceived risk jointly determined transaction intentions (Kim et al., 2008; Nicolaou & McKnight, 2006), but, in the setting of P2P lending, the impact of risk perception can be greatly mitigated by the benefits of the investment. This compensation effect is so large that P2P lenders are typically risk takers. In other words, in the P2P lending market, the role of perceived risk is not as decisive as that in the market of online purchase in determining transaction intentions. Therefore, given sufficient stimulation, micro-loans with great risks can also be attractive to investors. These findings indicate directions for the development of the P2P lending market in developing countries such as China where investment risks are very high. In order to encourage individuals to take part in lending activities, a promising return, represented as a high interest rate, should be allowed. However, China currently is still tightly controlling the interest rate in the lending market. It has regulated that any interest rate that is greater than four times the primary interest rate is not protected by the Chinese legal system. Such regulations are very harmful to the development of lending markets where the structural assurance of the platforms are far from mature.

#### **Research Implications**

Our findings have important implications for research. First, they provide valuable information to help researchers understand the nature of lending behaviors in the context of e-commerce in developing countries such as China. Although there is a large body of research that investigates online purchasing behaviors, research focusing on online P2P lending in developing countries is limited. With our theory-based empirical study of P2P lending behavior, we examined the nature of lending from the perspectives of information quality and social capital. In addition to financial profiles, social capital also plays an important role in building trust even though it is not considered to be helpful in mitigating loan default risks. It suggests that the efficiency of the micro-loan market could be significantly improved if social capital information could be integrated into the judgment of borrowers in developing countries. In the traditional micro-loan market, the social capital information of borrowers is only available to their relatives or to those with whom they have closely bonded, but in the settings of online P2P lending, such social capital information can be easily accessed and analyzed by lenders. Therefore, the availability of social capital may be one of the fundamental causes for the prosperity of online P2P lending. Our study can help researchers understand P2P lending behaviors and may be valuable for advancing future e-finance studies in developing countries.

Second, we examined the effects of perceived risk in determining trust and lending intentions. As lending takes place mostly between strangers in the online P2P lending market, trust is built mainly from evaluations of costs and benefits, rather than from interpersonal relationships. Therefore, treating perceived risk as an antecedent of trust is more appropriate in the P2P lending context. Furthermore, the result that perceived risk had no direct impact on lending intention further indicates that transaction behaviors in P2P lending market may not necessarily be the same as those in the e-commerce settings. The findings suggest that, as a form of e-finance, participants in the lending market are concerned not only about risks but also about profits, which is quite different from purchase-oriented e-commerce. As profits go hand in hand with risks, lenders may eventually lend to a risky borrowers if the returns are high enough. Therefore, perceived risk may not be the critical determinant of transaction intentions in the P2P lending marketplace.

Third, our findings contribute to the existing literature by highlighting the importance of legitimacy and structural assurance that protect investment for micro-loan lenders. Although lending platforms have not taken many institutional measures to protect investor's rights, the importance of structural assurance has not been fully recognized. Due to a lack of a structural assurance, especially legal assurance, lenders are often anxious about the security of their investments. Such anxiety may deter many people from investing in such a market. This may be one reason why the size of online P2P lending markets in less-developed countries such as China is much smaller than the size of similar markets in the US.

Finally, we considered the uniqueness of social and economic contexts in China. As emerging economies continue to grow, it may be helpful to have a better understanding of lending behaviors in developing countries such as China. Existing studies of online P2P lending mainly focus on developed countries such as the US (Berger & Gleisner, 2009; Puro, Teich, Wallenius, & Wallenius, 2010) and the UK (Ortega & Bell, 2008). There are few publications addressing this issue in the developing countries, especially in emerging markets. As there are dramatic differences in the investment environments between developed and developing countries (Gao & Damsgaard, 2007), such as investment culture, legal systems, participants' experiences, conclusions of P2P lending research drawn in the developed countries should be verified before being applied to developing countries. Therefore, our findings make a valuable addition to building the theory around online P2P lending in developing countries

#### **Managerial Implications**

This study provides several valuable insights for borrowers, lending websites, and policy makers. First, the results reveal that trust in borrowers was the most influential determinant (among the factors included in this study) of lending intentions, which suggests that enhancing the trust between borrowers and lenders is an effective mean to promote lending activities. Further, perceived risk significantly impacted trust building, but was less influential on willingness to lend, which indicates that the negative impact of risk perception that inhibits lending behaviors could be partly mitigated by compensating factors, such as high investment returns. Therefore, for the purpose of boosting transactions, policy makers need to loosen financial controls, such as allowing lenders to freely choose the interest rate.

Second, perceived information quality was very important in determining risk perceptions and trust in borrowers. Therefore, lending websites should require borrowers to disclose their financial information. In order for such information to be credible, these websites require strict verifications. Furthermore, such information should be arranged in an accessible way so that potential lenders can easily find and assess it. More importantly, we highly recommend that online P2P lending websites display reliable credit information for borrowers from third party credit ranking institutions, such as what Prosper does, so that potential lenders can better judge them. This requires that third party credit ranking institutions in China, such as Central Bank Crediting Institution, join in this market and allow P2P lending firms to access credit information in an appropriate manner.

Third, the findings suggest that social capital is also important to willingness to lend because it significantly enhanced trusting beliefs. Therefore, in order to improve funding probabilities, borrowers should not only provide more detailed information of their financial profiles, but also develop social capital to enhance perceptions of their creditworthiness. Lending websites should devise good mechanisms to facilitate developing friendships between borrowers and lenders. Furthermore, lending website should also establish a mechanism for members to develop group membership with stringent verifications. Such verifications could help members to reflect offline and online social relations, which is beneficial for mitigating loan default risks.

Finally, post-hoc interviews revealed that risks of P2P lending originate from not only lending activities, but also the structural assurances of lending website and from the strength of financial regulations. Therefore, on the one hand, lending websites should incorporate more functions to strengthen guarantees and contractual protections; on the other hand, the Chinese Government should actively enact interest rate liberalization reform and loosen controls of

financial activities. Doing so is likely to result in financial institutions being better able to address the needs of underserved sectors.

#### **Limitations and Further Research**

Despite this study's contributions, readers should consider its limitations when interpreting the findings. First, behaviors in the online P2P lending context may be very complicated and influenced by factors we did not consider. Although we included personal factors such as education and experience of using online P2P lending in our model as controls, we did not consider personality, an important psychological factor. Personality is believed to have significant impact on trusting belief and transaction intentions (Kim et al., 2008), and more research is needed to reveal the role of personality in the P2P lending market. The low R<sup>2</sup> of perceived risk also indicated that there was considerable unexplained variance, which future research could investigate. Furthermore, in order to have a thorough and accurate understanding of lending behaviors, future studies could incorporate other variables such as privacy concerns into our model.

Second, the respondents in this study were lenders from only one major lending website in China, which limits our findings' generalizability. Apart from investigating lending behaviors in the US and China, discovering differences of lending behaviors in different countries and cultures is valuable. Future research could include lenders using different lending intermediaries and in different regions to cross-validate or enhance the results obtained in this study.

Last but not least, because there are significant technology advances and economic developments in the P2P lending market, borrowers' and lenders' behavior may also experience fundamental changes. Thus, in order to adequately understand the evolution of lending behaviors in this market, we recommend longitudinal studies be conducted.

# **VII. CONCLUSIONS**

We explored the crucial antecedents of lending behaviors in the online P2P lending market in China. We built a research model based on existing e-finance and e-commerce literature and on the unique features of online lending. We obtained data from an online survey and actual lending behaviors on PPDai in China. Our findings show that, as a special type of e-finance, online P2P lending has its unique features, which lead to different transaction behaviors from those in the purchase-oriented e-commerce settings. Our results suggest that trust is the most critical determinant of willingness to lend. Perceived information quality and perceived social capital are important for reducing risk perception and for fostering initial trust toward borrowers. Our results also suggest that perceived risk does not influence lending willingness directly, but has a negative impact on trust. Considering the rapid growth of online P2P lending, our study contributes to both research and practice on the understanding of the investment behaviors in the context of developing countries.

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## REFERENCES

*Editor's Note*: The following reference list contains hyperlinks to World Wide Web pages. Readers who have the ability to access the Web directly from their word processor or are reading the paper on the Web, can gain direct access to these linked references. Readers are warned, however, that:

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Ahlerup, P., Olsson, O., & Yanagizawa, D. (2009). Social capital vs institutions in the growth process. *European Journal of Political Economy*, 25(1), 1-14.

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179-211.

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- Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice-Hall.
- Ashta, A., & Assadi, D. (2010). An analysis of European online micro-lending websites. *Innovative Marketing*, *6*(2), 7-17.
- Atkinson, M. A., & Kydd, C. (1997). Individual characteristics associated with World Wide Web use: An empirical study of playfulness and motivation. ACM SIGMIS Database, 28(2), 53-62.
- Barasinska, N. (2010). Would Lehman sisters have done it differently? An empirical analysis of gender differences in investment behavior. Paper presented at the AAAI Spring Symposium on Intelligent Information Privacy Management, Stanford University, Palo Alto, CA.
- Barnes, S., & Vidgen, R. (2002). Assessing e-commerce quality with WebQual: An evaluation of the usability, information quality, and interaction quality of Internet bookstores. *Journal of Electronic Commerce Research*, *3*(3), 114-127.
- Berger, S., & Gleisner, F. (2009). Emergence of financial intermediaries in electronic markets: The case of online P2P lending. *Business Research*, 2(1), 39-65.
- Berkovich, E. (2011). Search and herding effects in peer-to-peer lending: Evidence from prosper.com. Annals of Finance, 7(3), 389-405.
- Cassar, A., Crowley, L., & Wydick, B. (2007). The effect of social capital on group loan repayment: Evidence from field experiments. *The Economic Journal*, *117*(517), 85-106.
- Chen, D., & Han, C. (2012). A comparative study of online P2P lending in the USA and China. *Journal of Internet Banking and Commerce*, 17(2), 2-15.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), Modern methods for business research (pp. 295-336). New Jersey: Lawrence Erlbaum.
- Collier, B., & Hampshire, R. (2010). Sending mixed signals: Multilevel reputation effects in peer-to-peer lending markets. Paper presented at the ACM Conference on Computer Supported Cooperative Work, Savannah, Georhia, USA.

Donath, J., & Boyd, D. (2004). Public displays of connection. *BT Technology Journal*, 22(4), 71-82.

Fama, E. F. (1985). What's different about banks? Journal of Monetary Economics, 15(1), 29-39.

- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39-50.
- Gao, P., & Damsgaard, J. (2007). A framework for understanding mobile telecommunications market innovation: A case of China. *Journal of Electronic Commerce Research, 8*(3), 184-195.
- Gefen, D., Benbasat, I., & Pavlou, P. (2008). A research agenda for trust in online environments. *Journal of Management Information Systems*, 24(4), 275-286.
- Gefen, D., & Straub, D. (2005). A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example. *Communications of the Association for Information Systems*, *16*(5), 91-109.
- Guiso, L., Sapienza, P., & Zingales, L. (2004). The role of social capital in financial development. *American Economic Review*, 94(3), 526-556.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2006). Multivariate analysis. London: Prentice-Hall.
- Hair, J. F., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2012). A primer on partial least squares structural equation modeling (PLS-SEM). Singapore: Sage Publication.
- Harris, P., Rettie, R., & Kwan, C. C. (2005). Adoption and usage of M-commerce: A cross-cultural comparison of Hong Kong and the United Kingdom. *Journal of Electronic Commerce Research*, 6(3), 210-224.
- Herzenstein, M., Dholakia, U. M., & Andrews, R. L. (2011). Strategic herding behavior in peer-to-peer loan auctions. *Journal of Interactive Marketing*, 25(1), 27-36.
- Iyer, R., Khwaja, A. I., & Luttmer, E. F. P. (2009). Screening in new credit markets: Can individual lenders infer borrower creditworthiness in peer-to-peer lending? *National Bureau of Economic Research*. Retrieved from http://www.nber.org/papers/w15242
- Jarvenpaa, S. L., Tracinsky, N., & Vitale, M. (2000). Consumer trust in an Internet store. *Information Technology and Management*, 1(12), 45-71.

Kaiser, H. F. (1974). An index of factorial simplicity. Psychometrika, 39(1), 31-36.

- Katherine, A. K., & Sergio, H. (2009). *Lending behavior and community structure in an online peer-to-peer economic network.* Proceedings of the International Conference on Computational Science and Engineering, Vancouver, Canada.
- Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, 44(2), 544-564.
- Kumar, S. (2007). Bank of one: Empirical analysis of peer-to-peer financial marketplaces. Paper presented at the Proceedings of the Americas Conference on Information Systems, Montreal.
- Liang, H. G., Saraf, N., Hu, Q., & Xue, J. Y. (2007). Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management. *MIS Quarterly*, *31*(1), 59-87.
- Lim, N. (2003). Consumers' perceived risk: Sources versus consequences. *Electronic Commerce Research and Applications*, 2(3), 216-228.
- Lin, M. F., Prabhala, N. R., & Viswanathan, S. (2013). Judging borrowers by the company they keep: Friendship networks and information asymmetry in online peer-to-peer lending. *Management Science, 59*(1), 17-35.
- Liu, D., Lu, Y., & Brass, D. (2013). Friendships in online peer-to-peer lending: Pipes, prisms, and social herding. prisms, and social herding. Retrieved from http://dx.doi.org/10.2139/ssrn.2251155.
- Lopez, S. H., Pao, A. S. Y., & Bhattacharrya, R. (2009). *The effects of social interactions on P2P lending*. Retrieved from http://portal.acm.org/citation.cfm?id=1731014
- Lu, Y., Zhao, L., & Wang, B. (2010). From virtual community members to C2C e-commerce buyers: Trust in virtual communities and its effect on consumers' purchase intention. *Electronic Commerce Research and Applications*, *9*(4), 346-360.
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. Academy of Management Review, 20(3), 709-734.
- McKnight, D. H., & Chervany, N. L. (2002). What trust means in e-commerce customer relationships: An interdisciplinary conceptual typology. *International Journal of Electronic Commerce*, 6(2), 35-59.
- Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2(3), 192-222.
- Nah, F. F. H., & Davis, S. (2002). HCI research issues in e-commerce. *Journal of Electronic Commerce Research*, 3(3), 98-113.
- Nahapiet, S., & Ghoshal, S. (1998). Social capital, intellectual capital and the organizational advantage. Academy of Management Review, 23(2), 242-266.
- Nicolaou, A. I., & McKnight, D. H. (2006). Perceived information quality in data exchanges: Effects on risk, trust, and intention to use. *Information Systems Research*, *17*(4), 332-351.
- Ortega, A. C. B., & Bell, F. (2008). Online social lending: Borrower-generated content. Paper presented at the Americas Conference on Information Systems, Toronto.
- Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance model. *International Journal of Electronic Commerce*, 7(3), 101-134.
- Pavlou, P. A., & Fygenson, M. (2006). Understanding and predicting electronic commerce adoption: An extension of the theory of planned behavior. *MIS Quarterly*, *30*(1), 115-143.
- Pavlou, P. A., Liang, H. G., & Xue, J. J. (2007). Understanding and mitigating uncertainty in online exchange relationships: A principal-agent perspective. *MIS Quarterly*, *31*(1), 105-136.
- Pertersen, M. A. (2002). Information: Hard and soft. Chicago, IL: Northwestern University.
- Petersen, M. A., & Rajan, R. G. (1994). The benefits of lending relationships: Evidence from small business data. *The Journal of Finance, 49*(1), 3-37.
- Petter, S., Straub, D., & Rai, A. (2007). Specifying formative constructs in information systems research. *MIS Quarterly*, 31(4), 623-656.
- Podolny, J. M. (2001). Networks as the pipes and prisms of the market. *American Journal of Sociology, 107*(1), 33-60.

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- Puro, L., Teich, J. E., Wallenius, H., & Wallenius, J. (2010). Borrower decision aid for people-to-people lending. *Decision Support System, 49*(1), 52-60.
- Robert, L. P., Jr., Dennis, A. R., & Ahuja, M. K. (2008). Social capital and knowledge integration in digitally enabled teams. *Information Systems Research*, *19*(3), 314-334.
- Sheu, J. J., Chang, Y. W., & Chu, K. T. (2008). Applying decision tree data mining for online group buying consumers' behavior. *International Journal of Electronic Customer Relationship Management*, 2(2), 140-157.
- Tadelis, S., & Zettelmeyer, F. (2009). *The effect of information on auction outcomes: A large scale field experiment*. Retrieved from http://escholarship.org/uc/item/7t4834h2
- Tsai, W., & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. Academy of Management Journal, 41(4), 464-476.
- Wasko, M. M., & Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quarterly*, 29(1), 35-57.
- Weiss, G., Pelger, K., & Horsch, A. (2010). *Mitigating adverse selection in P2P lending–empirical evidence from Prosper.com.* Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract\_id=1650774

Zhang, J. J., & Liu, P. (2012). Rational herding in microloan markets. Management Science, 58(2), 892-912.

#### **APPENDIX A: THE QUESTIONNAIRE**

	The Questionnaire (1 = Strongly Disagree; 7 = Strongl	y Agree)
Constructs	Measurement items	Adapted from
	PIQ1 I think this borrower provides reliable information.	(Kim et al., 2008)
PIQ	PIQ2 This borrower provides sufficient information when I try to make a transaction.	(Kim et al., 2008)
	PIQ3 I'm satisfied with the information provided by this borrower.	(Kim et al., 2008)
	PSC1 This borrower has a lot of friends on this platform.	(Lin et al., 2013)
PSC	PSC2 This borrower's friends bid a great amount on his/her listings.	(Lin et al., 2013)
	PR1 I'm not sure whether this borrower will repay the money as promised.	(Pavlou et al., 2007)
PR	PR2 I am worried as I'm not sure whether this borrower would keep his promises after he got the money.	(Pavlou et al., 2007)
	PR3 I'm not sure whether this borrower will refuse to repay money.	(Pavlou et al., 2007)
	TB1 This borrower on this site is trustworthy.	(Lu, Zhao, & Wang, 2010)
ТВ	TB2 This borrower on this site gave me the impression that he would keep promises and commitment.	(Lu et al., 2010)
	TB3 I expect that the intention of this web borrower is benevolent.	(Lu et al., 2010)
	WL1 It's very likely that I will lend to this borrower.	(Gefen, 2000)
WL	WL2 This borrower is reliable, I will bid to his/her borrowing listing.	(Jarvenpaa, Tracinsky, & Vitale, 2000)
	WL3 This borrower's listing is worthy of bidding.	(Jarvenpaa et al., 2000)
PSC: perceiv	ved social capital, PR: perceived risk, PIQ: perceived information of	quality, TB: trust in
borrower W	L willingness to lend	

APPE	ENDIX B:	THE (	CORR	ELAT	ION M	ATRIX		SUM	MARY	STA	TS O	F VA	RIAB	LES	
	Mean(SD)	PIQ1	PIQ2	PIQ3	PSC1	PSC2	PR1	PR2	PR3	TB1	TB2	TB3	WL1	WL2	WL3
PIQ1	4.64(1.13)	1.00													
PIQ2	4.44(1.40)	0.40	1.00												
PIQ3	4.33(1.16)	0.43	0.60	1.00											
PSC1	3.92(1.22)	0.24	0.33	0.31	1.00										
PSC2	3.94(1.15)	0.19	0.32	0.32	0.48	1.00									
PR1	4.55(1.36)	-0.09	-0.06	-0.03	-0.02	0.12	1.00								
PR2	4.41(1.35)	-0.16	-0.13	-0.10	-0.04	0.02	0.28	1.00							
PR3	3.95(1.30)	-0.24	-0.15	-0.15	0.07	0.02	0.19	0.49	1.00						
TB1	4.50(1.14)	0.49	0.50	0.50	0.39	0.35	-0.03	-0.12	-0.17	1.00					
TB2	4.52(1.17)	0.46	0.46	0.55	0.33	0.29	-0.02	-0.14	-0.26	0.59	1.00				
TB3	4.59(1.06)	0.45	0.51	0.60	0.28	0.29	-0.04	-0.16	-0.18	0.52	0.59	1.00			
WL1	4.67(1.34)	0.30	0.37	0.35	0.29	0.23	0.02	0.00	-0.07	0.46	0.38	0.39	1.00		
WL2	4.60(1.33)	0.34	0.44	0.48	0.27	0.30	-0.04	-0.10	-0.12	0.52	0.46	0.52	0.52	1.00	
WI 3	4.66(1.12)	0.33	0.45	0.48	0.27	0.31	0.04	-0.06	-0.06	0.51	0.50	0.59	0.43	0.55	1.00

# APPENDIX C: A COMPARISON BETWEEN THE SAMPLE AND OVERALL WEBSITE POPULATION

AC	Comparison Between the Sample and	d Overall Website Population	on
		Sample	Web Population
Gender	Male	90.32%	81.89%
	Female	9.68%	18.11%
Age	Below 20	3.23%	4.09%
	21-25 years	23.96%	35.90%
	26-30 years	36.87%	32.73%
	31-40 years	29.95%	22.75%
	Above 40 years	5.99%	4.51%
Income (RMB)	Below 2000	12.44%	20.98%
	2000-3000	18.89%	20.76%
	3001-5000	33.64%	30.22%
	5001-8000	15.67%	13.45%
	8001-15000	14.75%	9.48%
	Above 15000	4.61%	5.09%

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