Impact of Culture in Peer to Peer Lending

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Abstract

We document that culture and cultural perception both influence financial decisions. We examine the impact of clan culture, an important dimension of Chinese culture, on individual lending behavior. Using data from RenRenDai, a leading peer-to-peer lending platform in China, we find that borrowers from regions with higher clan culture are more likely to get loans funded, attract larger bids from lenders, get loans funded faster, are less likely to default, and repay a larger fraction of their loans. These effects are more pronounced when borrowers are riskier, there is greater information asymmetry, and the legal environment is weaker. These results are robust to potential endogeneity concerns and to alternative measures of clan culture. We show that clan culture acts as a substitute for formal institutional mechanisms and participants in the peer-to-peer market use information about clan culture as a proxy for economic factors. Our results suggest that cultural considerations improve efficiency of financial decisions.

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1 Introduction

Economists are increasingly aware that culture may affect economic outcomes by shaping individuals' beliefs and perceptions toward decision-making (Zingales, 2015, Berger, Li, Morris, and Roman, 2021). Previous research has shown that national, local, or organizational culture influences investment, trading, and corporate decisions. It follows that when agents strategically interact with each other, their actions should in turn be influenced by their rational anticipation of the predictable influence of culture (or cultural stereotypes) on their peers. Our evidence shows that culture impacts financial decisions in two ways. First, one's own culture, representing preferences that may be an outcome of environment, predicts their financial decisions. Second, financial decisions in interactions with others rationally use cultural perception of others as a signal of their behavior.

Empirical research on the impact of culture in finance is limited by quantifiable measures of culture and by data on individual financial decisions. Our unique data allows us to overcome these limitations. We examine how clan culture, a dimension of culture in China, influences individuals' decisions in peer to peer lending. Clan culture has played an important role in Chinese society and has contributed to its social and economic progress over the past millennium (Hsu, 1963, Greif and Tabellini, 2017)[1]. Clan culture was rooted in kinship and has broad social functions including maintaining and developing social network, social organization and protection, and shaping individual values. While serving social functions, Chinese clan culture also gradually revealed its economic functions such as providing public goods, distributing economic resources, assisting rural enterprises, supporting financing public goods in rural areas, serving as internal financial market and business corporations and promoting private economic development. The strength of clan culture varies geographically across China. This variation has permitted studies to document the impact of clan culture

[1]The influence of clan culture is not limited to China. In several developing societies, particularly those in the Middle East, Africa, and Central Asia, clan-based systems still prevail. In such areas, clans continue to have long-lasting cultural effects on social norms and individual behavior (Freedman, 1958, Fox, 1971, Wedel, 2003, Cheng, Dai, Lin, and Ye, 2021).

on the macro level such as socioeconomic development (Chen, Ma, and Sinclair, 2022b) and patterns of industrial specialization (Fan, Li, Xue, and Yu, 2021) or on the corporate level such as entrepreneurship (Zhang, 2020), and risk-taking (Huang, Ma, and Wang, 2022). Aggregate consequences of culture must likely arise from their impact on individual behavior. However, the literature has not examined how clan culture impacts individuals financial decisions. Further, it is not clear what is the relation between clan culture and the primitive factors such as risk and return factors that underlie financial decisions. Our study aims to bridge this gap by exploring the influence of clan culture on peer-to-peer (P2P) borrowing and lending.

The exogenous geographical variation in the strength of clan culture permits us to identify the effect of culture on financial decisions. The data about individual bids in peer-to-peer (P2P) lending allows us to identify the effect of cultural perceptions on financial decisions. P2P lending allows individuals to crowdfund loans to other individuals without the involvement of banks. Each lender can fund a small amount of the loan to a borrower. Loans are not collateralized (Lin and Viswanathan, 2016) and both the lenders and the borrowers are anonymous (Chen, Huang, and Ye, 2020). Lenders may overcome adverse selection with nontraditional information about borrower such as their social network (Lin, Prabhala, and Viswanathan, 2013), video information (Wang, Yu, and Zhang, 2019), friendship and groups (Iyer, Khwaja, Luttmer, and Shue, 2016, Hildebrand, Puri, and Rocholl, 2017), and other voluntarily disclosures (Chen, Huang, and Shaban, 2022a). The clan culture of a borrower is one such signal accessible to lenders. We examine how clan culture impacts borrower behavior and how lenders' perception of borrowers' culture influence their decisions.

We draw our data from RenRenDai (RRD), China's most popular P2P lending platform. More than 2.5 million people have joined RRD since the platform's formal launch in September 2010. RRD was recognized as an AAA (highest level) online lending platform by the Internet Society of China and also by the China Academy of Social Sciences in 2014 and 2015. Our data consists of all "manual bidding" transactions on RRD from 2012 to 2015. Borrowers requesting loans at RRD provide mandatory personal information, some of which is verified by RRD, and optional additional information. RRD also issues credit ratings to borrowers. Borrowers request a loan amount, up to a maximum of ¥3,000 to ¥1,000,000 (around $430 to $145,000) depending on their rating, and offer an interest rate.

A borrower can have multiple outstanding loans. A loan listing is accessible to investors for multiple days to submit bids in multiples of 50 RMB (about $7.50). A loan is successful when it gets 100 percent investment; otherwise, the borrower receives no funding. Once a loan is successful, funds are transferred from the lender(s) to the borrower, and the borrower is required to make monthly loan repayments. The interest and principal of the loan are amortized on a monthly basis to borrowers throughout the loan period. In the event of a default or delinquency, RRD makes several efforts to collect, such as texting or calling the borrower, contacting the borrower's friends and families, and even conducting on-site collections. Figure 1 depicts the main steps in the lending process.

We use loan listings posted on RRD from January 2012 to December 2015. We exploit variation in clan culture of the borrower, based on their geographical location, to identify the impact of clan culture on loan outcomes. We find that borrowers from regions with higher clan culture have better ex-ante performance. They are more likely to get their loans funded by lenders, receive funding faster, and attract larger bids from individual lenders. To examine if lender behavior is rational or introduces a bias, we examine borrower behavior. We find that borrowers from regions with high clan culture exhibit lower default rates and higher repayment ratios. Thus, borrower behavior provides a basis for lender reliance on culture. The results about the advantage conferred to higher-clan-culture borrowers are stronger for loans that appear to be riskier ex ante, suggesting that clan culture is less valuable as a differentiator of default risk for loans that are ex ante less risky. The apparent advantage of a higher clan culture is diminished for borrowers that have a history of loan default. This is consistent with culture playing an information role that gets diluted with more informative credit history.

We perform additional analyses to show that our results are robust to the use of an alternate measure of clan culture and to analysis at city-level rather than at province level. While we do not expect endogeneity of clan culture to be a problem in the context of our analysis, our results are robust to use of an instrument variable for clan culture. Since we can observe repayment behavior only for those borrowers who obtain loans, our results about borrower default are susceptible to selection bias. We show that our results about the link between borrower culture and repayment performance are robust to adjustment for selection bias using Heckman's model.

Zingales (2015) proposes that tracing the effect of culture through the economic channels that it is supposed to affect reduces the risk of spurious correlations. Following this approach, we seek to identify the economic channels behind the role culture plays in peer to peer lending. Using survey data about the influence of culture on individuals' preferences, we show that lender preference for borrowers with higher clan culture is consistent with the perception than higher-clan-culture borrowers are more trustworthy and more socially networked. As a further test of this economic channel, we show that the lender preference towards loans of borrowers with higher clan culture is stronger among loans with greater information asymmetry. Survey data also permits us to explore the economic channel behind borrower behavior. We find that the reduction in default risk associated with higher-clan-culture borrowers is consistent with greater adherence to ethical norms in these borrowers. As further support for this economic channel, we find that the reduction in default risk associated with higher-clan-culture borrowers is more pronounced in areas with weaker legal environment.

Finally, we examine whether our findings about the impact of culture on lenders is consistent with our findings about the impact of culture on borrowers. We find that lenders optimally use clan culture as a predictor of borrower behavior. Our results are consistent with an equilibrium in which culture acts as a credible signal of behavior as well as an enforcement mechanism of norms.

We contribute new evidence on the causal mechanism between culture and economic outcomes (Guiso, Sapienza, and Zingales, 2006, 2015, Zingales, 2015, Greif and Tabellini, 2017, Chen et al., 2022b). There is a growing recent literature on the role culture plays in the financial decisions of individuals and institutions. Ahern, Daminelli, and Fracassi (2015) show that cross-border merger activity is less and merger announcement returns are lower when countries are more culturally distant. Bereskin, Byun, Officer, and Oh (2018) show that firms with similar cultures of corporate social responsibility are more likely to merge and to have superior performance of mergers. Siegel, Licht, and Schwartz (2011) show a negative impact of egalitarianism distance on cross-national flows of bond and equity issuances, syndicated loans, and mergers and acquisitions. Cultural distance across nations predicts the foreign bias puzzle in investment portfolios of institutional investors (Karolyi, 2016). There is also evidence about effect of culture on aggregate behavior of individuals. Grinblatt and Keloharju (2001) show that Finnish investors are more likely to hold and

trade the stocks of firms that are located close to the investor, that communicate in the investor's native tongue, and that have chief executives of the same cultural background. Chui, Titman, and Wei (2010) show that that individualism, a dimension of national culture, is positively associated with trading volume, volatility, and momentum profits. Eun, Wang, and Xiao (2015) show that culture influences correlations in investors' trading activities. Guiso, Sapienza, and Zingales (2008) show that less trusting individuals are less likely to participate in the stock market. Fisman, Paravisini, and Vig (2017) show that cultural similarity increases credit volume and reduces default. Similarly, Burtch, Ghose, and Wattal (2013) suggest that cultural proximity facilitates online lending while cultural difference has a negative effect on the loan amount of the borrowers (Chen, Jin, Andrikopoulos, and Li, 2022c).

In some of these studies, one's culture acts as a measure of preferences in determining their economic actions, but its consequences in interactions with others are not explored. Studies which consider interactions among people highlight a preference for cultural similarity. A preference cannot be evaluated from the lens of economic rationality. We consider strategic actions among individuals where high economic stakes provide incentives that may conflict with culture-induced preferences. We find plausible economic mechanisms though which culture impacts borrower preferences. We also find that lender behavior is consistent with value-maximizing rational behavior, rather than a simple preference for cultural similarity. Our results confirm that culture influences economic outcomes. Further, this influence is consistent with equilibrium behavior based on rational value-maximization.

We also contribute to the literature on social connections in financial transactions. Unlike the literature that examines the impact of social ties or social networks, which are adaptable and influenced by individual choices (Becker, 1996, Fisman et al., 2017), we examine social connections between borrowers and lenders who are likely unfamiliar with each other. Their behavior is primarily influenced by the other party's inherent cultural endowment, predetermined at birth and passed through generations. This suggests that the economic differences stemming from disparities in cultural endowment among communities can endure over time.

Our research is also relevant to the growing literature about peer to peer lending. Previous studies have looked at various metrics of the creditworthiness of borrowers, such as the physical appearance of borrowers (Duarte, Siegel, and Young, 2012), physical proxim-

ity to lenders (Lin and Viswanathan, 2016), and gender (Chen et al., 2020). While these studies examine how participants in P2P market view individual attributes, they do not focus on cultural attributes. In a closely related paper, Hasan, He, and Lu (2022) find that borrower and lender behavior is correlated with contemporaneous voluntary blood donation, nongovernmental organization participation, corporate reputation survey, and citizen reputation survey of the borrower's region, outcomes that they consider measures of social capital. However, they do not attempt to explain what causes cross-sectional variation. Heeding Zingales (2015) caution against potential spurious correlations, we seek an exogenous cultural factor and the channels through which it impacts economic behavior. We show that clan culture of borrower and its perception impact behavior of borrowers and lenders in the P2P market. We further establish that cultural consideration appears to be rational behavior that compensates for poor institutional and governance mechanisms.

2 Hypotheses

Clans come together for risk sharing and resource pooling (Chen et al., 2022b), build physical facilities such as ancestral halls to worship ancestors, maintain genealogical records, and record rules and norms to be followed by members of the clan (Peng, 2004). Clan culture has endured for thousands of years and still impacts norms and cultural values (Fan et al., 2021). Lineage activities such as constructing ancestral halls and maintaining genealogy records continue to be prevalent in China (Greif and Tabellini, 2017).

Genealogy compilation is a crucial aspect of the clan system. Genealogy books serve as a record of the lineage from a common ancestor and recount the clan's honored descendants and events. They also outline the clan's rules and principles of conduct, emphasizing the importance of qualities such as hard work and integrity. Genealogical compilation and common property ownership and ancestral worship strengthen bonds among clan members (Xu, 2012, Cheng et al., 2021). Clans also regulate the behavior of their members and uphold their reputation through internal governance structures and codes of conduct (Watson, 1982, Peng, 2004).

Clan culture has impacted the development of Chinese social structures (Greif and

Tabellini, 2010, Hu, 1948). Clans arbitrate compromises, reducing the need for formal legislative and enforcement institutions (Greif and Tabellini, 2010). The Chinese state did not articulate a commercial code until the late nineteenth century and there was no separate legal branch in the Chinese administration. Intra-clan loyalty and interactions limited urbanization, city size, and self-governance, facilitating state control over cities (Greif and Tabellini, 2010). Chen et al. (2022b) suggest that clan culture acted as a substitute to financial markets and limited China's financial development. The tradition of communal property ownership and the pooling of family financial resources reduced the dependence on external capital (Chen et al., 2022b, Cheng et al., 2021). The clan system facilitated resource pooling for business ventures and risk sharing, and was the predominant platform for interpersonal cooperation for many generations (Faure, 2006, Pomeranz, 2000, Chen et al., 2022b).

The members of a clan abide by a set of norms for education, life, social interaction, and etiquette (Peng, 2004), which influences their preferences and values (Guiso et al., 2006, Zhang, 2020), and consequently their behavior as market participants. For example, Huang et al. (2022) show that CEOs from regions with a stronger clan culture make more conservative business decisions. At an individual level, Alesina and Giuliano (2015) note that inheritors of stronger familial ties are less mobile and favor stricter labor market rules. Following Guiso et al. (2006), we identify the following three channels through which clan culture of P2P borrowers and lenders impacts their expectations and preferences.

Trust: Clan culture fosters trust and trust positively affects lending activity (Guiso, Sapienza, and Zingales, 2004, Guiso et al., 2008). Clans typically establish regulations that mandate harmonious coexistence and mutual assistance among members, thereby reinforcing trust between them (Cheng et al., 2021). Trust can extend to interactions with those outside the clan because clans encourage members to avoid conflict or inappropriate actions that can bring shame to their clan and harm family reputation (Allen, Qian, and Qian, 2005, Xu and Yao, 2015, Zhang, 2020). Further, since a clan member's identity is closely associated with their clan (Landa, 1994) and identity encompasses reputation, reputational concerns reinforce trust between clan members (Akerlof and Kranton, 2000). Due to limited population mobility, clans often reside in the same area for hundreds of years, further facilitating the development of trust (Karlan, Mobius, Rosenblat, and Szeidl, 2009). Enhanced social trust in clans facilitates collective action and provision of public goods (Xu and Yao, 2015).

We, therefore, expect borrowers with higher clan culture to obtain more credit (Guiso et al., 2004).

Social Network: Membership in the social network of a clan can act as a signal of a borrower's creditworthiness. Clan networks are used for sharing information among clan members, especially in the absence of formal institutions supporting the market (Greif and Tabellini, 2010). The kinship-based social networks embedded in clans permit interpersonal cooperation (Chen et al., 2022b) and facilitate financing (Zhang, 2020). Karlan et al. (2009) show that network connections between individuals act as social collateral to secure informal borrowing. In P2P lending market, lenders may base their lending decisions on soft information such as the borrower's social network. The trust and the social network channels lead to our first hypothesis:

Hypothesis 1: Borrowers from regions with higher clan culture are more likely to obtain loans than borrowers from regions with lower clan culture.

Reputation: Reputation in clan cultures relates to strict ethical rules. Greif and Tabellini (2010) point out that the role played by external law enforcement in sustaining cooperation in Europe is taken over by clan culture in China, relying on moral bonds and reputation to deter cheating. Behavior deviating from local social norms can result in social sanctions (Akerlof, 1980) such as warnings from clan elders (Chen et al., 2022b), and even expulsion from the clan (Peng, 2004). In order to maintain reputation, clans try to prevent their members from harming outsiders, refuse their offenders clan protection (Greif and Tabellini, 2017), and record the offending behaviors of clan members, particularly those with high status, in the genealogy book (Huang et al., 2022). These reputational concerns are consistent with the evidence that corporate executives from regions with stronger clan culture take less risk and adopt conservative corporate policies (Huang et al., 2022). We expect such behavior to carry over to the loan market and propose our second hypothesis:

Hypothesis 2: Borrowers from regions with higher clan culture are less likely to default than borrowers from regions with lower clan culture.

3 Data

Our data consists of loan listings posted on RRD, bids on these loan listings from investors, and the repayment performance of borrowers on loans that were funded. Borrowers making loan requests at RRD must disclose to the platform and to the lender personal information including age, gender, education, income, marital status, house ownership, employment information, and address. They also supply a title, a description of why they need a loan, the loan amount requested, and the loan maturity (ranging from 3 months to 36 months). RRD verifies the authenticity of essential details such as borrowers' national identification cards, gender, age, and addresses. Borrowers optionally provide additional certificates to support the validity of their information, such as income and education. RRD issues its own credit ratings for borrowers based on their information disclosure, borrowing history, and repayment performance, with the following levels in decreasing order or creditworthiness: AA, A, B, C, D, and HR (High Risk). The ratings can change over time.

WE restrict our sample to loan listings posted on RRD between January 1, 2012, and December 31, 2015, to avoid periods with significant institutional changes at RRD, in the initial launch period, and after 2015. We exclude loan listings guaranteed by the platform because they are not typical P2P lending. We winsorize loan listings at 1% and 99% of loan amount and borrower age. Our resulting sample has 341,348 loan listings, 21,371 of which were successfully funded. Among the successfully funded loans, 2,413 experienced a defaulted, while the rest were repaid.

3.1 Key Variables

To measure clan culture, we follow previous literature (Zhang, 2020), and construct province-level clan culture based on the total number of genealogies complied. Our genealogy data are from The General Catalog of Chinese Genealogy, compiled by the Shanghai Library and published in 2008. The catalog, the largest collection of Chinese genealogies, consists of 41,371 genealogies written in either mainland China or overseas, covering thirty-one provinces and 286 prefecture cities. For each genealogy, the catalog records its written or updated date and the clan's location. We measure the strength of local clan culture as *Clan Culture*,

calculated as the logarithm of the number of genealogies compiled in a province normalized by the population of the province.

The geographical variation in clan culture is depicted in Figure 2. Clan culture is especially strong in Southeast China, comparatively weaker in the northern and western parts of China. This spatial distribution is consistent with the documented geographical patterns of historical clan organizations (Hu, 1948, Freedman, 1958, Feng, 2013).

We measure a loan listing outcome with the variable *Success*, that takes the value 1 if a loan listing is fully funded, and 0 otherwise. Loan performance is measured with the variable *Default*, defined for successful loan listings, taking the value 1 if the loan results in a default, and 0 otherwise. Another measure of loan performance, *Repayment Ratio*, is the ratio of the amount repaid by the borrower to repayment amount.Following Wang and Tong (2020), we define *Funding Time* of a loan as the standardized time it takes for the loan to be fully subscribed, adjusted for the loan amount. The smaller the value is, the more popular the loan request is. The *Average bid amount* is defined for a successful loan listing as the average bid amount across all bids.

Following Hasan et al. (2022), we incorporate two kinds of control variables in the regression. The first set of control variables relate to loan listing characteristics, such as the term, interest rate, and amount requested. The second set of control variables are borrower-specific, such as credit score, whether the borrower has a mortgage or a vehicle loan. We also include province-level controls including GDP per capita to measure the economic development, the number of certified lawyers per capita to capture the legal environment, and the number of banks per capita to measure the financial environment. Table 1 summarizes all variable definitions.

Our main empirical methodology assesses the impact of the borrower's clan culture on lender behavior through the following model:

$$\text{Probability}\left(Success_{it}=1\right)=\alpha_0+\alpha_1 ClanCulture_i+\alpha_2 X_i+u_i+\epsilon_i. \tag{1}$$

where $Success_{it}$ is the funding outcome for loan listing i in month t, X_i is a vector of control variables including loan characteristics, borrower characteristics and provincial-level characteristics, u_t is the year-month effect, and ϵ_i is a random error term. Our main empirical methodology to assess the impact of the borrower's clan culture on loan repayment esti-

mates the following model for $Default_{it}$, the performance of loan i issued in month t (or $RepaymentRatio_{it}$):

$$\text{Probability}\left(Default_{it}=1\right)=\alpha_0+\alpha_1 ClanCulture_i+\alpha_2 X_i+u_i+\epsilon_i. \tag{2}$$

3.2 Summary Statistics

Table 2 presents summary statistics of different variables. With a 6% average financing success rate and an 11% default rate, competition for funding is fierce and credit risk is significant on this platform. The average investment of an investor in a successful loan is RMB 1,966 (around $286) and the average repayment ratio is 91%. Successful loans are funded with an average of 25 bids in around 76 minutes. The average loan size is RMB 64,138 (about $9,162) and the average interest rate is 13.82%. The majority of borrowers on the RRD platform have poor credit rating with an average value of 1.12. Their average age is around 32 years. About 43% report that they own houses and about 18% report that they own a car. The average loan maturity is around 16 months and the maximum is 3 years.

The average value of clan culture in a province is 4.66 and the highest value is 8.33. We also present the summary statistics of CGSS 2013 data[2], including the answers to the questions that we will adopt in our paper and the basic personal details such as gender, age, education, etc. of the survey participants. The questionnaire employs a rating scale where a score of 1 indicates the least agreeable attitude, while a score of 5 signifies the most agreeable attitude.

4 Results

4.1 Clan Culture and Investor and Borrower Behavior

Our empirical analysis focuses on the hypothesis that a borrower from a higher clan culture region is more likely to get her loan funded and is also more likely to repay the loan. Figure

[2]The CGSS, conducted by Renmin University of China, is the most representative social survey in China. In 2013, 11,438 people were interviewed across all provinces.

3 shows that clan culture is positively associated with loan success rate and negatively associated with default rate. We formally test the effect of clan culture on lending performance by estimating the model in (1). Table 3 reports the results. The dependent variables are the borrowers' loan funding success, the time takes for a loan to be fully funded and the average bid amount. We include borrower characteristics, loan characteristics, and the institutional environments of borrowers' home province as control variables.

Columns (1) and (2) show the influence of borrower's clan culture on the probability that a loan listing is funded. The difference between the two columns is that province-level variables are added as control variables only in Column (2). The results from both columns show that borrowers from regions with higher clan culture are more likely to get their loans requests funded. The coefficient of clan culture in Column (2) is 0.031 with a t-statistic of 5.40. The marginal effect (reported below t-statistic) is 0.001, and is significant at the 1% statistical level with a t-statistic of 5.43, suggesting that a unit increase of clan culture increases borrowing success rate on average by 1.59% (0.001/0.063). Column (3) presents the results of Cox Proportional Hazard Model. In the Cox regression, we set the survival time as the time elapsed from the release of the loan listing on the platform to the time when the loan gets funded, measured in 30-minute increments. The results again show that a strong clan culture is positively and significantly related to funding success. Columns (4) and (5) show that loan listings of borrowers from regions with higher clan culture are more popular among investors, since the coefficient of Clan Culture in column (5) is -0.008 (t-statistic of -2.37) and significant at the 5% level, suggesting that among those successful loan listings, a unit increase in Clan Culture decreases the funding time by about 0.8%. Columns (6) and (7) show a positive significant correlation between the average amount invested by lenders in successful loan listings and borrowers' clan culture (t-statistics of 10.60 and 7.20, respectively), indicating that on average, lenders tend to invest greater amounts in loans of borrowers from a province with a higher clan culture. Taken together, the findings in Table 3 support Hypothesis 1.

The coefficients of the loan-level control variables show that borrowers with higher credit ratings, higher income levels, higher education levels, and longer work experience have higher funding success, while borrowers providing higher interest rate have lower funding success rate, consistent with prior literature (Chen et al., 2020). Financial environment (Banks

Per Capita) is positively and statistically significantly related to funding success, while the law environment is negatively related to the funding success, again consistent with prior literature (Hasan et al., 2022).

Table 4 presents the estimation results of Hypothesis 2. The dependent variable is default rate or repayment ratio for loans issued as a result of successful loan listings. We include loan-level, borrower-level, and province-level control variables.

Columns (1), (2), and (3) show the influence of borrower's clan culture on the probability of default and repayment ratio. The coefficient on clan culture in Column (1) is negative and statistically significant (-0.064 with a t-statistics of -4.01). The marginal effect is -0.002 with t-statistic of -3.64, significant at the 1% level, suggesting that a unit increase in clan culture decreases default on average by 1.78% (0.002/0.112). While Column (1) estimates a Logit model, Column (2) presents estimation results from a Probit model. Borrowers' clan culture continues to be negatively and statistically significantly related with the probability of default. We consider repayment ratio as another measure of the borrowers' performance, that can captures all payment information for a defaulted loan. The results, shown in Column (3), are consistent with the prior results. A unit increase in clan culture raises the repayment ratio by 0.3%. Finally, since more than 12% of the values of Repayment Ratio are 1, we adopt Tobit model to account for censoring. The findings in Column (4) show that the coefficient of clan culture is statistically significantly positive (0.033 with a t-statistic of 3.340). Taken together, the findings in Table 4 are consistent with Hypothesis 2. Collectively, our findings confirm that clan culture has a positive influence on both ex-ante individual lending behavior and ex-post borrower repayment performance.

4.2 Heterogeneity Analysis

Our results find pervasive correlations of the level of clan culture with the loan listing success and with the loan repayment. To gain more confidence in the causal nature of this correlation, we explore how the magnitude of this effect varies across groups.

4.2.1 Clan Culture and Borrower Risk

The effectiveness of clan culture in improving creditworthiness is expected to vary across borrowers with different observable characteristics. Its marginal impact may be low among borrowers that appear to be lower-risk based on observable characteristics. However, the norms associated with a higher-clan culture can have a greater impact in reducing defaults of borrowers who are otherwise considered higher-risk based on observable characteristics. Therefore, we posit that the negative (positive) relation between clan culture and default (repayment ratio) is stronger for riskier borrowers. According to empirical results in Table 4, these are the borrowers with lower credit rating, lower education level, and less working experience.

To test this hypothesis, we divide our sample into groups based on the risk measures mentioned above. We classify the borrowers into under-educated (graduated from a college or below) and highly-educated (graduated from a university or above). We label a borrower as inexperienced if he/she has less than one year of work experience and experienced otherwise. We assign borrowers into four groups based on quartiles of credit rating, classifying the group with the lowest credit rating as the low credit rating group and the group with the highest credit rating as the high credit rating group. We estimate regressions models keeping the same control variables as in Table 4. Table 5 presents the results.

In Panel A, the negative coefficients of clan culture show that clan culture reduces default for both subsamples. However, this effect is statistically more significant for borrowers with lower education level, lower credit rating, and lower work experience (t-statistics of -2.64, -2.29, and -3.40, respectively). Further, the coefficients of clan culture are larger in magnitude for the sub-sample of low credit rating and inexperienced borrowers. In the last set of regressions, we follow Cleary (2002) to compare the coefficients of clan culture across inexperienced and experienced borrowers, and find that the difference is statistically significant with a p-value of 0.065. This evidence indicates that the impact of clan culture on mitigating default is more pronounced within riskier borrowers. In Panel B we use repayment ratio as the dependent variable. We find that the impact of clan culture is statistically significant only for riskier borrowers. Further, the coefficients of clan culture are larger in magnitude for the subsample with riskier borrowers. Overall, the results from Table 5 show

that clan culture is a stronger predictor of loan performance for riskier borrowers.

4.2.2 Investor Learning

If clan culture acts as a surrogate for creditworthiness, its impact should decline when availability of other measures of creditworthiness improves. We expect the credit premium associated with the clan culture to diminish as a borrower develops a longer history of performance on past loans. Investors may be more likely to extend loans to a borrower with short performance history if she has a higher clan culture. However, if the borrower defaults on a loan, the investors should take this information into account, making further loans to the borrower less likely, despite the borrower's high clan culture. Thus, we expect the impact of clan culture to be more significant among borrowers who have never defaulted than among repeat borrowers with previous defaults.

To test this hypothesis, we divide borrowers into "No-Default Borrower," borrowers who have not defaulted in the past, and "Defaulted Borrower," borrowers with at least one previous default in our data. We subdivide "Defaulted Borrower," into those who have defaulted only once and those who have defaulted many times. We estimate regressions with the same control variables as in Table 3. Table 6 presents the results.

In Panel A, with the funding success as the dependent variable, we find that the impact of clan culture on improving funding success probability is positive and statistically significant only for borrowers with no past defaults (t-statistic of 2.92). The effect of clan culture on improving funding success is not significant for borrowers who have defaulted once or multiple times. We observe the same pattern in Panel B, where Funding Time is the dependent variable. Although a higher clan culture reduces the time for funding of loan for both subsamples, the effect is statistically significant only for borrowers with no prior defaults, indicating that the incremental informativeness of clan culture to lenders is diminished after borrowers experience a default. Overall, the results from Table 6 suggest that credit history and clan culture act as substitute sources of information for investors.

4.3 Clan Culture of Lenders

We now examine how clan culture of lenders affects their behavior. Unfortunately, the platform does not disclose demographic information about lenders. However, some participants on RRD platform are both borrowers and lenders. Participants can freely switch roles according to their needs. We obtain demographic information about bidders who have also been borrowers at RRD. The data consists of 29,251 bids of 1,752 unique lenders (bidding borrowers) with investments in 10,845 loans.

We examine how clan culture affects lenders' behavior in Table 7. We first test how lenders' clan culture influences their investment amount. We use the *Log Bid Amount* as the dependent variable in Columns (1) and (2) of Panel A and include lender-specific variables as independent variables along with loan and borrower controls. Since Lin and Viswanathan (2016) show that home bias influences investment in the P2P market, we include a dummy variable *Hometown*, equal to 1 if lenders and borrowers are from the same province and 0 otherwise, as a control variable. We find that lenders' clan culture is significantly negatively (t-statistic of -4.25) related to the bid amount without provincial controls. When we include provincial controls, the coefficient becomes positive but insignificant. Further, the coefficients of *Borrower Clan Culture* in both models are positively associated with the bid amount, consistent with our main findings.

Another variable we use to measure lenders' attitudes is their decision time. Liao, Wang, Xiang, Yan, and Yang (2021) indicate that decision time of investors in the P2P market reflects their decision-making process, and a longer decision time reflects more cautious investment attitude. We follow them to define variable *Decision Time* as the logarithm of time duration from the listing of a loan to the placement of bid on the loan by the investor, divided by the bid amount. Column (3) and Column (4) of Panel A present the results, indicating that on average higher-clan-culture lenders take more time to bid. A little bit surprising result is the effect of hometown, suggesting that lenders take more time to bid when borrowers are from the same place as them.

Lastly, we examine *Bid Timing* to analyze lender behavior. Zhang and Liu (2012) view investment timing as a crucial indicator of investors' enthusiasm towards the loan target and their information processing methods. Delayed investment timing could stem from

either a conservative investment approach or an emulation of others' investment behaviors in decision-making. We define *Bid Timing* as the fraction of the loan that has already been funded at the time of an investor's bid. The results in Column (5) and Column (6) show that higher-clan-culture lenders tend to invest at a later stage. Taken together, our results suggest that lenders from regions with higher clan culture are less likely to take risks and show a more conservative attitude towards investment. This finding is consistent with Huang et al. (2022), who also show that CEOs local to the strong clan culture areas are less likely to take risks.

We now examine whether differences in regional clan culture between borrowers and lenders impact lending behavior. We create the variable *Difference* (equal to 1 if the lender's clan culture is greater than or equal to that of the borrower, and 0 otherwise) to capture the effect. We also consider *Clan Culture Difference*, defined as the difference between lenders' clan culture and borrowers' clan culture. To differentiate clan culture difference from other difference between borrowers and lenders, we follow Hasan et al. (2022) to include as control variables observable disparity between borrowers and lenders in personal characteristics including age, gender, education background, etc. The results are shown in Panel B. The negative effects of *Difference* (coefficient of -0.068 with t-statistic of -3.51) and *Clan Culture Difference* (coefficient of -0.015 with t-statistic of -3.39) on the bid amount suggest that lenders are less likely to invest when they have a higher clan culture than borrowers. Likewise, lenders are more cautious, taking more time to make investment decisions and bid at a later stage for borrowers from regions with relatively weaker clan culture.

5 Robustness Analyses

We now present several analyses to consider the sensitivity of our main results to alternative specifications.

5.1 Impact of Migration

One concern related to our paper is that for people who migrate, our geography-based proxy for clan culture may not be accurate. Whether the borrowers' clan culture reflects the

culture of their current city or of their birth city is unclear and beyond the scope of this paper. Without taking a stand on this issue, our interest is in ensuring that our results are not spuriously driven by migration.

To allay this concern, we distinguish between the birth province and the current province of the borrowers. Our main analysis relies on the current province that is directly provided by borrowers to RRD. We infer the birth province from the borrower's national identification number.[3] We estimated the regressions of Table 4 by replacing the clan culture based on their current province with the clan culture based on their birth province. Untabulated results of these regressions are similar to our main results. The results continue to hold qualitatively if we restrict the sample to borrowers who current province matches their birth province. We also examine whether the clan culture of the borrower's birth province or the clan culture of the borrower's current province is a stronger predictor of getting a loan funded. We find that the clan culture of the current province is a stronger predictor of loan success as the borrower's current province is more accessible to the lenders than the borrower's birth province.

5.2 Alternate Measure of Clan Culture

Our main measure of clan culture is the density of genealogies. We now consider the number of ancestral halls as an alternate measure of clan culture. By providing clan members with a tangible location to aggregate, ancestral halls act as pivotal instruments in promoting solidarity among the members of the clan (Chen et al., 2022c). The 2014 CFPS (China Family Panel Studies) survey conducted by Peking University measured the number of ancestral halls at village level. We use this data to calculate the log of the number of ancestral halls in each province normalized by the population of that province. Finally, we construct a composite index by applying principal-component analysis for genealogies and ancestral halls. Table 8 presents the results. We continue to find statistically significant positive relations

[3]A Chinese national identification number is an 18-digit number assigned at birth. The initial two digits of the number denote the individual's birth province. For instance, a person with identification number beginning with "11" must have been born in Beijing, RRD obtains national identification number from borrowers during the application process and reveals its first three and last three digits to lenders.

between clan culture and the likelihood of getting loan funded, the speed of getting the loan funded, and the average bid amount. In terms of performance, we continue to find that borrowers with high clan culture are less likely to default. However, the positive relation between clan culture and repayment ratio loses statistical significance. Overall, our results don't change qualitatively with a change in the measure of clan culture.

5.3 City-Level Variation in Clan Culture

Our main analysis exploits variation in clan culture at the province level. However, clan culture may vary within provinces. We reexamine the relation between clan culture and lending behavior using clan culture measured at the city level.[4] We first plot funding success rate and default rate against city-level clan culture in Figure 4 and find that clan culture is positively correlated with funding success rate and negatively correlated with default rate. These patterns continue to hold when we control for other variables in the regressions reported in columns (1) to (5) in Table 9. Specifically, borrowers from cities with higher clan culture are more likely to get their loan requests funded, and on getting funded, they are less likely to default.

5.4 Endogeneity of Clan Culture

Clan culture has developed over centuries and is this unlikely to be endogenous in the context of our analysis that examines events over a few years. Nonetheless, we examine if variation in clan culture through known exogenous determinants explains our results. Formation of clans has been attributed to settlement of Hakkas following population migration caused by military conflicts (Feng, 2013). Following Zhang (2020), we use spatial distribution of the settlements of Hakkas as an instrument variable for clan culture. In unreported results, we find that the instrument variable is relevant and a higher value of instrumented clan culture

[4]We did not include Shanghai, Beijing, Tianjin and Chongqing in our city-level evidence. This is because a municipality is a provincial-level administrative unit directly under the central government, and the GDP and the population of these municipalities, such as Shanghai and Beijing, are comparable or even larger than that of a province. We included these four municipalities in our provincial-level tests.

predicts a significantly higher funding success rate, lower probability of default, less time needed to complete, larger average bid amount, and higher repayment ratio.

5.5 Selection Bias

Our evaluation of the impact of clan culture of borrowers on loan performance is based solely on loans that were funded. Our estimated impact of clan culture on default rate and repayment ratio not apply to the entire sample of potential borrowers. Specifically, since we show that borrowers with higher clan culture are more likely to get their loans funded, our sample of loans captures a greater fraction of higher clan culture borrowers than lower clan culture borrowers. If the lower clan culture borrowers whose loans were not funded are much riskier than the borrowers whose loans were funded, then we may be underestimating the impact of clan culture on loan performance. To overcome this potential sample selection bias, we employ Heckman's model.

Following Heckman (1979)'s approach, we first estimate the selection model of the probability of funding success. We then estimate a Probit model with default as the dependent variable, adding the predicted value from the first stage as an independent variable. A credible implementation of Heckman selection model is to identify from the first stage's selection model at least one exogenous independent variable that can be validly excluded from the vector of explanatory variables in the second stage regression. We follow Chen et al. (2020) to leverage the peer effect for identification.

The literature in finance has extensively acknowledged the crucial role played by peers in shaping financial decision-making. For instance, Faccio, Marchica, and Mura (2016) have adopted the percentage of firms with a female CEO as an instrument for a firm to hire a female CEO. We adopt an approach similar to that in Chen et al. (2020) and create an instrument called Peer Success, defined as the average loan success rate of borrowers who share similar characteristics with respect to their educational level, monthly income, and length of working experience. Specifically, we divide borrowers into 210 different groups (this is because that the education level ranges from 0 to 4, income level ranges from 1 to7 and working experience level ranges from 0-5, so we separate them into $5\times7\times6=210$ groups) based on their education, income and working experience characteristics, and then calculate

the average loan success rate within a group as peer funding success.The loan success rate of peers with comparable attributes may influence the funding probability of an individual borrower, but not the borrower's probability of default.

The results of the Heckman model are shown in Table 10. Column (1) reports the first stage estimation on Success. The coefficient on Peer Success is positive and statistically significant, suggesting that increased funding success rate of peers increases the likelihood of a borrower successfully obtaining a funding. In column (2), we report the results of the second-stage regression of default after adding Inverse Mills Ratio (IMR) computed from the first stage. The coefficient on IMR is positive and significant, indicating that it is appropriate to address sample selection bias. After adjusting for sample selection bias, the coefficient on clan culture is -0.054, and is statistically significant. Thus, as expected, our results suggest that borrowers with higher clan culture are less likely to default in the entire sample of borrowers, not just those whose loans were funded.

6 Microfoundations for the Impact of Clan culture

In this section, we explore potential aim to uncover the underlying mechanisms behind our findings. We combine individual-level survey data with P2P data to test the implications of potential microfoundations of the influence of clan culture on lender and borrower behavior.

6.1 Lender Behavior: Trust in Borrowers and Borrowers' Social Network

Lenders on a peer-to-peer network may not have the same level of information that a traditional financial intermediary may obtain during the loan underwriting process. They may complement the information with their subjective beliefs about borrowers' creditworthiness. These subjective beliefs can be influenced by the stereotypes associated with different social groups. We propose that trust in borrowers and borrowers' social networks as two measures that are correlated with clan culture and may impact lenders' decisions. Trust in a borrower can be a predictor of the borrower's character or her intention to pay. Social network can indicate both peer pressure to repay loans to preserve social reputation or social support that

can make the borrower more resilient and make her ability to pay more robust to adverse idiosyncratic shocks.

To examine whether clan culture of a borrower is associated with investors' beliefs about trust in the borrower or the borrower's social network, we analyze the data from the 2013 China General Social Survey data (CGSS). The CGSS questions address individuals' perception of society, government, economy, etc., and reflect the influence of culture on individuals' preferences. The data has been used by Chen et al. (2022c), Zhang (2020) and Hasan et al. (2022). In this survey, individuals were asked to rate their trust attitudes towards the society and the questions are "Generally speaking, do you agree that in this society, the vast majority of people can be trusted?", "In general, do you agree that in this society, if you are not careful, others will take advantage of you?" and "Do you concur with the absence of credibility and the low level of social trust in today's society?," respectively. Participants answered these questions using a scale ranging from 1 to 5, where a higher value indicated a higher degree of agreement with the opinion. We match individual responses in this data with province-level measure of clan culture.

We use two questions in CGSS to measure perceptions of trust. Table 11 presents results of regressions examining how the responses to these questions correlate with clan culture. The results in Column (1) show in regions with higher clan culture people are more likely to trust each other. The coefficient of clan culture is positive and statistically significant at 10% significance level. Column (2) shows that this result is robust to controlling for gender, education level, ethics and income level. Column (3) similar shows that those in areas with higher clan culture expect others also to trust more. Column (4) shows that the result is robust to inclusion of demographic control variables. We infer from this table that a resident of a higher clan culture province is on average more likely to be trusted than a resident of a lower clan culture province. Whether this belief is rational or unjustified is a different question and we will later examine actual borrower behavior.

To examine social network ties, we analyze response to two survey questions: reliance on shared content for obtaining information and the frequency of social interactions. We obtain responses to these questions using data from the 2014 China Family Panel Studies (CFPS) and 2013 China General Social Survey data (CGSS). In CFPS survey, individuals were asked if "sharing content through others can be a significant means of obtaining information." The

survey participants answered on a scale of 1 to 5 with a larger value indicating a higher dependence on social channels for information. CGSS (2013) asked "how often socialized in your free time during the past year," with a higher score representing more frequent social interaction.

Table 12 presents the results of regressions that examine how the responses to these questions correlate with clan culture. The positive and statistically significant coefficient on clan culture in Column (1) shows that residents of provinces with higher clan culture are more likely to rely on shared content as a source of information. The positive and statistically significant coefficient on clan culture in Column (3) indicates that people in provinces with higher clan culture are more likely to socialize. The results in Columns (2) and (4) show that these results are robust to controlling for personal characteristics.

We now examine whether lenders' beliefs about trust and social ties of borrowers from provinces with high clan culture impact their investment decisions. Our first set of tests is based on the idea that if lenders rely on trust and social ties and if clan culture is at least partially a proxy for trust and social ties, then the explanatory power of clan culture in predicting lender behavior should decline when we directly include measures of trust and social ties. However, the effectiveness of this test depends on how noisy our measures of trust and social ties are. We get these measures from the survey results of the questions we examined in Table 11 and Table 12. Specifically, we create Trust and Distrust as province-level measures of trust based on the responses to the two questions analyzed in Table 11. Similarly, we create Social Network1 and Social Network2 as province-level measures of social ties based on the responses to the two questions analyzed in Table 12.

We present the results of our first test in Table 13, In Column (1), the dependent variable indicates whether a borrower's loan gets funded. The independent variables include Trust, Distrust, Social Network1, and Social Network2, in addition to all the independent variables we included in our main regressions in Table 3. The negative coefficient on Trust seems counterintuitive but the negative coefficient on Distrust is as expected because a lower value of Distrust indicates higher trust. Since the two variables are likely to be correlated, it is inappropriate to evaluate individual coefficients. The positive and statistically significant coefficient on Social Network1 is consistent with our hypothesis that lenders may view social ties as a measure of creditworthiness. The coefficient on clan culture loses statistical

significance, indicating that clan culture may be acting as an indirect measure of traits that enhance creditworthiness.

The results in Column (2) show that borrowers from provinces with higher social ties are likely to get their loans funded faster. Clan culture's ability to explain variation in the speed of funding is diminished relative to our main results once we control for measures of trust and social ties. Column (3) presents results of a regression with log of average bid amount as the dependent variable. Once again, we find that trust and social ties are significant predictors of lender behavior. Clan culture continues to be a significant predictor but the magnitude of its coefficient declines once we control for measures of trust and social ties.

We now present a second set of tests to examine whether lenders view clan culture as a proxy for trust and resulting creditworthiness. If trust considerations, rather than non-economic reasons drive lenders' behavior, we expect trust to impact lenders' decisions more in loans where lenders have access to less information about borrowers. Information provided by potential borrowers on RRD consists of compulsory disclosures and voluntary disclosures. Besides loan-related information such as interest rate, personal information such as gender, and property information like ownership of a house or car, additional information disclosure is voluntary. We use the number of information disclosures to divide loan listings into four quarters, taking the quarter with least information disclosures as having a higher degree of information asymmetry and the quarter with most information disclosures as having a lower degree of information asymmetry.

Table 14 presents the results of regressions on the subsample with high information asymmetry and on the subsample with low information asymmetry. The dependent variable in Column (1) and Column (2) is the funding success rate for borrowers. A comparison of the coefficients of clan culture in the two regressions shows that clan culture has a much larger and positive impact on funding success in high information asymmetry loans than in low information asymmetry loans (0.176 with $t = 4.88$ versus 0.009 with $t = 1.38$). A similar pattern is observed when we use Funding Time as dependent variable. The coefficient of clan culture is negative in both Columns (3) and (4), but is statistically significant only when information asymmetry is high. Columns (5) and (6) examine how borrower's clan culture impacts log of average bis amount. Although the positive effect of clan culture on bid amount is statistically significant and positive in both subsamples, the effect is much larger

when the information asymmetry is high. The difference between the coefficients in the two subsamples is statistically significant (p-value 0.008). These results, indicating the greater influence of clan culture in loans with high information asymmetry, suggest that lenders may be using clan culture as a substitute for other measures of trust or creditworthiness.

6.2 Borrower Behavior: Ethics

We have shown that borrowers from provinces with higher clan culture are more likely to repay loans. We seek to examine if adherence to ethical norms is the driving force behind fewer defaults by borrowers with higher clan culture. There are two questions in CGSS (2013) related to ethical and moral behavior. One question ask "are you willing to act unethically to receive benefits, like some individuals in society currently do?," and the score ranges from 1 (never) to 3 (always). A lower score indicates more ethical behavior. The second question is about satisfaction with the current social and moral situation and the answers are on a scale of 1 (strongly satisfied) to 5 (strongly dissatisfied) with a higher value indicating more ethical behavior.

We now explore if these survey questions suggest a correlation between ethical behavior and clan culture. Table 15 presents the results of regressions with the answers to the two questions as the dependent variables and clan culture as the main independent variable. The negative and statistically significant coefficient of clan culture in Column (1) shows that individuals from provinces with higher clan culture are less likely to state that unethical behavior is acceptable. The results in Column (2) show that the result is robust to controlling for other personal characteristics. The results in Columns (3) and (4) suggest that those in provinces with higher clan culture are more likely to hold society to higher ethical standards. The evidence in this table suggests that higher clan culture is associated with higher ethical standards.

We perform two sets of tests to examine if the correlation between borrowers' repayment behavior and clan culture reflects adherence to higher ethical norms. In the first set of tests reported in Table 16, we examine how the relation between loan performance and clan culture changes when we include proxies for ethical behavior as controls. These proxies for ethical behavior are the province-level average scores for the two ethics-related questions, Unethical

and Ethical, respectively. Recall that more ethical behavior is associated with a lower value of Unethical and a higher value of Ethical. The positive coefficient of Unethical (statistically significant at 10% level) in Column (1) of Table 16 shows that borrowers from provinces where people report higher ethical norms are less likely to default. The coefficient of clan culture continues to be negative and statistically significant and of a similar magnitude as in the main results in Table 4. If we believe that we have adequately controlled for ethics, the results suggest that the lower default rate of those with higher clan culture is not just due to higher adherence to ethical behavior. However, our survey-based controls for ethical behavior are likely to be noisy measures of ethical behavior so the coefficient of clan culture may capture the component of ethical behavior absent from our controls. The results in Column (2) show that these conclusions continue to hold qualitatively when we control for personal characteristics. Columns (3) and (4) present results of OLS and Tobit regressions, respectively, with repayment ratio as the dependent variable. In each regression, none of the coefficients of the two ethics control variables is statistically significant, and the coefficient on clan culture is close to that in the main results in Table 4. Again, either clan culture may lead to greater repayment for reasons other than ethical behavior, or our controls for ethical behavior are too noisy.

Our second set of tests examining whether ethical norms explain the relation between borrowers' repayment behavior and clan culture is based on the assumption that ethics are more likely to be binding in weak legal environments. That is, ethical considerations act as a substitute for strong legal environment in deterring loan defaults (Shavell, 2002). For example, Guiso et al. (2004) point out that when enforcing a contract becomes a lengthy process, the mitigation of risks, such as financial default, will become increasingly reliant on the feasibility of ethical sanctions or the presence of ethical norms within a specific community. Benabou and Tirole (2011) show that when the costs of enforcing external punishments is high, the principal will try to economize on them by identifying the "type" of agents based on their intrinsic values (such as morality, reputation, etc.). That is, intrinsic values play a more significant role in deterring misbehavior during such instances. Ethical norms act as replacements for standard governance mechanisms in overseeing deviant behavior in the absence of effective external governance mechanisms(Callen and Fang, 2015). Following this line of reasoning, we propose that if clan culture impacts borrower behavior due to the ethi-

cal norms associated with clan culture, then the effect of clan culture on borrower behavior should be more pronounced in regions with weak legal environments.

To test this hypothesis, we follow Hasan et al. (2022) and split our dataset into two groups based on the number of law offices per 10,000 residents (*Law Office*). A province is classified as having a weaker law environment if its *Law Office* is below the median and classified as having a stronger law environment otherwise. We estimate regressions to determine the impact of clan culture on loan repayment across sub-samples with high and low legal environment, keeping the same control variables as in Table 4. Table 17 presents the results. Column (1) and Column (2) have *Default* as the dependent variable. The coefficient on clan culture is negative and significant only for borrowers from weaker law environments ($t = -8.79$). Column (3) and Column (4) present results of regressions with *Repayment Ratio* as the dependent variable, The coefficient of clan culture is positive and significant only for the subsample with borrowers in the weaker legal environment group. For each set of regressions, we reject the null hypothesis that the coefficients of clan culture are same across the two subgroups with p-values of 0.000 and 0.000, respectively. These findings are consistent with clan culture acting as a substitute for legal environment, and therefore, with our hypotheses that the impact of clan culture on borrower default may arise from greater adherence to ethical norms in provinces with high clan culture.

7 Are Lenders Rational?

Our results show that borrowers from areas with higher clan culture are more likely to repay their loans and also that lenders are more likely to fund loans to borrowers from areas with higher clan culture. This suggests a cause and effect relation between the two, even though our data doesn't permit us to prove this is the case. Even if there is a cause and effect relation, it remains to be seen whether lenders optimally use the information conveyed by clan culture. If lenders overreact to clan culture, they may prefer to lend to borrowers with higher clan culture over borrowers with lower clan culture even if the two sets of borrowers have similar creditworthiness after taking clan culture into account. The implication of lenders' underreaction to clan is opposite. Thus, a test of lender rationality is whether

investors are indifferent to clan culture across borrowers whom they assess to be equally creditworthy.

A difficulty with testing this hypothesis is that lenders do not report which borrowers they consider to be equally creditworthy. We get around this problem by using a feature of our data. We observe the time it takes for a loan to be fully funded. We assume that loans which are considered to have positive net present value by lenders are funded quickly. We call these supra-marginal loans. Loans which are considered to have negative net present value are not funded. Lenders would be indifferent towards loans whose net present value is close to zero. We call these loans marginal loans and assume that these loans will be funded but will take longer to be funded than supra-marginal loans. By definition of marginal loans, lenders should be indifferent between marginal loans, and their should be no predictable difference between the performance of these loans. Thus, our test of lender rationality is that among marginal loans, the default rate or repayment ratio should not be correlated with clan culture.

Since a loan's characteristics may impact the time it takes for the loan to be funded, we first estimate a regression model with duration (the time it takes for their loan requests to be processed from submission to completion on the platform) as the dependent variable and loan characteristics and borrower characteristics as control variables. We interpret the residuals from this regression as abnormal duration. We define a loan as marginal if its abnormal duration exceeds the 80th percentile of the distribution of abnormal duration and supra-marginal otherwise.

We regress ex-post loan performance (default and repayment ratio) on supra-marginal, clan culture, the interaction of the two, and control variables. Table 18 shows the results. Column (1) and Column (2) present results of Logit and Probit model, respectively, with $Default$ as the dependent variable. The coefficient of the interaction of supra-marginal and clan culture measures how clan culture impacts default among supra-marginal loans. The coefficient in Column (1) is statistically insignificant while the coefficient in Column (2) is significant at 10% level (t=-1.719) and suggests that borrowers with higher clan culture are less likely to default. The key coefficient for rationality of lenders, however, is the coefficient of clan culture as it measures the impact of clan culture on default among marginal loans. The coefficient is statistically insignificant, both in Column (1) and Column (2). This

suggests that lenders do not underreact or overreact to clan culture as a proxy for creditworthiness. Columns (3) and (4) present results of OLS and Tobit regressions, respectively, where the dependent variable is $RepaymentRatio$, a measure more informative about loan performance than the binary variable $Default$. The positive coefficient on the interaction variable indicates that loans with higher clan culture perform better among supra-marginal loans. However, the statistically insignificant coefficients of clan culture show that clan culture does not predict loan performance among marginal loans. These results are consistent with lenders rationally using clan culture as a measure of creditworthiness.

8 Conclusion

We investigate the role cultural considerations play in individual financial decisions and whether these considerations constitute behavioral biases or rational behavior. The laboratory for our investigation is the peer-to-peer lending market where we can observe individual decisions and where the lack of formal underwriting may make cultural information particularly relevant. We use a large panel dataset of bid-level data from RenRenDai, a leading peer-to-peer lending platform in China, to examine whether clan culture impacts borrower and lender behavior. Our understanding of the decision-making by individuals in peer-to-peer lending is much less developed than our understanding of the institutional lending with formal underwriting models. Individuals are more likely than institutions to pay attention to culture, either to extract information, due to behavioral or informational biases, or due to non-financial motives.

We find that culture is used to differentiate borrowers in peer to peer lending. Borrowers from regions with higher clan culture enjoy an apparent advantage. Specifically, borrowers from higher clan culture are more likely to have their loan requests funded, get loans funded fully more quickly, and attract larger bids from lenders. The decisions of lenders, however, seem to be economically justified as borrowers from regions with higher clan culture are less likely to default and are likely to repay a greater fraction of the loan. These results control for the usual risk measures available to lenders. Our results suggest that clan culture may be a signal for risk that is not captured by observable characteristics such as income,

education, and prior loan history. This may be an artifact of the poor quality of these risk measures. Nonetheless, the significance of clan culture is consistent with the prior literature that suggests that clan culture develops trust that can be a substitute for formal institutional governance and enforcement mechanisms. These results are stronger for ex ante higher risk loans and weaker for borrowers with default history. The results are robust to migration, alternate measure of clan culture, city-level analysis, endogeneity of clan culture, and selection bias in funded loans.

Additional survey-based evidence suggests that lenders may be influenced by the perception that residents from higher clan culture areas are more trustworthy and more socially networked. This is supported by the evidence that the lender preference for borrowers with higher clan culture is stronger in loans with greater information asymmetry. Our analysis suggests that greater adherence to ethical norms may be the driving force behind fewer defaults of borrowers from areas with higher clan culture. This inference is supported by the evidence that the reduction in default risk associated with higher-clan-culture borrowers is more pronounced in areas with weaker legal environment. Finally, lender reaction to borrower's clan culture is rational, not an overreaction, or an underreaction to the borrower's clan culture. In summary, our results suggest that culture is used by individuals in their financial decision-making as a substitute for formal institutional or governance mechanisms.

Our findings show that an individual's culture influences her behavior and the perception of another person's' culture influences economic interaction with that person. Our results about the cross-sectional variation in these effects suggests that these two effects are intertwined in an equilibrium. Communities with higher clan culture have an incentive to live up to their reputation to benefit from the consequences of that reputation while communities with weaker clan culture have no incentive to deviate from the lower expectations of creditworthiness. Our analyses do not answer two questions. First, how do communities ensure what individuals in those communities act in the interest of the community to preserve the culture. Second, why do different cultures evolve the way they do?

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Figure 1: Borrowing and Lending Process at RenRenDai

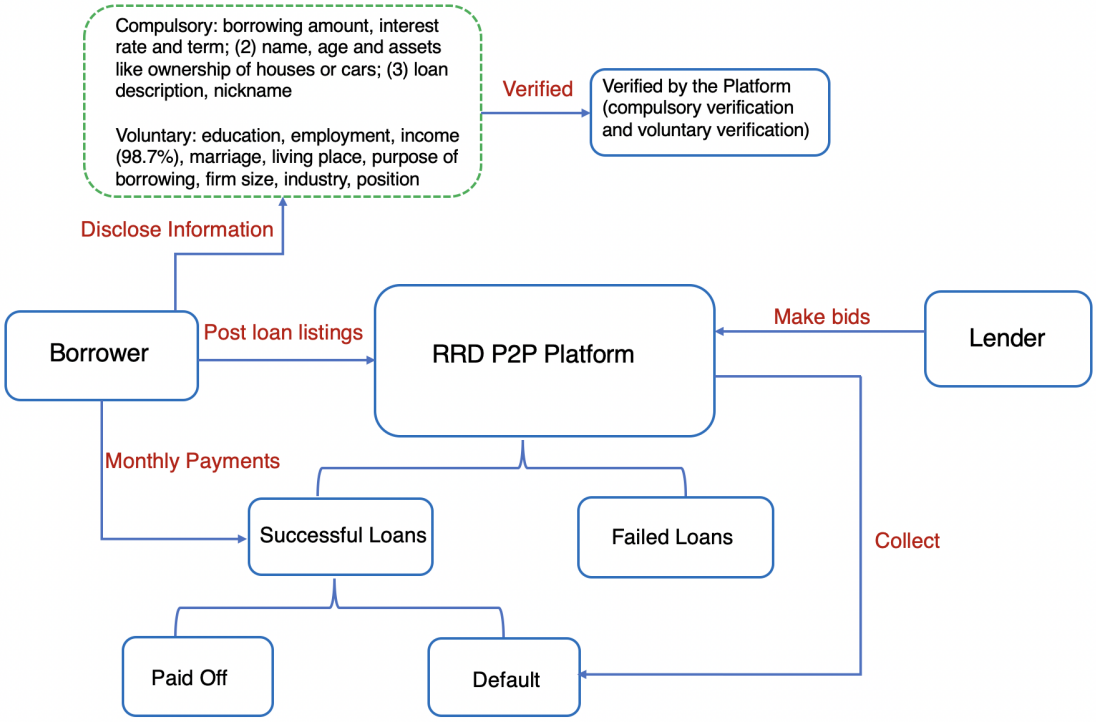


Figure 2: Spatial Distribution of Clan Culture at Province-Level

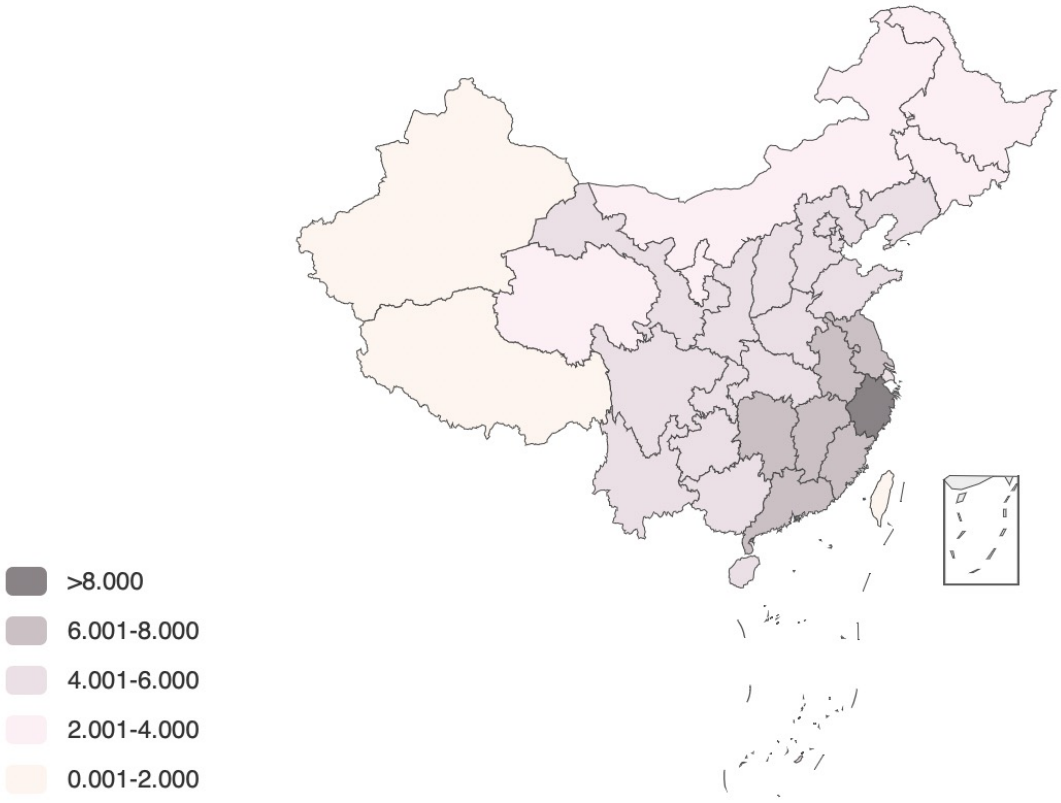
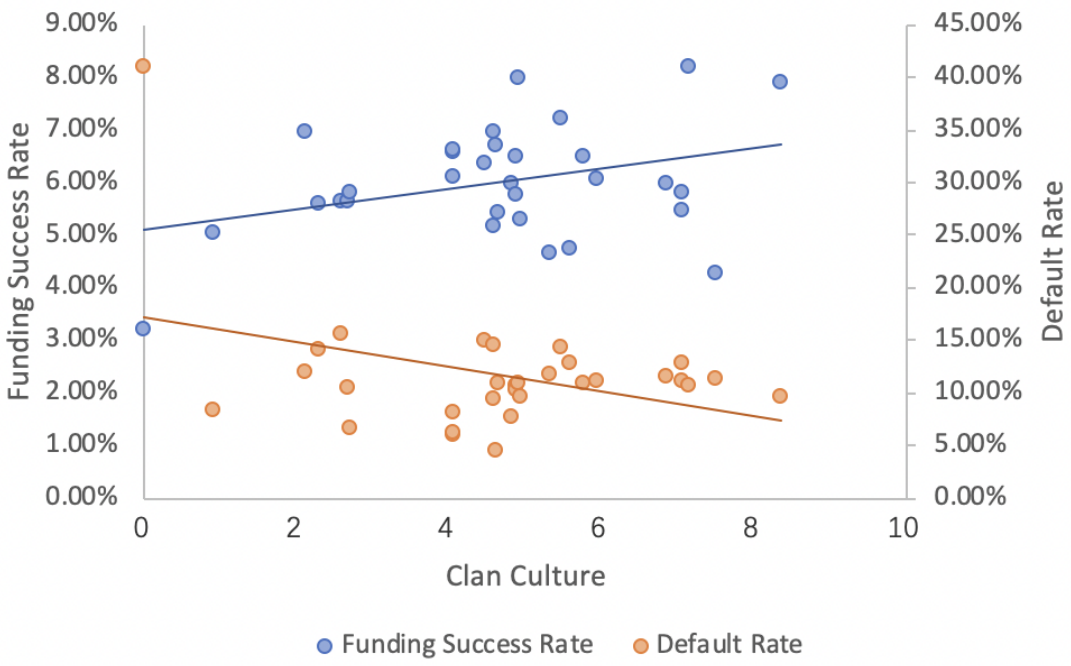
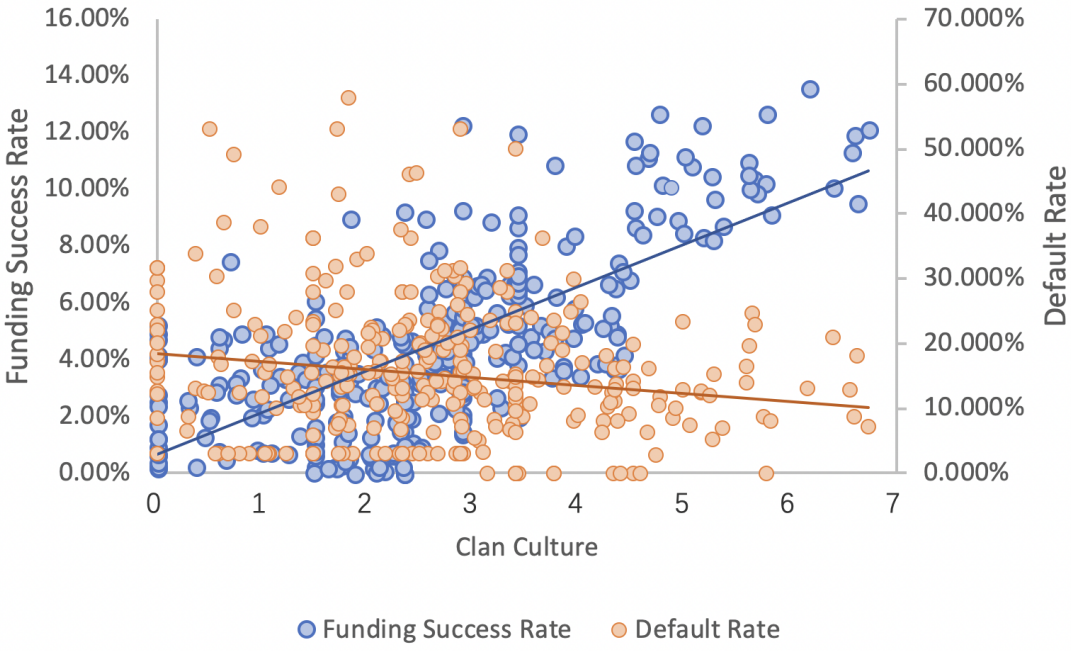


Figure 3: Province-Level Clan Culture, Funding Success and Default Rate



This table plots the funding success rate and loan default rate of provinces against their clan culture.

Figure 4: City-Level Clan Culture, Funding Success and Default Rate



This table plots the funding success rate and loan default rate of cities against their clan culture.

Table 1: **Variables and Definitions**

Table 1 presents the definitions of loan-level and province-level variables we will use in the paper. The variable definitions are listed as following.

Variable	**Name**	**Definition**
The probability of funding of a loan listing	Success	1 if a loan listing is fully funded, and 0 otherwise.
The probability of default of a loan listing	Default	1 if a loan has defaulted, and 0 otherwise.
Fulfilled time of a successful loan	Duration	The time which it takes for a loan to be fully subscribed.
The Funding time of a successful loan	Funding Time	The standardized time which it takes for a given loan to be fully subscribed adjusted for the loan amount.
Repayment ratio of a successful loan	Repayment Ratio	The amount of repayment made by the borrower in relative to the total amount if fully repaid of successful loan listings.
The number of lenders	Bidders	The number of bidders needed for a list to be successfully funded.
The purpose of borrowing	Purpose	The purpose of a loan: 0=did not disclose; 1=individual consumption; 2=others; 3=medical; 4=investment; 5=education; 6=short-term turnover;7=renovation;8=purchasing house;9=purchasing car; 10=wedding
Gender of Borrower	Gender	1 if a borrower is female, and 0 otherwise.
Loan Amount (RMB)	Amount	Loan amount requested by the borrower.
Interest Rate (%)	Interest	The annual interest rate that a borrower pays on the loan.
Average invested amount	Average Bid Amount	The average amount bid by every investor for a loan listing.
Loan Term (months)	Loan Term	Loan term requested by a borrower.
Credit Rating	Credit rating	Credit rating of a borrower:1=HR,2=E,3=D,4=C,5=B,6=A,7=AA.
House Property	House Ownership	1 if a borrower has a property, and 0 otherwise.
Car Property	Car Ownership	1 if a borrower has a car, and 0 otherwise.
Age(years)	Age	Age of a borrower.
Education Level	Education	Education achievement of a borrower: 0=did not disclose; 1 = middle/high school; 2 = college graduate; 3 = university graduate; 4 = postgraduate.
Income (RMB)	Income	Monthly income of a borrower: 1 = less than 1000; 2 = 1001−2000; 3 = 2001−5000; 4 = 5001−10,000; 5 = 10,001−20,000; 6 = 20,001−50,000; 7 = more than 50,000.
Marital Status	Married	1 if a borrower gets married, and 0 otherwise.
Working Experience	Work Experience	Borrowers' working experience: 0=did not disclose; 1= no experience; 2 = less than 1 year; 3 = 1−3 years; 4 = 3−5 years; 5 = more than 5 years.
Number of Loans obtained	Log Previous Loans	Natural log of the number of times that a borrower has successfully obtained a loan.
GDP per capita of a province	GDP Per Capita	We use GDP per capita to measure the economic development of a province.
The number of banks per capita of a province	Banks Per Capita	We use the number of banks per capita in a province in to quantify the financial environment.
The number of certified lawyers per capita of a province	Lawyers Per Capita	We use the number of certified lawyers per capita to measure the legal environment of a province.

Table 2: Summary Statistics

Table 2 reports the summary statistics of listing and loan characteristics, the demographic, income, and education information of borrowers, the clan culture measures and province-level economic and financial variables by using RRD data during 2012-2015. It also reports the summary statistics of individual characteristics and attitudes towards trust, socializing and moral ethics by using China General Social Survey (CGSS 2013) data.

	Mean	Median	SD	Min	Max	N
Loan-Level Characteristics						
Loan Amount	64,138.74	30,000.0	98,506.81	3,000.0	1,000,000.0	341,348
Loan APR	13.82	13.0	3.02	6.1	24.4	341,348
Loan Term	16.23	12.0	9.48	1.0	36.0	341,348
Credit Rating	1.12	1.0	0.61	1.0	7.0	341,348
Income Level	3.98	4.0	1.17	1.0	7.0	336,948
Age	31.64	30.0	6.80	5.0	118.0	341,345
Married	0.54	1.0	0.50	0.0	1.0	341,009
Education	1.07	1.0	0.88	0.0	4.0	339,031
Work Experience	1.81	1.0	1.31	0.0	5.0	335,952
House Ownership	0.43	0.0	0.49	0.0	1.0	341,348
Car Ownership	0.18	0.0	0.38	0.0	1.0	341,348
Previous Loans	0.28	0.0	2.40	0.0	144.0	341,348
Success	0.06	0.0	0.24	0.0	1.0	341,348
Number of Bidders	24.85	13.0	45.63	1.0	747.0	23,237
Average Bid Amount	1,966.18	1,111.1	4,764.85	83.3	200,000.0	23,237
Time to Fund	4,561.23	102.0	29,344.66	0.0	603,249.0	23,229
Funding Time	0.36	0.0	3.83	0.0	111.8	23,229
Repayment Ratio	0.91	1.0	0.26	0.0	1.0	21,341
Default	0.11	0.0	0.32	0.0	1.0	21,371
Province-Level Characteristics						
Clan Culture	4.66	4.8	1.92	0.0	8.33	31
GDP Per Capita	4.88	4.0	2.19	2.0	10.8	124
Banks Per Capita	1.64	1.6	0.28	1.1	2.2	124
Lawyers Per Capita	2.14	1.6	2.04	0.7	11.8	124
CGSS (China General Society Survey) 2013 Data						
Majority of people can be trusted	3.29	4.0	1.02	1.0	5.0	11,424
Others will take advantage of you	3.05	3.0	1.02	1.0	5.0	11,406
Society exhibits a low level of credibility	3.43	4.0	0.86	1.0	5.0	5,615
Unethical behavior can be done for profit	1.18	1.0	0.43	1.0	3.0	4,910
Dissatisfied with the current social morality	2.89	3.0	0.86	1.0	5.0	5,630
Frequently socialize in the free time	2.85	3.0	1.00	1.0	5.0	11,434
Female	1.50	1.0	0.50	1.0	2.0	11,438
Ethics	1.41	1.0	1.49	1.0	8.0	11,426
Education	4.90	4.0	3.06	1.0	14.0	11,435
Age	48.60	48.0	16.39	17.0	97.0	11,437
Income	23,814.43	15,600.0	36,753.26	0.0	1,000,000.0	10,243

Table 3: Clan Culture and Borrower Success

Table 3 presents the results from the regressions of the funding success, popularity, and average bid amount quantifed by *Ln* onto borrowers' home clan culture, as well as a set of control variables. Year dummies, month dummies and purpose dummies are also included. Columns 1 and 2 use probit models and Column 3 use Cox proportional-hazards model. Columns 4–7 use OLS regressions.The values in the square bracket in the column 1 and column 2 report the corresponding marginal effects. Robust standard errors and Z-statistics are reported in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Success	**Success**	**Success Hazard Rate**	**Funding Time**	**Funding Time**	**Log Average Bid Amount**	**Log Average Bid Amount**
Clan Culture	0.043***	0.031***	0.019***	–0.010***	–0.008**	0.031***	0.024***
	(7.55)	(5.40)	(3.85)	(–3.21)	(–2.37)	(10.60)	(7.20)
	[0.002***]	[0.001***]					
Loan APR	–0.178***	–0.178***	–0.131***	–0.038***	–0.038***	0.048***	0.048***
	(–38.70)	(–38.64)	(–33.70)	(–12.61)	(–12.60)	(18.85)	(18.83)
Female	0.050**	0.049**	0.040**	0.005	0.005	0.072***	0.073***
	(2.12)	(2.04)	(2.04)	(0.40)	(0.38)	(5.63)	(5.69)
Age	0.018***	0.017***	0.016***	0.001	0.001	0.011***	0.011***
	(13.35)	(13.04)	(14.34)	(0.82)	(0.81)	(14.16)	(14.19)
Credit Rating	1.133***	1.134***	0.583***	–0.019***	–0.019***	0.114***	0.114***
	(87.50)	(87.41)	(102.80)	(–5.22)	(–5.19)	(33.66)	(33.71)
Loan Term	–0.030***	–0.030***	–0.024***	0.004***	0.004***	0.013***	0.013***
	(–27.28)	(–27.47)	(–25.97)	(6.74)	(6.73)	(21.68)	(21.56)
Education	0.259***	0.259***	0.186***	–0.015**	–0.015**	0.005	0.005
	(25.12)	(24.89)	(21.21)	(–2.46)	(–2.51)	(0.91)	(0.96)
Log Previous Loans	0.719***	0.719***	–0.116***	–0.059***	–0.058***	–0.139***	–0.141***
	(16.41)	(16.41)	(–8.23)	(–6.11)	(–6.07)	(–16.25)	(–16.42)
Income Level	0.131***	0.129***	0.127***	0.001	0.001	0.129***	0.128***
	(18.08)	(17.54)	(22.03)	(0.28)	(0.25)	(34.67)	(34.13)
Married	0.098***	0.108***	0.089***	0.023*	0.024**	0.023**	0.021*
	(4.87)	(5.31)	(5.01)	(1.94)	(2.01)	(2.05)	(1.86)
Work Experience	0.245***	0.245***	0.215***	–0.004	–0.004	–0.051***	–0.049***
	(27.51)	(27.35)	(29.21)	(–0.75)	(–0.81)	(–10.56)	(–10.18)
House Ownership	–0.072***	–0.069***	–0.042***	–0.039***	–0.039***	0.025**	0.027***
	(–3.85)	(–3.66)	(–2.66)	(–3.73)	(–3.72)	(2.54)	(2.75)
Car Ownership	0.039*	0.035	0.068***	0.001	0.001	0.044***	0.043***
	(1.70)	(1.55)	(3.83)	(0.11)	(0.12)	(3.93)	(3.88)
GDP Per Capita		0.004	0.006		–0.006*		0.025***
		(0.59)	(1.20)		(–1.65)		(7.06)
Lawyers Per Capita		–0.020***	–0.017***		0.004		–0.013***
		(–3.38)	(–3.58)		(1.16)		(–4.03)
Banks Per Capita		0.431***	0.328***		0.028		–0.077***
		(12.42)	(11.36)		(1.42)		(–4.13)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	334,992	334,992	334,976	21,068	21,068	22,895	22,895
Adjusted R^2				5.7e-02	5.7e-02	.36	.36
Pseudo R^2	0.26	0.26					
F Statistic				20.22	16.69	484.4	397.9

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 4: Clan Culture and Loan Default

Table 4 presents the regression results of default rates for a given loan onto borrowers' clan culture, as well as unchanged sets of control variables. Columns 1 and 2 adopt default probability as dependent variable and implement Logit and Probit regressions, respectively. Columns 3 and 4 adopt repayment ratio as dependent variable and implement OLS and Tobit regressions, respectively. The values in the square bracket in the column 1 and column 2 report the corresponding marginal effects.Robust standard errors and Z-statistics are reported in parentheses.All models include year, month and purpose fixed effects.

	(1)	(2)	(3)	(4)
	Default	**Default**	**Repayment Ratio**	**Repayment Ratio**
Clan Culture	–0.064***	–0.038***	0.003**	0.033***
	(–4.01)	(–4.16)	(2.21)	(3.34)
	[-0.002***]	[-0.003***]		
Loan APR	0.149***	0.083***	–0.007***	–0.086***
	(10.93)	(10.72)	(–6.47)	(–10.23)
Female	–0.180**	–0.106***	0.015***	0.135***
	(–2.43)	(–2.63)	(3.16)	(3.11)
Age	0.036***	0.020***	–0.002***	–0.021***
	(8.69)	(8.76)	(–7.67)	(–8.57)
Credit Rating	–1.654***	–0.746***	0.050***	0.875***
	(–18.27)	(–19.15)	(38.14)	(26.67)
Loan Term	0.033***	0.018***	–0.003***	–0.019***
	(11.45)	(11.21)	(–14.83)	(–10.56)
Education	–0.410***	–0.220***	0.026***	0.240***
	(–12.67)	(–12.31)	(12.21)	(12.74)
Log Previous Loans	0.722***	0.415***	–0.064***	–0.414***
	(11.01)	(11.21)	(–18.77)	(–12.96)
Income Level	0.255***	0.144***	–0.014***	–0.138***
	(12.14)	(12.36)	(–9.60)	(–11.14)
Married	0.074	0.035	–0.011**	–0.029
	(1.23)	(1.08)	(–2.54)	(–0.83)
Work Experience	–0.063**	–0.032**	0.006***	0.037**
	(–2.34)	(–2.17)	(3.45)	(2.34)
House Ownership	–0.018	–0.002	0.001	0.005
	(–0.34)	(–0.07)	(0.20)	(0.17)
Car Ownership	–0.153**	–0.101***	0.018***	0.106***
	(–2.49)	(–2.94)	(4.14)	(2.92)
GDP Per Capita	–0.026	–0.015	0.003**	0.021*
	(–1.34)	(–1.43)	(2.41)	(1.82)
Lawyers Per Capita	–0.039**	–0.025***	0.002	0.023**
	(–2.46)	(–2.74)	(1.54)	(2.14)
Banks Per Capita	1.388***	0.795***	–0.109***	–0.799***
	(15.42)	(15.39)	(–15.31)	(–13.80)
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes
Estimation	Logit	Probit	Ols	Tobit
Observations	21,084	21,084	21,054	21,054
Adjusted R^2			.13	
Pseudo R^2	0.25	0.25		0.21
F Statistic			163.7	

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 5: Effect of Clan Culture on Loan Performance Across Borrower Risk Groups

The Table 5 re-runs the regressions by segregating the borrowers into undereducated versus highly educated borrowers, low credit rating borrowers versus high credit borrowers, and experienced borrowers versus inexperienced borrowers with unchanged sets of control variables. A borrower is classified as under-educated(highly-educated) if he/she graduated from a college or below (graduated from a university or above). A borrower has been labeled as inexperienced(experienced) if his/her working experience is less than one year or below(more than one year).A borrower is considered to belong to the high credit rating group if his credit rating is above the sample median of credit rating and vice versa. Panel A uses default probability as the dependent variable and Panel B uses repayment ratio as the dependent variable.Robust standard errors and Z-statistics are reported in parentheses.All models include year, month and purpose fixed effects.

Panel A: Default

	Low Education Borrowers	**High Education Borrowers**	**Low Rating Borrowers**	**High Rating Borrowers**	**Low Experience Borrowers**	**High Experience Borrowers**
	(1)	(2)	(3)	(4)	(5)	(6)
	Default	**Default**	**Default**	**Default**	**Default**	**Default**
Clan Culture	–0.050***	–0.059	–0.070**	–0.047	–0.080***	–0.045*
	(–2.64)	(–0.69)	(–2.29)	(–1.46)	(–3.40)	(–1.89)
Loan and Borrower Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,204	2,049	3,000	11,944	8,455	9,515
Pseudo R^2	.25	.34	.13	.3	.21	.26

Panel B: Repayment Ratio

	Low Education Borrowers	**High Education Borrowers**	**Low Rating Borrowers**	**High Rating Borrowers**	**Low Experience Borrowers**	**High Experience Borrowers**
	(1)	(2)	(3)	(4)	(5)	(6)
	Repayment Ratio	**Repayment Ratio**	**Repayment Ratio**	**Repayment Ratio**	**Repayment Ratio**	**Repayment Ratio**
Clan Culture	0.002*	0.000	0.007**	0.000	0.005**	0.003
	(1.67)	(0.12)	(1.70)	(0.82)	(2.42)	(1.49)
Loan and Borrower Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,182	2,072	2,996	11,941	8,441	9,509
Adjusted R^2	.12	8.4e-02	.10	.11	.12	.13
F Statistic	119.1	17.54	80.32	117.8	61.6	70.16

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 6: Learning from Default Experience

The Table 6 re-runs the regressions by segregating the borrowers into no defaulting experience, defaulting only once and defaulting many times. A borrower is classified as no defaulting experience if he never defaulted before this loan. A borrower has been labeled as defaulted only once/ defaulted multiple times if he has only one/multiple delinquency before this loan. Panel A uses funding success as the dependent variable and Panel B uses popularity as the dependent variable. Robust standard errors and Z-statistics are reported in parentheses. All models include year, month and purpose fixed effects.

Panel A: Funding Success

	No Defaulted Borrowers	**Borrowers Defaulted Only Once**	**Borrowers Defaulted Multiple Times**
	(1)	(2)	(3)
	Success	**Success**	**Success**
Clan Culture	0.027***	–0.017	–0.017
	(2.92)	(–0.70)	(–1.35)
Loan and Borrower Controls	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes
Observations	314,800	4,880	15,312
Pseudo R^2	.39	.14	.11

Panel B: Funding Time

	No Defaulted Borrowers	**Borrowers Defaulted Only Once**	**Borrowers Defaulted Multiple Times**
	(1)	(2)	(3)
	Funding Time	**Funding Time**	**Funding Time**
Clan Culture	–0.011**	–0.015	–0.004
	(-1.97)	(-1.40)	(-0.84)
Loan and Borrower Controls	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes
Observations	10,530	2,583	7,955
Adjusted R^2	.05	.08	.07
F Statistic	7.48	4.02	8.77

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 7: Lenders' Clan Culture

Table 7 presents the effect of clan culture on lenders' behavior. By matching borrowers' ID with lenders' ID, we obtain a sub-sample of lenders who used to be borrowers in the platform and thus obtain the demographics of lenders. In the Panel A, we show the impact of lenders' clan culture on their investment behavior and use *Log Bid Amount*, *Decision Time*(defined as the logarithm of investor i's adjusted decision time for investing in loan j) and *Bid Timing* (defined as the amount already raised by the jth loan before being invested by the ith investor divided by the total loan amount of the jth loan.) as dependent variables, respectively. Panel B presents the influence of the clan culture difference ($Difference$ measured as 1 if the lender's clan culture is stronger than or equal to that of the borrower, and 0 otherwise; *Clan Culture Difference* measured as *Lender Clan Culture* minus *Borrower Clan Culture*) between lenders and borrowers on lending behavior. Besides loan controls and macro controls of both borrower and lender sides, regressions in Panel B also include differences in personal characteristics between borrowers and lenders as controls. Robust standard errors and Z-statistics are reported in parentheses. All models include year, month and purpose fixed effects. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: High Clan Culture Lenders Are More Cautious

	(1)	(2)	(3)	(4)	(5)	(6)
	Log Bid Amount	**Log Bid Amount**	**Decision Time**	**Decision Time**	**Bid Timing**	**Bid Timing**
Lender Clan Culture	–0.025***	0.005	0.088***	0.029**	0.799***	0.676***
	(–4.25)	(0.81)	(7.24)	(2.17)	(5.54)	(4.23)
Borrower Clan Culture	0.032***	0.026***	–0.017	–0.030**	–0.412***	–0.348**
	(5.94)	(4.19)	(–1.55)	(–2.31)	(–3.12)	(–2.25)
Hometown	–0.038	–0.054	0.182**	0.195***	–2.456***	-2.12**
	(–1.11)	(–1.56)	(2.54)	(2.71)	(–2.88)	(–2.47)
Year,Month,Purpose Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Loan and Borrower controls	Yes	Yes	Yes	Yes	Yes	Yes
Lender controls	Yes	Yes	Yes	Yes	Yes	Yes
Borrower Province controls	No	Yes	No	Yes	No	Yes
Lender Province controls	No	Yes	No	Yes	No	Yes
Observations	26,678	26,678	21,355	21,355	26,678	26,678
F Statistic	47.74	61.93	156.99	135.80	7.93	6.99

Panel B: Clan Culture Difference and Investment Behavior

	(1)	(2)	(3)	(4)	(5)	(6)
	Log Bid Amount	**Log Bid Amount**	**Decision Time**	**Decision Time**	**Bid Timing**	**Bid Timing**
Difference	–0.068***		0.204***		1.147**	
	(–3.51)		(5.04)		(2.40)	
Clan Culture Difference		–0.015***		0.044***		0.477***
		(–3.39)		(4.67)		(4.28)
Hometown	–0.011	–0.044	0.135*	0.235***	–2.525***	–2.056**
	(–0.30)	(–1.27)	(1.77)	(3.23)	(–2.81)	(–2.41)
Year,Month,Purpose Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Lender and Borrower Individual Characteristics (Difference)	Yes	Yes	Yes	Yes	Yes	Yes
Loan Controls	Yes	Yes	Yes	Yes	Yes	Yes
Borrower Province Controls	Yes	Yes	Yes	Yes	Yes	Yes
Lender Province Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,678	26,678	21,355	21,355	26,678	26,678
Adjusted R^2	6.8e-02	6.8e-02	.4	.4	1.2e-02	1.3e-02
F Statistic	60.60	60.56	164.2	163.98	8.34	8.97

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 8: Alternate Measure of Clan Culture

Table 8 checks the robustness of our results with respect to an alternate measure of clan culture. We calculate the log of the number of ancestral halls in each province normalized by the population of that province and then construct a composite index by applying principal-component analysis for genealogies and ancestral halls. The main independent variable is the new measure of clan culture. The dependent variables are funding success, popularity, average bid amount, default probability and repayment ratio. The control variables are the same as in Table 3. The values in the square bracket in the column 1 and column 4 report the corresponding marginal effects. Z-statistics based on robust standard errors are reported in parentheses.

	(1)	(2)	(3)	(4)	(5)
	Success	**Funding Time**	**Log Average Bid Amount**	**Default**	**Repayment Ratio**
Clan Culture Alternate	0.101***	–0.011**	0.038***	–0.046**	0.002
	(11.86)	(–2.27)	(8.42)	(–2.03)	(1.23)
	[0.003***]			[-0.001**]	
Loan and Borrower Controls	Yes	Yes	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	334,992	21,068	22,895	21,084	21,054
Adjusted R^2		0.057	0.36		.13
Pseudo R^2	0.27			0.25	
F Statistic		16.66	399.46		163.45

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 9: City Level Analysis

Table 9 presents the results from the regressions of the funding success, popularity, average bid amount, default probability and repayment ratio for a given loan onto borrowers' clan culture at city level, as well as unchanged loan-level variables and city-level variables as control variables. The values in the square brackets in the column 1 and column 4 are the corresponding marginal effects. Robust standard errors and Z-statistics are reported in parentheses. All models include year, month and purpose fixed effects.

	(1)	(2)	(3)	(4)	(5)
	Success	**Funding Time**	**Log Average Bid Amount**	**Default**	**Repayment Ratio**
City Clan Culture	0.036***	–0.004***	0.029***	–0.067***	0.007***
	(4.54)	(–8.69)	(6.90)	(–2.92)	(3.37)
	[0.001***]			[-0.004***]	
Loan APR	–0.168***	–0.002***	0.023***	0.145***	–0.009***
	(–22.32)	(–4.10)	(5.03)	(6.89)	(–4.24)
Female	0.030	–0.001	0.049***	–0.152*	0.017**
	(0.95)	(–0.80)	(3.00)	(–1.68)	(2.25)
Age	0.005***	0.000	0.008***	0.027***	–0.003***
	(2.69)	(1.62)	(7.44)	(5.12)	(–5.80)
Credit Rating	1.200***	0.005***	0.135***	–1.702***	0.067***
	(50.70)	(10.32)	(26.23)	(–15.30)	(28.12)
Loan Term	–0.035***	–0.000	0.011***	0.038***	–0.005***
	(–24.68)	(–0.74)	(14.90)	(10.77)	(–12.88)
Education	0.321***	–0.002***	0.012*	–0.430***	0.036***
	(23.94)	(–3.26)	(1.73)	(–10.76)	(10.93)
Log Previous Loans	0.218***	–0.006***	–0.231***	1.340***	–0.102***
	(2.89)	(–3.73)	(–14.50)	(11.99)	(–13.60)
Income Level	0.060***	–0.002***	0.142***	0.246***	–0.019***
	(6.03)	(–4.44)	(29.06)	(9.26)	(–8.14)
Married	0.078***	0.000	0.042***	0.109	–0.013**
	(3.10)	(0.11)	(3.05)	(1.47)	(–2.07)
Work Experience	0.277***	–0.001	–0.042***	–0.083**	0.012***
	(23.82)	(–1.25)	(–6.84)	(–2.52)	(4.31)
House Ownership	–0.045*	–0.004***	0.037***	0.039	–0.002
	(–1.87)	(–3.01)	(3.03)	(0.58)	(–0.29)
Car Ownership	–0.069**	–0.002	0.046***	–0.235***	0.027***
	(–2.17)	(–1.48)	(3.13)	(–2.99)	(3.96)
City GDP Per Capita	0.196***	–0.003*	0.053***	–0.184**	0.017***
	(7.34)	(–1.77)	(3.78)	(–2.46)	(2.62)
City Banks Per Capita	–0.119***	0.010***	–0.053**	–0.051	0.000
	(–2.69)	(4.09)	(–2.24)	(–0.41)	(0.04)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	203,656	11,461	11,468	11,297	11,282
Adjusted R^2		.15	.31		.13
Pseudo R^2	.18			.21	
F Statistic		18.94	217.21		93.14

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 10: Heckman Model for Selection of Successful Loans

Table 10 presents the Heckman two-step regression results on the probability of default. Column 1 is estimated by Probit regression while column 2 is the Heckman two-step regression. IMR is the inverse Mills ratio and other control variables remain unchanged. Robust standard errors and Z-statistics are reported in parentheses. All models include year, month and purpose fixed effects.

	(1)	(2)
	Success	**Default**
Peer Success	2.674***	
	(27.36)	
Clan Culture	0.014***	–0.054***
	(4.93)	(–3.32)
IMR		0.883***
		(2.91)
Income Level	0.006	0.304***
	(1.41)	(11.37)
Loan APR	–0.080***	0.085***
	(–37.19)	(3.32)
Credit Rating	0.584***	–1.263***
	(86.74)	(–6.72)
Female	0.017	–0.169**
	(1.53)	(–2.27)
Age	0.007***	0.043***
	(11.35)	(8.96)
Loan Term	–0.014***	0.023***
	(–27.95)	(5.158)
Education	0.088***	–0.318***
	(17.21)	(–6.88)
Log Previous Loans	0.354***	0.962***
	(16.83)	(8.54)
Married	0.056***	0.107*
	(5.91)	(1.73)
Work Experience	0.095***	0.033
	(22.37)	(0.77)
House Ownership	–0.025***	–0.049
	(–2.86)	(–0.88)
Car Ownership	0.002	–0.140**
	(0.18)	(–2.29)
GDP Per Capita	0.003	–0.022
	(0.92)	(–1.13)
Lawyers Per Capita	–0.007**	–0.047***
	(–2.53)	(–2.88)
Banks Per Capita	0.209***	1.544***
	(12.62)	(14.42)
Year Fixed Effects	Yes	Yes
Month Fixed Effects	Yes	Yes
Purpose Fixed Effects	Yes	Yes
Estimation	probit	logit
Observations	334,992	21,084
Pseudo R^2	.27	.25

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 11: Clan Culture and Trust

Table 11 reports individual attitudes towards trust based on the respondents' answers in China General Social Survey (2013). Control variables include dummy variables for gender, ethnic status, education level, income level and age. Robust standard errors and Z-statistics are reported in parentheses.

	(1) **Majority of people can be trusted**	(2) **Majority of people can be trusted**	(3) **Society exhibits a low level of credibility**	(4) **Society exhibits a low level of credibility**
Clan Culture	0.010*	0.011*	–0.013*	–0.017**
	(1.66)	(1.65)	(–1.77)	(–2.27)
Female		–0.034*		0.042*
		(–1.67)		(1.70)
Ethnics		0.021***		–0.036***
		(3.06)		(–4.56)
Education		0.009**		0.032***
		(2.16)		(6.76)
Income		–0.000		0.000***
		(–1.55)		(3.50)
Age		0.008***		–0.001*
		(11.48)		(–1.76)
Observations	11,424	10,217	5,615	5,025
Adjusted R^2	1.5e-04	1.5e-02	3.7e-04	3.0e-02
F Statistic	2.75	28.02	3.13	26.50

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 12: Clan Culture and Social Network

Table 12 reports individuals's attitudes towards information source and socializing based on the respondents' answers in China Family Panel Studies (2014) and China General Social Survey (2013). Control variables include dummy variables for gender, ethnic status, education level, income level and age. Robust standard errors and Z-statistics are reported in parentheses.

	(1) **Sharing content with others significant means of information**	(2) **Sharing content with others significant means of information**	(3) **Frequently socialize in free time**	(4) **Frequently socialize in free time**
Clan Culture	0.037***	0.037***	0.012**	0.018***
	(3.34)	(3.35)	(2.02)	(2.81)
Age		–0.008***		–0.010***
		(–8.70)		(–4.03)
Female		–0.015		0.099***
		(–0.54)		(4.94)
Ethnics		0.001		0.037***
		(0.10)		(5.12)
Education		–0.005		–0.015***
		(–0.53)		(–3.89)
Income		0.000		0.000
		(1.35)		(0.38)
Observations	8,752	8,752	11,434	10,224
Adjusted R^2	2.7e-03	1.3e-02	2.7e-04	8.5e-03
F Statistic	11.17	15.37	4.09	14.90

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 13: Trust, Network, and Investors' Attitudes

Table 13 reports effect of clan culture on lenders' attitudes (*Success*, *Funding Time* and *Log Average Bid Amount*) by taking the proxies for trust and social network as control variables. The *Trust* and *Distrust* are the average values at province-level for the two trust-related questions. Similarly, the *SocialNetwork*1 and *SocialNetwork*2 are the province-level average scores for the two network-related questions. All the loan and borrower characteristics and province-level characteristics are included as control variables. Robust standard errors and Z-statistics are reported in parentheses. All models include year, month and purpose fixed effects.

	(1)	(2)	(3)
	Success	**Funding Time**	**Log Average Bid Amount**
Clan Culture	–0.001	–0.033	0.015***
	(–0.12)	(-1.35)	(3.28)
Trust	-0.216***	0.129	0.084**
	(–2.84)	(0.57)	(-2.04)
Distrust	-0.329***	-0.227	-0.034
	(–4.44)	(–1.03)	(–0.84)
Social Network1	0.315***	-0.353**	0.118***
	(5.47)	(–1.97)	(3.60)
Social Network2	-0.014	0.248	–0.024
	(–0.21)	(–1.30)	(–0.68)
Borrower and Loan Controls	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes
Observations	322,158	22,037	22,054
Adjusted R^2		0.11	0.37
Pseudo R^2	0.26		
F Statistic		32.84	313.93

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 14: Effect of Clan Culture By High and Low Information Asymmetry Loans

Table 14 reports the impact of clan culture on groups of different information asymmetry. The borrowers are divided into two groups based on the median number of the total number of their voluntarily disclosed information. Borrowers who voluntarily disclose information more(less) than the median number will be classified into low(high) information asymmetry group.All the loan-level characteristics (including both loan and borrower characteristics) and province-level characteristics are included as control variables.Robust standard errors and Z-statistics are reported in parentheses. All models include year, month and purpose fixed effects.

	High Information Asymmetry	**Low Information Asymmetry**	**High Information Asymmetry**	**Low Information Asymmetry**	**High Information Asymmetry**	**Low Information Asymmetry**
	(1)	(2)	(3)	(4)	(5)	(6)
	Success	**Success**	**Funding Time**	**Funding Time**	**Log Average Bid Amount**	**Log Average Bid Amount**
Clan Culture	0.176***	0.009	–0.012***	—0.000	0.030***	0.016***
	(4.88)	(1.38)	(–5.44)	(–0.06)	(3.75)	(2.68)
Loan and Borrower Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	79,043	85,008	5,069	5,372	5,074	5,342
Adjusted R^2			9.7e-02	6.4e-02	.33	.37
Pseudo R^2	0.36	0.32				
F Statistic			8.31	7.13	61.68	109.17

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 15: Clan Culture and Moral Ethics

Table 15 reports individuals's attitudes towards moral ethics based on the respondents' answers in China General Social Survey (2013). Control variables include dummy variables for gender, ethnic status, education level, income level and age. Robust standard errors and Z-statistics are reported in parentheses.

	(1) **Unethical behavior can be done for profits**	(2) **Unethical behavior can be done for profits**	(3) **Dissatisfied with current social morality**	(4) **Dissatisfied with current social morality**
Clan Culture	–0.012***	–0.014***	0.017**	0.017**
	(–3.62)	(–4.07)	(2.32)	(2.20)
Female		–0.011		0.023
		(–1.05)		(0.96)
Ethnics		–0.013***		–0.027***
		(–4.78)		(–3.47)
Education		-0.001		0.036***
		(-0.51)		(7.51)
Income		0.000**		0.000***
		(2.27)		(2.90)
Age		–0.002***		–0.003***
		(–5.43)		(–3.54)
Observations	4,910	4,410	5,630	5,040
Adjusted R^2	0.002	0.01	0.004	0.034
F Statistic	13.28	9.52	5.38	31.39

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 16: Moral Ethics and Repayment Performance

Table 16 presents the regression results of default rates and repayment performance on clan culture by taking proxies for ethical behavior as controls. The *Unethical* and *Ethecial* are the average values at province-level for the two ethics-related questions. Robust standard errors and Z-statistics are reported in parentheses.All models include year, month and purpose fixed effects.

	(1) **Default**	(2) **Default**	(3) **Repayment Ratio**	(4) **Repayment Ratio**
Clan Culture	–0.062***	–0.035***	0.003***	0.032***
	(–3.68)	(–3.59)	(2.59)	(3.05)
Unethical	0.225*	0.117*	–0.006	–0.093
	(1.82)	(1.73)	(–0.68)	(–1.31)
Ethical	0.061	0.017	–0.001	0.044
	(0.33)	(0.16)	(–0.04)	(0.40)
Borrower and Loan Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes
Estimation	Logit	Probit	Ols	Tobit
Observations	20,754	20,754	20,728	20,728
Adjusted R^2			.13	
Pseudo R^2	0.25	0.25		0.22
F Statistic			145.05	

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 17: Impact of Clan Culture Based on Legal Environment

Table 17 reports the impact of clan culture on mitigating default and increasing repayment ratio in areas with different legal environment. We split the full sample into the low (below the median) and high (above the median) law office subsamples, according to the median of the number of law office per Capita of a province. All the loan-level characteristics (including both loan and borrower characteristics) and province-level characteristics are included as control variables. Robust standard errors and Z-statistics are reported in parentheses. All models include year, month and purpose fixed effects.

	Low Law Offices (1) **Default**	**High Law Offices** (2) **Default**	**Low Law Offices** (3) **Repayment Ratio**	**High Law Offices** (4) **Repayment Ratio**
Province Clan Culture	–0.282***	–0.006	0.014***	–0.002
	(–8.49)	(–0.25)	(7.40)	(–0.86)
Loan and Borrower Controls	Yes	Yes	Yes	Yes
Province Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes
Observations	10,030	10,950	10,014	10,937
Adjusted R^2			.14	.14
Pseudo R^2	0.27	0.27		
F Statistic			90.92	88.99

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.

Table 18: Clan Culture and Marginal Borrowers

Table 18 presents the regression results of repayment performance for marginal borrowers. We first run the duration (the times takes for a loan to be completed in the P2P platform) on clan culture as well as unchanged sets of control variables and then rank the residuals into tenth. Subsequently, we define marginal borrowers as a dummy variable, 1 if it exceeds a threshold of 80th percentile and 0 otherwise. We define supra-marginal borrowers as 1 minus marginal borrowers. Columns 1 and 2 adopt default probability as the dependent variable and implement Logit and Probit regressions, respectively. Columns 3 and 4 adopt repayment ratio as dependent variable and implement OLS and Tobit regressions, respectively. Robust standard errors and Z-statistics are reported in parentheses.All models include year, month and purpose fixed effects.

	(1)	(2)	(3)	(4)
	Default	**Default**	**Repayment Ratio**	**Repayment Ratio**
Clan Culture	–0.016	–0.007	-0.001	-0.001
	(–0.435)	(–0.367)	(–0.349)	(–0.367)
Supra-marginal× Clan Culture	–0.057	–0.037*	0.005*	0.005*
	(–1.451)	(–1.719)	(–1.720)	(–1.755)
Supra-marginal Borrowers	0.298	0.210	–0.030*	–0.031*
	(–1.259)	(–1.611)	(–1.868)	(–1.908)
Loan and Borrower Controls	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes
Purpose Fixed Effects	Yes	Yes	Yes	Yes
Estimation	Logit	Probit	OLS	Tobit
Observations	21,068	21,068	21,038	21,038
Adjusted R^2			.13	
Pseudo R^2	0.25	0.25		0.44
F Statistic			145.8	

*** Significant at the 0.01 level; ** Significant at the 0.05 level; * Significant at the 0.10 level.