


# Social Capital, Trusting, and Trustworthiness: Evidence from Peer-to-Peer Lending

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## Abstract

How does social capital affect trust? Evidence from a Chinese peer-to-peer lending platform shows that regional social capital affects the trustee's trustworthiness and the trustor's trust propensity. *Ceteris paribus*, borrowers from regions with higher social capital receive larger bids from individual lenders and have higher funding success, larger loan sizes, and lower default rates, especially for low-quality borrowers. Lenders from regions with higher social capital take higher risks and have higher default rates, especially for inexperienced lenders. Cross-regional transactions are most (least) likely to be realized between parties from regions with high (low) social capital.

## I. Introduction

Trust, defined as the willingness with which a *trustor* voluntarily places a resource at the disposal of the *trustee* with the expectation of a fair payoff, is fundamental to finance and economic growth. A considerable body of work highlights social capital (SC) stock as an important antecedent of trust (Arrow (1973), Knack and Keefer (1997), and Guiso, Sapienza, and Zingales (2004), (2008)). However, the channels through which SC affects trust are unclear. Moreover, the link between society-level SC and micro-level economic transactions has a

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conceptual gap, which is highlighted when trading partners come from different SC environments.

To examine the impact of SC on trust, we draw from the extant trust literature, which distinguishes *trustworthiness* from *generalized trust* (Colquitt, Scott, and LePine (2007)). On the one hand, trustworthiness relates to the objective characteristics (e.g., integrity, competence) of a *trustee* (Ang, Cheng, and Wu (2015), Hasan, Hoi, Wu, and Zhang (2017a), (2017b)). Generalized trust, on the other hand, refers to the subjective belief of a *trustor* in the likelihood that a potential trading partner will act honestly (Hong, Kubik, and Stein (2005), El-Attar and Poschke (2011)). The level of trust that A (the trustor) has in B (the trustee) is a function of B's trustworthiness and A's generalized trust.

We postulate that regional SC simultaneously affects a trustee's trustworthiness and a trustor's generalized trust. SC is the ability of actors to secure benefits by virtue of membership in social networks (Bourdieu (1985)). Social networks are typically associated with norms that promote coordination, cooperation, and reciprocity for the mutual benefit of members (Coleman (1988), Putnam (1995)). A high-SC environment helps spread cooperative norms and civic-mindedness (Guiso et al. (2004)), intensifies internal sanctions such as social ostracism (Uhlener (1989)) and stigmatization (Posner (2000)), and heightens negative moral sentiments associated with opportunistic behaviors (Elster (1989)). Hence, trustors from high-SC regions are likely to anticipate cooperative, as opposed to opportunistic, behavior from their counterpart (i.e., trusting), whereas trustees from high-SC regions are likely to keep their promises and have low moral hazard (i.e., trustworthy).

We use peer-to-peer lending to test these hypotheses. In the past decade, technological innovations in finance (fintech) have supported lending between individuals in an online marketplace without the need for financial intermediaries. Owing to the digital and anonymous nature, establishing interpersonal trust is not applicable in online marketplace lending. To overcome the extreme information asymmetry and adverse selection in this market, lenders seek trust signals to help identify a borrower's "type." Unlike financial institutions, individual lenders use representativeness (Kahneman and Tversky (1972)) or even stereotype (Gilbert and Hixon (1991)) to minimize effortful thought processes. In this context, regional SC provides cursory beliefs and generalizations about others (Bottazzi, Da Rin, and Hellmann (2016)). The impact of SC on trust is instantaneous (Durlauf and Fafchamps (2006)), is exogenous to each economic transaction, and could be outweighed in probability judgments (Bordalo, Coffman, Gennaioli, and Shleifer (2016))<sup>1</sup>.

We construct a Chinese provincial SC index to capture the SC environment of lenders and borrowers.<sup>2</sup> The SC index has 4 components: voluntary blood donation,

<sup>1</sup>Zingales (2015) comments: "Even within the United States, Americans of Swedish origin are more trusting, more in favor of redistribution, and less thrifty than Americans of Italian origin, in the same way that Swedes are more trusting, more in favor of redistribution, and less thrifty than Italians."

<sup>2</sup>Section IV.A presents the construction of the SC index. Our results are robust to city-level SC measures. See Section V.C.4 for details.

nongovernmental organization (NGO) participation, corporate reputation survey, and citizen reputation survey. Drawing from a complete sample of 247,115 unique loans on Renrendai (RRD), a leading debt crowdfunding platform in China, from 2011 to 2015, we present 3 sets of evidence.

Regarding the impact of SC on “trustworthiness,” we show that all else being equal, borrowers from high-SC regions receive larger bids from individual lenders and have higher funding success, larger loan sizes, and lower default rates. The effect is pronounced among “low-quality” (low-educated, nonrepeated, and low-score) borrowers. These results are robust to a variety of checks for endogeneity and alternative explanations.

Regarding the impact of SC on “generalized trust,” we find that borrowers from high-SC regions are more likely to become lenders. Conditional on extending loans, lenders from high-SC regions bid a larger amount and a larger fraction of the loan, but they incur high default rates. Further evidence shows that their loans to borrowers from low-SC regions contribute to inferior performance. These results focus on inexperienced lenders, that is, those who have not encountered any defaults.

Regarding how regional SC affects cross-regional transactions, we show in a 2-by-2 matrix that 63% of total investments (accounting for 57% of total transactions) are made by lenders in high-SC regions to borrowers in high-SC regions. Twenty-one percent of total investments (accounting for 22% of total transactions) are made by lenders in high-SC regions to borrowers in low-SC regions. Twelve percent of total investments (accounting for 15% of total transactions) are made by lenders in low-SC regions to borrowers in high-SC regions. Only 4% of total investments (accounting for 5.5% of total transactions) are made by lenders in low-SC regions to borrowers in low-SC regions. These findings suggest that cross-regional transactions are most (least) likely to be realized between parties from high-SC (low-SC) regions, where the aggregate level of trust is highest (lowest).

Our work belongs to the extensive literature on SC and trust. Prior empirical works typically use the word *trust*, but they refer to either “trustworthiness” or “generalized trust.” For example, to illustrate the impact of SC on *trustworthiness*, Guiso et al. (2004) show that Italian households in high-SC regions have easy access to institutional credit. Hasan et al. (2017a) find that U.S. firms headquartered in high-SC counties receive favorable bank loan conditions. Ang et al. (2015) find that foreign firms prefer to invest in Chinese regions where local partners and employees are considered trustworthy. Lin and Pursiainen (2018) find that in equity crowdfunding, entrepreneurs from high-SC regions have better campaign outcomes. On the impact of SC on *generalized trust*, Hong et al. (2005) and Guiso et al. (2008) find that individuals in high-SC environments are more likely to participate in stock markets. Bottazzi et al. (2016) find that societal trust positively predicts European venture capital investments but negatively predicts their successful exits. Unlike previous studies, our highly granular data from peer-to-peer lending allow us to observe separately the impact of SC on trustees’ trustworthiness and trustors’ generalized trust.

This work adds to the growing number of studies on how nonexpert lenders process information in a fintech environment. As Thakor and Merton (2018) note, technology by itself is not a substitute for trust. Prior work finds that nonstandard soft information provides trust signals for investors to overcome information friction. Data from Prosper, a U.S.-based peer-to-peer lending platform, reveal that borrowers' trustworthy appearance (Duarte, Siegal, and Young (2012)) and online friendship networks (Lin, Prabhala, and Viswanathan (2013)) help improve their funding success through the impression of trustworthiness. Herzenstein, Sonenshein, and Dholakia (2011) and Larrimore, Jiang, Larrimore, Markowitz, and Gorski (2011) find that the use of extended narratives, concrete descriptions, and quantitative words contributes to funding success. Michels (2012) shows that additional unverifiable disclosure is associated with an increase in bidding activity and a reduction in the cost of debt. We add to this literature the soft information of SC. We show that lenders' bidding behavior is affected by the SC of their home region and that of the borrower. To our best knowledge, this research is the first work on the impact of regional SC in the world's largest debt crowdfunding market, China.

Finally, we contribute to a strand of literature on the role of trust in cross-border transactions by presenting important empirical evidence from peer-to-peer lending.<sup>3</sup> Guiso, Sapienza, and Zingales (2009) show that trade and investment flows are large between countries that exhibit high mutual trust. Bottazzi et al. (2016) provide evidence that venture capitalists are less likely to fund entrepreneurs in countries whose citizens they trust less, and if they do, the contracts they use are different from the contracts used in countries they trust more. Giannetti and Yafeh (2012) find that culturally distant lead banks offer borrowers small loans at a high interest rate. Ahern, Daminelli, and Fracassi (2015) show that differences in the level of trust between acquirer and target countries reduce merger and acquisition (M&A) volume and cumulative abnormal returns. Our evidence is consistent with this literature. Our dyadic analysis shows that i) lenders bid less (more) when their counterpart is from a low-SC (high-SC) environment, and ii) investments take place most often (least often) between high-SC (low-SC) regions.

The remainder of the article proceeds as follows: [Section II](#) reviews the SC and trust literature and develops the hypotheses. [Section III](#) introduces the mechanism of online marketplace lending and institutional settings in China. [Section IV](#) describes our sample data and variables. [Sections V](#) and [VI](#) present the empirical results. [Section VII](#) draws the conclusions.

## II. Hypotheses Development

### A. Social Capital

The multidimensional concept of SC can be traced to Bourdieu (1985), who defines SC as advantages and opportunities accrued to people through membership

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<sup>3</sup>China is a large and diversified economy. Many countries are small, and their population is comparable to that of Chinese provinces. Boyreau-Debray and Wei (2005) show that the financial market is highly segmented. Capital mobility across regions in China is low and is closer to the level of international capital movements. Thus, the case of China has implications for studies of international economic activities.

in certain communities. In his seminal work, Coleman (1988) claims that 3 forms of SC can be taken as resources for action: i) obligations and expectations, ii) information channels, and iii) social norms. Fukuyama (1995) emphasizes the “network-based reciprocal moral obligation” in Japanese society. Yamagishi (1988) describes SC as a system of mutual monitoring. Granovetter (1985) emphasizes the “embeddedness” of social ties in generating trust, establishing expectations, and creating enforcing norms. Putnam (1995) advances the SC concept by injecting the “civicness” aspect. In his influential article “Bowling Alone: America’s Declining Social Capital,” Putnam presents a strong case that the SC stock in the United States is declining, as evidenced by decreasing rates of voting and membership in organizations such as the Parent–Teacher Association, the Elks Club, the League of Women Voters, and the Red Cross.<sup>4</sup> Woolcock (1998) proposes a broad definition of SC that includes the information, trust, and norms of reciprocity inherent in a social network.

This article employs the broad definition of SC at the society level (also termed *civic social capital*) in the spirit of Putnam (1995), who defines SC as “social organization features, such as networks, norms, and social trust, which facilitate coordination and cooperation for mutual benefit” (p. 67). Collier and Gunning (1999) argue that the economic benefits of a civic society can arise from the building of trust that lessens transaction costs, from the knowledge externalities of social networks, and from an enhanced capacity for collective action. These features, coupled with the appropriate use of sanctions in the case of noncompliance, enable groups to overcome collective-action problems and deal effectively with multiple social and economic issues (Bloch, Genicot, and Ray (2007)).

## B. Social Capital and Trustworthiness

Societal SC can serve as a monitoring system that “rewards” honest dealings and “punishes” opportunistic behaviors (Yamagishi (1988)). In this article, SC serves as a governance institution similar to that played by the formal institution of law. Coleman (1988) argues that dense social networks make the enforcement of group cooperative behavior effective. By aggravating the cost of expropriation and breach, SC provides a mechanism for contract enforcement.

The monitoring aspect of SC can enhance an agent’s trustworthiness, diminish the cost of financial contracting, and facilitate access to external financing. For example, Hasan et al. (2017a) find that firms headquartered in U.S. counties with high SC have low spreads in bank loans and low at-issue spreads in public debt issues. Gupta, Raman, and Shang (2018) show that firms’ cost of equity is negatively related to the SC environment surrounding their headquarters. Hasan et al. (2017b) find that firms headquartered in U.S. counties with high SC pay high corporate taxes. They interpret this result as SC, as a governance institution, constraining self-serving corporate practices that benefit shareholders at the

<sup>4</sup>Putnam (1995) identifies the immediate determinants of this phenomenon as the passage from the scene of the civic generation active during the 1920s and 1930s and the succession of an uncivil generation, the baby boomers born and raised after the World War II.

expense of other stakeholders. Huang and Shang (2019) present evidence that firm leverage and short-term debt ratios are negatively associated with SC. They argue that high SC alleviates agency conflicts between managers and shareholders, allowing firms to reduce the amount of debt in their capital structure and the usage of short-term debt in their debt structure. Hoi, Wu, and Zhang (2019) find that the SC environment surrounding corporate headquarters is negatively associated with CEO compensation, consistent with SC restraining managerial rent extraction in CEO compensation.

Based on these findings, we propose the following:

*Hypothesis 1 (H1).* Ceteris paribus, borrowers from high-SC societies are more trustworthy than borrowers from low-SC societies.

### C. Social Capital and Generalized Trust

A high-SC environment facilitates cooperative norms and civic-mindedness. Consequently, individual trustors who reside in high-SC environments are more likely to demonstrate cooperation as opposed to opportunistic behavior toward the counterparty. This generalized trust (or “stranger trust”) is particularly important in financial contracts characterized by extreme information asymmetry. Empirical evidence supports this claim. Hong et al. (2005) find that social interactions in local geographical areas promote stock market participation and affect the trades of money managers residing in these areas. Guiso et al. (2004) exploit SC differences within Italy. They find that in areas with high SC, households are more likely to use checks and invest less in cash and more in stock. El-Attar and Poschke (2011) find that less-trusting Spanish households invest more in housing and less in financial assets, particularly risky ones.

Based on these findings, we propose the following:

*Hypothesis 2 (H2).* Ceteris paribus, lenders from high-SC societies have higher generalized trust than lenders from low-SC societies.

## III. Institutional Background

### A. Social Capital and Credit in China

This article presents important evidence from the emerging market of China. In this market, laws and courts are ineffective in protecting investors (La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998)), necessitating reliance on alternative institutions, such as SC. However, heterogeneities in the SC stock are substantial across Chinese regions (see Section IV.A for details). For instance, using data from the World Values Survey, Ang et al. (2015) show that SC differences among China’s 31 provinces are often greater than those among European countries.

China's financial environment is composed of a bank-dominated credit market and a relatively underdeveloped capital market (Allen, Qian, and Qian (2005)). Most credit is extended by state-owned banks to state firms or the listed sector, leaving major obstacles for private small- and medium-size firms and individuals to secure financing (He, Xue, and Zhu (2017)). "Shadow banks," or financial firms outside the formal banking sector, primarily serve the financial needs of the vast private sector (Elliott, Kroeber, and Yu (2015)). These financial firms take various forms, such as trust companies, intercorporate loans via financial institutions ("entrusted loans"), microfinance companies, guarantee firms, leasing companies, pawnshops, and unofficial lenders.

In the past decade, the investment and credit demand of Chinese individuals has surged along with the country's rising middle class, and technological development in finance has greatly facilitated person-to-person lending on the Internet. China has over 700 million Internet users, many of whom have developed the habit of making digital payments.<sup>5</sup> Data from Wangdaizhijia<sup>6</sup> show that the number of companies operating peer-to-peer marketplaces soared from only 10 in 2010 to 3,984 by Mar. 2016. These firms facilitated a total of 1.745 trillion RMB (USD 268.4 billion) in loans. Although this emerging market is smaller than the country's colossal financial system,<sup>7</sup> by any measure of size, China is the largest peer-to-peer lending market in the world (*The Economist* (2017)).

## B. Renrendai Online Marketplace

Much of our data is drawn from RRD, one of the largest peer-to-peer lending platforms in China. Since its official launch in Sept. 2010, RRD has gained over 2.5 million members and has facilitated 13 billion RMB (USD 2 billion) in funded loans as of Dec. 2015. We obtained this proprietary data set from Changsha Aijie Information Technology Co. Ltd. (Aijie), which covers all "manual bidding" transactions on RRD from 2011 to 2015.<sup>8</sup>

Two important features for listings on RRD are worth highlighting. First, borrowers on RRD cannot upload their photographs. Duarte et al. (2012) show that on Prosper, a trustworthy appearance is associated with better loan

<sup>5</sup>Ernst & Young (2017) reveals in a survey of 20 markets that 58% of consumers in China have used fintech savings and investment services, whereas only 27% of U.S. consumers have done so. The contrast is particularly strong with regard to the adoption of fintech borrowing services, with 46% of Chinese consumers indicating that they have used these services, versus only 13% of U.S. consumers indicating the same.

<sup>6</sup>Wangdaizhijia is the leading Chinese peer-to-peer online lending portal. It offers news and data on peer-to-peer lending in China.

<sup>7</sup>For example, the outstanding balance of peer-to-peer credit is roughly 0.8% of China's total bank loans in 2016 (*The Economist* (2017)).

<sup>8</sup>Individual lenders on RRD can choose one of the 2 channels to make investments on loan listings. The "automatic bidding" (*zidongbiao*) channel allows lenders to lock in a sum of money in RRD's wealth management plans for algorithm-based bidding. The "manual bidding" (*shoudongbiao*) channel requires lenders to manually select and make investment decisions by themselves. The manual bidding channel is peer-to-peer lending in its essence because it reflects the bounded rationality of individual lenders based on the information they have, their cognitive limitations, and the finite amount of time they have to make a decision. These are the data that we use.

outcomes. We can safely dismiss this factor in our setting. Second, borrowers have no choice on interest rate because RRD adopts a “posted price mechanism,” which assigns interest rates and calculates monthly payments on the basis of its proprietary credit-rating model.<sup>9</sup> This feature is useful in the institutional setting because the outcome depends directly on lenders’ willingness to supply credit at the given interest rate.<sup>10</sup>

To initiate a loan listing on RRD, users first register on renrendai.com by providing the required information, including their ID card (2-sided), bank account, and cell-phone number. For verification, borrowers must submit a photo of themselves holding their ID card (not required among lenders). In addition, they need to provide supplementary evidence of their occupation (employment contract), income (bank statement), education, marital status, home ownership, and residential address. As the most important information, residential address holds the most credibility because RRD requires a “proof of address” that includes bank statements, phone bills, and water or electricity bills. We use this variable to identify a borrower’s home province.

To make loan requests (called “listing”), borrowers must supply a title, description, loan amount, and maturity. All loans are unsecured personal loans, and their maturity ranges from 1 month to 48 months. In addition, personal information about borrowers, including age, gender, education, income, marital status, house ownership, employment information, and address (city), is verified and disclosed in the platform by RRD.

A loan listing can be open for several days. Lenders can bid any amount in multiples of 50 RMB (USD 7.7). The majority of loans are crowdfunded by multiple lenders. A loan that reaches 100% subscription becomes binding; otherwise, the borrower receives zero funding. Once a successful loan is verified by RRD, funds are transferred from the lender(s) to the borrower, minus a platform service fee. Service fee rates vary according to borrowers’ credit ratings.

Subsequently, borrowers are obligated to repay the principal and interest in monthly installments. Repayments are proportionally distributed to the lenders of a loan. If a repayment is overdue (i.e., funds in the borrower’s bank account are insufficient to repay the interest), then RRD makes several attempts to collect, including sending emails and text messages, seeking the borrower’s employer, and conducting on-site collections.

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<sup>9</sup>The exact credit-rating model used by RRD to assign a credit rating is unknown because of its proprietary nature. However, unlike in the United States, where individuals’ FICO scores can be obtained, in China, the personal credit-score system is nonexistent. Each peer-to-peer lending platform claims to have its own credit-rating model based on available information. For example, RRD classifies borrower credit ratings into 7 categories: AA, A, B, C, D, E, and HR (high risk). A minimum rating is acquired when a borrower inputs the minimum information required by RRD to open an account. If a borrower voluntarily provides more documentary proof, such as a bank income statement or house-ownership certificate, then these details are verified by the website, and the borrower’s credit rating will increase. Moreover, if a borrower has a good repayment history on this platform, then the borrower’s credit rating will also increase.

<sup>10</sup>Wei and Lin (2016) note that two mechanisms are popular in online peer-to-peer lending: auctions and posted prices. In auctions, the “crowd” determines the “price” (interest rate) of the transaction through an auction process. In posted prices, the platform determines the interest rate on the basis of its own “grading” of the borrower. RRD adopts the posted price mechanism.



## IV. Data and Research Design

### A. Measuring Regional Social Capital

Following the empirical literature, we construct a composite SC index of Chinese provinces. Our SC proxies rely on provincial statistics and national surveys, which incorporate attitudinal and civic-mindedness measures of societal trust.<sup>11</sup> The composite SC index has 4 components: voluntary blood donation (BLOOD), NGO participation (NGO), enterprise survey (ENTERPRISE), and citizen survey (CITIZEN). Each proxy is illustrated below.

#### 1. Voluntary Blood Donation

Our first SC proxy, BLOOD, is the voluntary blood donation per thousand population in a province. Neither legal nor economic incentives are given to those who donate blood (Guiso et al. (2004)). The act is likely driven by citizens' feelings of reciprocity and civic-mindedness. Following Ang et al. (2015), we measure this variable in milliliters of blood donated voluntarily in a province divided by its population in 2000, the only year that province-level data from the Chinese Society of Blood Transfusion were complete.<sup>12</sup> China's blood-donation law states that blood can only be collected by the National Blood Center (NBC) and is without compensation. The NBC has operating branches in all provinces and adopts the same medical procedures across all regions, thereby mitigating the concern that blood-donation levels are affected by differences in the quality of health care or medical infrastructure among provinces. Column 2 of Panel B in Table 1 shows a large variance among Chinese provinces, with an average blood donation of 3.433 mL/1,000 people in Shanghai and only 0.017 mL/1,000 people in Yunnan.

#### 2. NGO Participation

The second SC proxy, NGO, is measured by the number of people registered in NGOs per thousand population in a province. NGOs are typically funded by charities and operated by volunteers. They aim to address poverty reduction, environment protection, and the rights of disadvantaged groups. Individual residents in regions with a high proportion of NGO participation tend to be civic-minded and cooperative. Data on provincial NGO participation are manually collected from the Chinese Civil Affairs Statistical Yearbook of 2010.<sup>13</sup> Column 3 of Panel B in Table 1 shows that Shanghai is the province with the highest NGO

<sup>11</sup>Anderson, Mellor, and Milyo (2004) categorize societal SC measures into i) *attitudinal* measures, where subjects are asked if they agree that "most people can be trusted," "most people try to be fair," "most people try to be helpful," "you cannot trust strangers anymore," and "I am trustworthy"; ii) *behavioral* measures of "trust" suggested by Glaeser, Laibson, Scheinkman, and Soutter (2000), including whether subjects leave their doors purposely unlocked, loan money to friends or strangers, have been a crime victim, or lie to different categories of persons; and iii) *civicness* measures, including hours spent volunteering, membership in volunteer groups, attendance in religious services, political volunteering, and voting.

<sup>12</sup>We are grateful to Ang et al. (2015) for sharing these data with us.

<sup>13</sup>In the robustness test, we use the average level from 2010 to 2015, and the results are similar across those years.

TABLE 1  
SC Proxies

Panel A of Table 1 presents the results of applying principal-component analysis to the 4 proxies of social capital (SC), namely, blood donation (BLOOD), nongovernmental organization participation (NGO), enterprise survey (ENTERPRISE), and citizen survey (CITIZEN). Proportion explained, eigenvalue, and factor loading for the first factor are presented. The SC index (SC\_INDEX) is constructed by applying loadings (coefficient) to the standardized 4 proxies of SC. Panel B reports the value of SC\_INDEX and 4 proxies across provinces. For variable definitions and details of their construction, see the Appendix.

*Panel A. Principal-Component Analysis*

|                      | BLOOD  | NGO    | ENTERPRISE | CITIZEN |
|----------------------|--------|--------|------------|---------|
| Loadings             | 0.5201 | 0.5380 | 0.5423     | 0.3822  |
| Proportion explained |        |        | 0.742      |         |
| Eigenvalue           |        |        | 2.967      |         |

*Panel B. Measures of Social Capital Across Regions*

| Province     | SC_INDEX | BLOOD | NGO   | ENTERPRISE | CITIZEN |
|--------------|----------|-------|-------|------------|---------|
| Shanghai     | 5.768    | 3.433 | 4.380 | 22.7       | 2.402   |
| Beijing      | 4.035    | 3.314 | 3.594 | 16.6       | 2.225   |
| Guangdong    | 2.193    | 1.331 | 3.145 | 10.1       | 2.344   |
| Zhejiang     | 1.530    | 1.259 | 3.361 | 3.5        | 2.321   |
| Shandong     | 1.389    | 1.454 | 2.088 | 6.4        | 2.382   |
| Jiangsu      | 1.135    | 1.179 | 2.846 | 5.7        | 2.239   |
| Fujian       | 0.269    | 1.086 | 1.599 | 0.9        | 2.374   |
| Tianjin      | 0.224    | 0.828 | 2.326 | 1.7        | 2.251   |
| Jiangxi      | -0.068   | 0.115 | 1.849 | 0.2        | 2.442   |
| Hainan       | -0.207   | 0.654 | 1.893 | 0.1        | 2.283   |
| Hebei        | -0.225   | 1.315 | 1.328 | 1.4        | 2.207   |
| Shanxi       | -0.308   | 1.428 | 1.642 | 0.6        | 2.125   |
| Liaoning     | -0.314   | 1.383 | 1.881 | 1.9        | 2.046   |
| Hubei        | -0.316   | 0.760 | 2.104 | 0.5        | 2.175   |
| Chongqing    | -0.365   | 0.554 | 2.380 | 0.5        | 2.150   |
| Shaanxi      | -0.373   | 0.807 | 1.935 | 0.7        | 2.173   |
| Heilongjiang | -0.628   | 1.050 | 1.056 | 0.7        | 2.208   |
| Hunan        | -0.703   | 0.540 | 1.316 | 0.4        | 2.249   |
| Henan        | -0.810   | 1.174 | 1.151 | 0.6        | 2.111   |
| Sichuan      | -0.938   | 0.309 | 1.780 | 0.9        | 2.119   |
| Guangxi      | -1.014   | 0.272 | 1.182 | 0.6        | 2.225   |
| Anhui        | -1.015   | 0.489 | 1.501 | 0.4        | 2.127   |
| Xinjiang     | -1.044   | 0.494 | 1.068 | 1.1        | 2.175   |
| Inner        | -1.178   | 0.703 | 1.086 | 0.7        | 2.100   |
| Jilin        | -1.637   | 0.495 | 0.897 | 0.7        | 2.033   |
| Yunnan       | -1.649   | 0.017 | 1.056 | 1.4        | 2.075   |
| Guizhou      | -1.864   | 0.383 | 0.826 | 0.2        | 2.014   |
| Gansu        | -1.887   | 0.230 | 0.938 | 0.3        | 2.014   |
| Ningxia      | —        | —     | 1.118 | 0.2        | —       |
| Qinghai      | —        | —     | 0.741 | 0.2        | —       |
| Tibet        | —        | —     | 0.034 | —          | —       |

participation (4.4 registered NGO members per thousand population) and that Tibet has the lowest NGO participation (only 0.03).

### 3. Enterprise Survey

Our third proxy, ENTERPRISE, is drawn from a national survey of Chinese enterprises in 2000 (Zhang and Ke (2003)).<sup>14</sup> In this survey, questionnaires were sent to over 15,000 managers of companies in every province of China. Over 5,000 usable responses were received, and respondent managers covered firms from every 2-digit industry and ownership type. This variable is elicited from their answers to the question, “According to your experience, could you list the top five provinces where enterprises are most trustworthy?” Following Wu, Firth, and Rui

<sup>14</sup>A similar enterprise survey was used by Burns, Meyers, and Bailey (1993) and by Guiso et al. (2009) in 5 major European countries.

(2014), we set the SC score of a province as the logarithm of the total score given by the managers. Column 4 of Panel B in [Table 1](#) shows that Shanghai (22.7) leads Chinese provinces in enterprise reputation, followed by Beijing (16.6) and Guangdong (10.1). The least-trusted province appears to be Hainan (0.1).

#### 4. Citizen Survey

The fourth proxy, CITIZEN, employs data from the China General Social Survey (CGSS). The CGSS was conducted jointly by the Hong Kong University of Science and Technology Survey Research Center and the Renmin University Sociology Department in 2003. In total, 5,894 complete responses were received. Respondents encompassed Chinese residents in 125 cities from 28 provinces. The CITIZEN variable is elicited from the response to the question, “Do you trust strangers?” Responses range from 1 (“do not trust greatly”) to 5 (“trust greatly”). We average the scores of respondents’ choices by the provinces where they are located. Column 5 of Panel B in [Table 1](#) shows a considerably small variance among the scores given by the citizens of each province. Shanghai ranks second (2.40) and is surpassed by Jiangxi (2.442). The least-trusting provinces appear to be Gansu (2.014) and Guizhou (2.014).

#### 5. Composite Social Capital Index

Each of the 4 proxies could be an imperfect measure of SC. For instance, the BLOOD and NGO participation proxies capture outcomes more than perceptions. The ENTERPRISE and CITIZEN proxies are based on survey data and capture perceptions, yet they suffer from self-esteem and in-group bias. To account for their intrinsic biases, we construct a composite index by applying principal-component analysis (PCA). Panel A in [Table 1](#) shows the results of the PCA for our 4 components. This method shows that only one component has an eigenvalue larger than 1 (2.967). All 4 components have positive loadings and are closely correlated with the index. Our SC\_INDEX gives roughly equal weight to BLOOD, NGO, and ENTERPRISE but low weight to CITIZEN. According to the SC\_INDEX (column 1 of Panel B), Shanghai, Beijing, and Guangdong are the top 3 SC stock provinces, whereas Gansu, Guizhou, and Yunnan rank in the bottom.

### B. Variables of Interest and Controls

[Table 2](#) shows the summary statistics for our main variables. The [Appendix](#) includes detailed definitions for each variable. These variables are categorized into i) listing and loan characteristics, ii) borrower characteristics, and iii) provincial environment.

We first obtain information on the funding success or failure of each loan listing (FUND). For each successful loan, we obtain the loan size (AMOUNT), MATURITY (in months), SPREAD (interest rate relative to the benchmarked lending rate of the People’s Bank of China), number of lenders (OWNERSHIP), stated loan purpose (in descriptive text), number of words used to describe a loan (WORDS), default status (DEFAULT), and BID\_TIME for each fully funded loan (in minutes). For each unsuccessful loan, we obtain the proportion of campaign proceeds out of the total amount (FRACTION).

TABLE 2  
Summary Statistics

Panel A of Table 2 reports the summary statistics of listing and loan characteristics. Panel B reports the summary statistics of demographic, income, and education information of borrowers. Panel C reports the summary statistics of social capital measures and those of the economic and financial variables. For variable definitions and details of their construction, see the Appendix.

| Variable   | Mean    | Std. Dev. | Minimum | P50    | Maximum | N       |
|--|---------|-----------|---------|--------|---------|---------|
| <i>Panel A. Listing and Loan Characteristics</i> |         |           |         |        |         |         |
| FUND   | 0.249   | 0.433     | 0       | 0      | 1       | 247,115 |
| FRACTION   | 0.272   | 0.444     | 0       | 0      | 1       | 247,103 |
| WORDS  | 114.504 | 70.328    | 0       | 94     | 244     | 247,115 |
| AMOUNT   | 4.819   | 7.016     | 0.3     | 3.78   | 300     | 61,577  |
| MATURITY   | 18.791  | 10.156    | 1       | 18     | 48      | 61,577  |
| LONG_TERM  | 0.798   | 0.401     | 0       | 1      | 1       | 61,577  |
| SPREAD   | 2.132   | 0.303     | 0.762   | 2.146  | 5.379   | 61,577  |
| OWNERSHIP  | 35.504  | 48.976    | 1       | 22     | 1,370   | 61,573  |
| DEFAULT  | 0.054   | 0.227     | 0       | 0      | 1       | 61,577  |
| BID_TIME   | 69.136  | 461.297   | 1       | 1      | 10,051  | 61,573  |
| <i>Panel B. Borrowers' Characteristics</i>       |         |           |         |        |         |         |
| AGE  | 32.679  | 7.458     | 17      | 31     | 71      | 247,113 |
| GENDER   | 0.136   | 0.343     | 0       | 0      | 1       | 247,115 |
| GRADE  | 5.975   | 1.940     | 1       | 7      | 7       | 247,115 |
| EDU  | 1.933   | 0.780     | 1       | 2      | 4       | 246,751 |
| MARRIAGE   | 0.557   | 0.497     | 0       | 1      | 1       | 247,075 |
| INCOME   | 3.133   | 1.221     | 1       | 3      | 6       | 246,361 |
| HOUSE  | 0.428   | 0.495     | 0       | 0      | 1       | 247,115 |
| HOUSE_LOAN                                       | 0.158   | 0.365     | 0       | 0      | 1       | 247,115 |
| WORK_EXP   | 2.352   | 1.019     | 1       | 2      | 4       | 246,109 |
| PAST_NUM   | 4.153   | 5.659     | 1       | 3      | 148     | 247,115 |
| <i>Panel C. Provincial Variables</i>             |         |           |         |        |         |         |
| SC_INDEX   | 0.000   | 1.722     | -1.887  | -0.340 | 5.768   | 28      |
| SC1: BLOOD                                       | 0.966   | 0.802     | 0.017   | 0.783  | 3.433   | 28      |
| SC2: NGO   | 1.745   | 0.944     | 0.034   | 1.599  | 4.380   | 31      |
| SC3: ENTERPRISE                                  | 2.730   | 5.161     | 0.100   | 0.700  | 22.700  | 30      |
| SC4: CITIZEN                                     | 2.200   | 0.120     | 2.014   | 2.191  | 2.442   | 28      |
| PGDP   | 4.042   | 2.047     | 1.097   | 3.483  | 10.523  | 186     |
| LOAN   | 1.116   | 0.387     | 0.554   | 1.026  | 2.515   | 186     |
| LAW_OFFICE                                       | 0.163   | 0.143     | 0.060   | 0.123  | 0.894   | 186     |

For each borrower, we obtain their unique ID, age, gender, resident province, marital status, income range, education, work experience, home-ownership status, and borrowing history on RRD. We also obtain their credit rating assigned by RRD (in 7 categories, i.e., AA, A, B, C, D, E, and HR). For provincial variables, other than the 4 SC proxies, we include GDP per capita (PGDP) to measure their economic environment and the number of law offices per 10,000 residents (LAW\_OFFICE) to capture the legal environment. LOAN is the ratio of total bank loans to provincial GDP, which we use to measure the financial development of a province (Rajan and Zingales (1998)). In our regressions, the institutional variables of a province in year  $t - 1$  are matched with loans originating in year  $t$ .

### C. Summary Statistics

Our sample is composed of 247,115 loan listings on RRD from 2011 to 2015. Panel A of Table 2 reports that approximately 24.9% of loan listings are fully funded. Of the 61,577 fully funded loans, the mean of loan size varies significantly from 3,000 RMB (USD 437) to 3 million RMB (USD 461,538). On average, the loan rate is 2.13 times the benchmark lending rate, with significant variation of

0.76–5.38 times the benchmark lending rate. Relative to the stability of China's benchmark lending rate, these large pricing differences reflect, at least in part, the differences in borrower risks. The mean (median) loan maturity is 18.79 (19) months. We construct an additional variable `LONG_TERM`, which is a dummy variable that equals 1 if the loan maturity is over 12 months, and 0 otherwise. The variable shows that 80% of borrowers request a long-term loan. Ownership also varies considerably across loans. The average loan has 35.5 lenders in the range of 1–1,370 lenders. The average bid time for each fully funded loan is 69 minutes. Finally, approximately 5.4% of completed loans incur default.

Panel B of [Table 2](#) reports the summary statistics of borrower characteristics. Most borrowers are young, male, and married; do not have a bachelor's degree; and have low credit scores. The median income level of borrowers is less than 10,000 RMB (USD 1,538) per month. Only 44% of borrowers own a house, and 15.8% of borrowers report having a home mortgage loan. Panel C reports the summary statistics of (borrower) provincial-level variables. It shows a large variation in economic, legal, and financial development across Chinese provinces. We do not include province-level or borrower-level fixed effects in most regressions because our `SC_INDEX` is time-invariant for all borrowers in the same province.<sup>15</sup>

#### D. Research Design

Our study is motivated by the prevailing role of SC in its home trustee's trustworthiness and its home trustor's generalized trust. Regional SC has major effects on trust-intensive contracts, that is, debt, stock, and venture capital, particularly in cases of severe information asymmetry and limited information exchange. These problems are highlighted in online marketplace lending, where lenders are unsophisticated investors.

First, we postulate that a region's SC stock positively affects its home trustee's (borrower's) trustworthiness. If so, then SC should be associated with better ex ante outcomes of finance, such as funding success and loan size. We also hypothesize that the marginal effects of SC on ex ante outcomes are stronger when borrowers are less educated, are borrowing for the first time, and have lower credit scores. Apart from "perceived" trustworthiness, we test whether SC affects "actual" trustworthiness by investigating the ex post defaults in fully funded loans.

Next, we examine whether SC affects its home trustor's (lender's) generalized trust. If lenders in a high-SC environment are inherently more trusting of others, then, controlling for loan and borrower properties, lenders from high-SC regions are more likely to bid, and when they do, they bid larger amounts and a larger fraction of loan requests. We also expect that the impact of SC on a lender's trust propensity is larger for inexperienced lenders, who are more likely to engage in (SC-induced) coarse thinking. Finally, to gain insights into the consequence of high generalized trust, we examine investment success through ex post default rates.

We employ a battery of robustness tests to tackle the potential endogeneity. Regional SC is clearly not randomly assigned, nor is it a choice. Accordingly, we

<sup>15</sup>To examine the impact of the interactions between borrowers' characteristics and the SC index on loan terms, we also perform province-level fixed-effect regressions while dropping all provincial-level variables. The results remain robust.

treat the SC of one's home province as historically and econometrically predetermined. We can safely dismiss the possibility of reverse causality because each microeconomic transaction is clearly too small to influence SC among regions. Hence, the main identification challenge is not reverse causality but whether our SC index is correlated with other (omitted) factors that simultaneously affect the debt crowdfunding outcomes.<sup>16</sup> Section V.C discusses our various empirical strategies.

## V. Empirical Results on Social Capital and Trustworthiness

We start by testing how borrowers' SC (B\_SC\_INDEX) affects their debt crowdfunding outcomes. We infer borrowers' trustworthiness from their funding success (dummy and fraction), loan terms, and default rates. We also consider how the effects of (borrowers') SC vary across heterogeneous borrower characteristics, such as education, credit history, and credit score.

### A. Main Results

Table 3 reports the results of borrowers' SC on loan funding success, the number of lenders for a given loan (OWNERSHIP), and loan size (AMOUNT). SUCCESS is a dummy variable that equals 1 if a borrower's loan is fully funded, and 0 otherwise. FRACTION is the proportion of proceeds relative to the loan amount. Columns 1 and 2 use probit models for funding success, and we report the marginal effects for each variable. Columns 3–8 use OLS regressions for FRACTION, OWNERSHIP, and AMOUNT. Our models control a full set of borrower characteristics, loan characteristics, and the institutional environments of borrowers' home province.

Columns 1 and 2 of Panel A in Table 3 show that a borrower's SC positively predicts the probability that a listing is fully funded ( $p = 0.006$ ). To illustrate the marginal effect, all else being identical, a borrower from Shanghai has a 5% (or 1.5-percentage-point) higher probability of obtaining a loan than a borrower from Gansu does. Columns 3 and 4 on FRACTION show qualitatively similar results: Borrowers from provinces with high SC have a high proportion of proceeds relative to the loan amount. The coefficient is statistically significant at the 1% confidence level ( $p = 0.000$ ). Given a fully funded loan, columns 5 and 6 show a negative correlation between our SC index and the number of lenders ( $p = 0.014$  and  $0.018$ , respectively). This result indicates low diversification demand from lenders if borrowers are from provinces with high SC. This result is consistent with the findings of Ongena and Smith (2000) and Qian and Strahan (2007), who show that loan ownership is concentrated in countries with strong creditor protections. Columns 7 and 8 show the significantly positive correlation between SC and loan size. A 1-standard-deviation increase in SC is associated with a 2,000-RMB (USD \$300) increase in loan size. The effects are significant at the 1% confidence level.

<sup>16</sup>A common confounder is economic development. Although we have controlled for provincial GDP per capita, this approach may not be sufficient. See Section V.C.2 on our empirical strategy to distinguish the effect of social capital from that of economic development. Additionally, see Section V.C.3 on our instrumental-variable approach.

The signs of control variables are generally consistent with our expectations. Borrowers with high credit ratings, high personal income, high education levels, and long work experience have higher funding success and receive larger loans. Female borrowers have lower funding success than male borrowers do. Loan ownership becomes increasingly diffused when borrowers are old, are female, or own a house. We take note of SPREAD, which is negatively associated with SUCCESS and OWNERSHIP but positively associated with

TABLE 3  
Funding Success, Loan Size, and Ownership

Table 3 presents the results from the regressions of the SUCCESS indicator, FRACTION, loan size, and ownership onto borrowers' home borrower social capital (B\_SC\_INDEX), as well as a set of control variables. Year dummies are also included. Panel A reports the results for the social capital index. Columns 1 and 2 use OLS regressions. Panel B reports the results for the 4 proxies of social capital. Borrowers' personal characteristics and regional economic and financial variables are included but not reported. Robust standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

Panel A. Social Capital Index

| Variable                              | SUCCESS              |                      | FRACTION             |                      | OWNERSHIP            |                      | AMOUNT               |                      |
|---------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                                       | 1                    | 2                    | 3                    | 4                    | 5                    | 6                    | 7                    | 8                    |
| B_SC_INDEX                            | 0.001***<br>(0.000)  | 0.002***<br>(0.001)  | 0.002***<br>(0.000)  | 0.003***<br>(0.001)  | -0.008***<br>(0.002) | -0.010**<br>(0.004)  | 0.125***<br>(0.032)  | 0.108***<br>(0.042)  |
| AGE                                   | 0.002***<br>(0.000)  | 0.001***<br>(0.000)  | 0.002***<br>(0.000)  | 0.001***<br>(0.000)  | 0.012***<br>(0.001)  | 0.010***<br>(0.001)  | 0.056***<br>(0.004)  | 0.045***<br>(0.004)  |
| GENDER                                | -0.003**<br>(0.001)  | -0.008***<br>(0.001) | -0.008***<br>(0.001) | -0.012***<br>(0.001) | 0.108***<br>(0.010)  | 0.085***<br>(0.009)  | 0.737***<br>(0.087)  | 0.609***<br>(0.085)  |
| GRADE                                 | -0.082***<br>(0.000) | -0.077***<br>(0.000) | -0.179***<br>(0.000) | -0.175***<br>(0.000) | -0.120***<br>(0.002) | -0.088***<br>(0.003) | -0.795***<br>(0.032) | -0.727***<br>(0.027) |
| EDU                                   | 0.005***<br>(0.001)  | 0.005***<br>(0.001)  | 0.005***<br>(0.001)  | 0.006***<br>(0.001)  | -0.000<br>(0.005)    | 0.015***<br>(0.005)  | 0.110**<br>(0.047)   | 0.205***<br>(0.048)  |
| MARRIAGE                              | 0.008***<br>(0.001)  | 0.007***<br>(0.001)  | 0.007***<br>(0.001)  | 0.008***<br>(0.001)  | 0.064***<br>(0.009)  | 0.065***<br>(0.009)  | 0.171***<br>(0.044)  | 0.210***<br>(0.045)  |
| INCOME                                | 0.005***<br>(0.000)  | 0.004***<br>(0.000)  | 0.006***<br>(0.001)  | 0.005***<br>(0.001)  | 0.159***<br>(0.003)  | 0.149***<br>(0.003)  | 1.042***<br>(0.024)  | 1.002***<br>(0.021)  |
| HOUSE                                 | -0.008***<br>(0.001) | -0.005***<br>(0.001) | -0.004***<br>(0.001) | -0.001<br>(0.001)    | 0.080***<br>(0.011)  | 0.160***<br>(0.011)  | 1.338***<br>(0.134)  | 1.732***<br>(0.155)  |
| HOUSE_LOAN                            | 0.007***<br>(0.002)  | 0.004***<br>(0.002)  | 0.009***<br>(0.002)  | 0.007***<br>(0.002)  | 0.055***<br>(0.013)  | 0.032**<br>(0.012)   | -0.352***<br>(0.113) | -0.525***<br>(0.115) |
| WORK_EXP                              | 0.005***<br>(0.001)  | 0.007***<br>(0.001)  | 0.008***<br>(0.001)  | 0.010***<br>(0.001)  | -0.073***<br>(0.004) | -0.058***<br>(0.004) | -0.001<br>(0.042)    | 0.080*<br>(0.044)    |
| SPREAD                                |                      | -0.032***<br>(0.001) |                      | 0.014***<br>(0.001)  |                      | -0.179***<br>(0.014) |                      | -0.256<br>(0.185)    |
| WORDS                                 |                      | 0.000***<br>(0.000)  |                      | 0.000***<br>(0.000)  |                      | 0.001***<br>(0.000)  |                      | 0.004***<br>(0.000)  |
| PAST_NUM                              |                      | -0.002***<br>(0.000) |                      | -0.003***<br>(0.000) |                      | -0.014***<br>(0.001) |                      | -0.090***<br>(0.005) |
| LAW_OFFICE                            |                      | -0.046***<br>(0.007) |                      | -0.062***<br>(0.008) |                      | -0.088<br>(0.059)    |                      | -0.072<br>(0.564)    |
| LOAN                                  |                      | 0.010***<br>(0.002)  |                      | 0.015***<br>(0.002)  |                      | 0.033**<br>(0.016)   |                      | 0.114<br>(0.095)     |
| PGDP                                  |                      | 0.002***<br>(0.000)  |                      | 0.002***<br>(0.000)  |                      | 0.010***<br>(0.003)  |                      | 0.037*<br>(0.020)    |
| Constant                              |                      |                      | 1.530***<br>(0.006)  | 1.447***<br>(0.007)  | 2.013***<br>(0.037)  | 2.121***<br>(0.059)  | -0.737***<br>(0.179) | -0.779<br>(0.517)    |
| No. of obs.                           | 243,042              | 243,042              | 243,030              | 243,030              | 60,966               | 60,966               | 60,970               | 60,970               |
| R <sup>2</sup> /pseudo-R <sup>2</sup> | 0.597                | 0.604                | 0.650                | 0.652                | 0.165                | 0.186                | 0.129                | 0.142                |

(continued on next page)

TABLE 3 (continued)  
Funding Success, Loan Size, and Ownership

| <i>Panel B. Four Proxies of Social Capital</i> |                     |                     |                      |                      |                     |                     |                     |                     |
|--|---------------------|---------------------|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|
| Variable                                       | SUCCESS             |                     |                      |                      | FRACTION            |                     |                     |                     |
|  | 1                   | 2                   | 3                    | 4                    | 5                   | 6                   | 7                   | 8                   |
| BLOOD  | 0.002*<br>(0.001)   |                     |                      |                      | 0.003*<br>(0.001)   |                     |                     |                     |
| NGO  |                     | 0.004***<br>(0.001) |                      |                      |                     | 0.005***<br>(0.001) |                     |                     |
| ENTERPRISE                                     |                     |                     | 0.001***<br>(0.000)  |                      |                     |                     | 0.001***<br>(0.000) |                     |
| CITIZEN  |                     |                     |                      | -0.008<br>(0.005)    |                     |                     |                     | 0.012**<br>(0.006)  |
| Loan and borrower variables                    | Yes                 | Yes                 | Yes                  | Yes                  | Yes                 | Yes                 | Yes                 | Yes                 |
| Regional variables                             | Yes                 | Yes                 | Yes                  | Yes                  | Yes                 | Yes                 | Yes                 | Yes                 |
| Constant                                       |                     |                     |                      |                      | 1.442***<br>(0.007) | 1.441***<br>(0.007) | 1.444***<br>(0.007) | 1.406***<br>(0.014) |
| No. of obs.                                    | 243,042             | 244,640             | 244,515              | 243,042              | 243,030             | 244,628             | 244,503             | 243,030             |
| $R^2$ /pseudo- $R^2$                           | 0.604               | 0.604               | 0.604                | 0.604                | 0.652               | 0.652               | 0.652               | 0.651               |
| Variable                                       | OWNERSHIP           |                     |                      |                      | AMOUNT              |                     |                     |                     |
|  | 1                   | 2                   | 3                    | 4                    | 5                   | 6                   | 7                   | 8                   |
| BLOOD  | 0.015<br>(0.009)    |                     |                      |                      | 0.197*<br>(0.101)   |                     |                     |                     |
| NGO  |                     | -0.012*<br>(0.007)  |                      |                      |                     | 0.319***<br>(0.052) |                     |                     |
| ENTERPRISE                                     |                     |                     | -0.003***<br>(0.001) |                      |                     |                     | 0.038***<br>(0.014) |                     |
| CITIZEN  |                     |                     |                      | -0.153***<br>(0.039) |                     |                     |                     | 0.610***<br>(0.217) |
| Loan and borrower variables                    | Yes                 | Yes                 | Yes                  | Yes                  | Yes                 | Yes                 | Yes                 | Yes                 |
| Regional variables                             | Yes                 | Yes                 | Yes                  | Yes                  | Yes                 | Yes                 | Yes                 | Yes                 |
| Constant                                       | 2.037***<br>(0.060) | 2.057***<br>(0.059) | 2.049***<br>(0.059)  | 2.377***<br>(0.103)  | 1.941***<br>(0.496) | 1.781***<br>(0.496) | 2.057***<br>(0.523) | 0.697<br>(0.643)    |
| No. of obs.                                    | 60,966              | 61,089              | 61,081               | 60,966               | 60,970              | 61,093              | 61,085              | 60,970              |
| $R^2$ /pseudo- $R^2$                           | 0.194               | 0.195               | 0.195                | 0.194                | 0.096               | 0.097               | 0.097               | 0.096               |

FRACTION.<sup>17</sup> All provincial-level control variables have the expected sign and are statistically significantly different from 0. Provincial GDP per capita and financial development (LOAN) have a positive and statistically significant effect on funding success, loan size, and ownership. One exception is LAW\_OFFICE, which has a negative correlation with funding success. This result suggests that individual lenders view a high number of law offices in a province as an indicator of legal costs to enforce their rights.

<sup>17</sup>Lenders are attracted to this market because of its promised high return, where the predetermined interest rates are several times (not simply basis points) higher than the rate that potential lenders could earn in banks. In the beginning, loan lists with high interest rates will mechanically accumulate many more bids than those with low interest. However, high interest rates also signal high moral hazard of borrowers (Stiglitz and Weiss (1981)). If lenders are rational and they can perceive borrowers' quality from the offered interest rates, then borrowers' lists with high interest are less likely to be fully funded.



Panel B of [Table 3](#) shows the result using each of the 4 SC proxies while keeping the same full set of controlling variables. The probit and OLS regressions show that 3 of the 4 SC proxies positively and statistically significantly related to SUCCESS are negatively and significantly related to loan ownership. Moreover, all 4 SC proxies have a significantly positive relationship with FRACTION and loan amount.

## B. Heterogeneity Tests

If our proposition that lenders use borrowers' home SC as an impression of trust is true, then theories of adverse selection (Akerlof (1970)) predict that the marginal benefit of SC would be large for low-quality borrowers. To test this proposition, we partition the sample on the basis of quality indicators, such as the borrower's education level, credit history on RRD, and credit grade. [Table 4](#) shows the results.

Prior works show that an individual's human capital is closely correlated with education (Lusardi and Mitchell (2008), Behrman, Mitchell, Soo, and Bravo (2012)) and that borrowers with low human capital tend to have high financial constraints. In Panel A of [Table 4](#), a borrower is classified as highly educated (undereducated) if his or her highest qualification is a bachelor's degree or above (post-tertiary or below). Consistent with adverse selection, SC has little impact on the funding success of highly educated borrowers (columns 2 and 4) but has a large and significant impact on undereducated borrowers (columns 1 and 3). As for loan ownership, SC has a negative and statistically significant effect on the number of lenders in both subsamples, and the difference between the undereducated and highly educated groups is statistically insignificant. Finally, the positive effect of SC on loan amount is large and statistically significant among undereducated borrowers, whereas it is insignificantly negative among highly educated borrowers. The difference between them is statistically significant at the 5% level.

Panel B of [Table 4](#) re-runs the regressions by partitioning the sample into repeat and nonrepeat borrowers. A borrower is a repeat borrower if he or she appears more than twice on RRD; otherwise, the borrower is a nonrepeat borrower. The effects of borrower SC on funding success, fraction, loan ownership, and amount are highly significant in the subsample of nonrepeat borrowers but insignificant among repeat borrowers. The differences between the two groups in terms of funding success and loan ownership are statistically significant.

Panel C of [Table 4](#) re-runs the regressions by partitioning the sample into low- versus high-credit-score borrowers. A borrower is classified as high (low) grade if his or her credit score is below 5 (above or equal to 5). The effects of borrower SC on funding success, fraction, and amount are significant among low-grade borrowers but not among high-grade borrowers. The only exception is loan ownership; that is, the impact of borrower SC on the reduction of the number of bidders is significant among high-grade borrowers but not among low-grade borrowers. The difference between the two groups is not statistically significant.

Taken together, the cross-sectional evidence validates our proposition that lenders use borrowers' home SC as an impression of trust. Consistent with adverse selection, our proposition benefits borrowers with low education, little credit history, and low credit grade.

TABLE 4  
Heterogeneity Tests

Panel A of Table 4 re-runs regressions by partitioning the sample into undereducated versus highly educated borrowers. A borrower is classified as highly educated (undereducated) if his or her highest qualification is a bachelor's degree or above (post-tertiary or below). Panel B re-runs regressions by partitioning the sample into repeat borrowers, or those who appear more than twice on the Renrendai (RRD) platform, and nonrepeat borrowers. Panel C re-runs regressions by partitioning the sample into low- versus high-grade borrowers. A borrower is classified as high (low) grade if his or her credit score is below 5 (above or equal to 5). Borrowers' characteristics and regional variables are included. "Difference" represents the difference of the coefficient of B\_SC\_INDEX between two groups. Year dummies are also included. Robust standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

| Variable   | SUCCESS             |                   | FRACTION            |                   | OWNERSHIP           |                      | AMOUNT             |                   |
|--|---------------------|-------------------|---------------------|-------------------|---------------------|----------------------|--------------------|-------------------|
|  | Low                 | High              | Low                 | High              | Low                 | High                 | Low                | High              |
| <i>Panel A. Undereducated Versus Highly Educated Borrowers</i> |                     |                   |                     |                   |                     |                      |                    |                   |
| B_SC_INDEX   | 0.002***<br>(0.001) | 0.001<br>(0.001)  | 0.003***<br>(0.001) | 0.001<br>(0.001)  | -0.009*<br>(0.005)  | -0.021***<br>(0.008) | 0.138**<br>(0.054) | -0.007<br>(0.082) |
| Loan and borrower variables                                    | Yes                 | Yes               | Yes                 | Yes               | Yes                 | Yes                  | Yes                | Yes               |
| Regional variables   | Yes                 | Yes               | Yes                 | Yes               | Yes                 | Yes                  | Yes                | Yes               |
| Year fixed effects   | Yes                 | Yes               | Yes                 | Yes               | Yes                 | Yes                  | Yes                | Yes               |
| R <sup>2</sup> /pseudo-R <sup>2</sup>                          | 0.625               | 0.531             | 0.670               | 0.602             | 0.187               | 0.204                | 0.156              | 0.127             |
| No. of obs.  | 184,134             | 58,908            | 184,128             | 58,973            | 45,484              | 15,512               | 45,487             | 15,513            |
| Difference   | 0.001               |                   | 0.002**             |                   | 0.012               |                      | 0.145**            |                   |
| <i>Panel B. Nonrepeat Versus Repeat Borrowers</i>              |                     |                   |                     |                   |                     |                      |                    |                   |
| B_SC_INDEX   | 0.002***<br>(0.001) | 0.002<br>(0.002)  | 0.002**<br>(0.001)  | 0.002<br>(0.002)  | -0.010**<br>(0.004) | 0.0001<br>(0.012)    | 0.108**<br>(0.054) | 0.249<br>(0.160)  |
| Loan and borrower variables                                    | Yes                 | Yes               | Yes                 | Yes               | Yes                 | Yes                  | Yes                | Yes               |
| Regional variables   | Yes                 | Yes               | Yes                 | Yes               | Yes                 | Yes                  | Yes                | Yes               |
| Year fixed effects   | Yes                 | Yes               | Yes                 | Yes               | Yes                 | Yes                  | Yes                | Yes               |
| R <sup>2</sup> /pseudo-R <sup>2</sup>                          | 0.657               | 0.328             | 0.704               | 0.374             | 0.155               | 0.230                | 0.135              | 0.179             |
| No. of obs.  | 166,846             | 76,196            | 166,836             | 76,196            | 53,802              | 7,164                | 53,806             | 7,164             |
| Difference   | 0.001**             |                   | 0                   |                   | -0.01**             |                      | -0.141             |                   |
| <i>Panel C. Low- Versus High-Grade Borrowers</i>               |                     |                   |                     |                   |                     |                      |                    |                   |
| B_SC_INDEX   | 0.003***<br>(0.001) | -0.002<br>(0.002) | 0.004***<br>(0.002) | -0.001<br>(0.004) | 0.009<br>(0.009)    | -0.015***<br>(0.005) | 0.056**<br>(0.054) | 0.113<br>(0.072)  |
| Loan and borrower variables                                    | Yes                 | Yes               | Yes                 | Yes               | Yes                 | Yes                  | Yes                | Yes               |
| Regional variables   | Yes                 | Yes               | Yes                 | Yes               | Yes                 | Yes                  | Yes                | Yes               |
| Year fixed effects   | Yes                 | Yes               | Yes                 | Yes               | Yes                 | Yes                  | Yes                | Yes               |
| R <sup>2</sup> /pseudo-R <sup>2</sup>                          | 0.102               | 0.275             | 0.131               | 0.107             | 0.265               | 0.099                | 0.299              | 0.082             |
| No. of obs.  | 196,054             | 46,988            | 196,050             | 46,980            | 16,091              | 44,875               | 16,091             | 44,877            |
| Difference   | 0.005**             |                   | 0.005**             |                   | -0.024              |                      | -0.057             |                   |

## C. Robustness Tests

### 1. Alternative Specifications

#### a. Bootstrapping

Hypothesis testing using a large sample like ours can possibly yield a Type I error. To check robustness, we implement a bootstrapping method. Specifically, we draw a subsample that includes half as many observations as the whole sample and repeat our regression analysis for this subsample. We then replicate this procedure 1,000 times and obtain the bootstrap statistics. Columns 1–4 of Panel A in Table 5 show that our results are qualitatively unchanged; that is, (borrowers') SC positively correlates with funding success and loan amounts and negatively correlates with the number of lenders.

TABLE 5  
Robustness Tests

Panel A of Table 5 reports the robustness tests on the impact of social capital on trustworthiness. Columns 1–4 implement a bootstrapping method, which draws a subsample with half as many observations as the whole sample, and repeat our regression analysis for this subsample. Columns 5 and 6 employ the Heckman 2-step treatment-effect procedure to correct the selection bias. Columns 7–10 report the estimates that exclude Shanghai, Beijing, Gansu, Qinghai, and Ningxia. Panel B re-runs regressions by partitioning the sample into low- versus high-economic-development regions. "Difference" represents the difference of the coefficient of B\_SC\_INDEX between two groups. Panel C reports the difference-in-differences results using the Guo Meimei incident as a shock to social capital (SC). POST is a dummy variable for the months following the Guo Meimei incident (i.e., [1, 6]). B\_SC\_INDEX\_H is dummy variable that equals 1 if the borrower SC index in a region is above the median, and 0 otherwise. Borrowers' characteristics, regional variables, and year dummies are included. Robust standard errors clustered at the province level are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

Panel A. Alternative Methods

| Variable                              | Bootstrap          |                     |                    |                   | Selection            |                      | Excluding Sample    |                     |                      |                     |
|---------------------------------------|--------------------|---------------------|--------------------|-------------------|----------------------|----------------------|---------------------|---------------------|----------------------|---------------------|
|                                       | SUCCESS            | FRACTION            | AMOUNT             | OWNERSHIP         | AMOUNT               | OWNERSHIP            | SUCCESS             | FRACTION            | AMOUNT               | OWNERSHIP           |
|                                       | 1                  | 2                   | 3                  | 4                 | 5                    | 6                    | 7                   | 8                   | 9                    | 10                  |
| B_SC_INDEX                            | 0.002**<br>(0.001) | 0.003***<br>(0.001) | -0.010*<br>(0.005) | 0.108*<br>(0.057) | -0.0094**<br>(0.004) | 0.1065***<br>(0.028) | 0.002***<br>(0.001) | 0.003***<br>(0.001) | -0.0102**<br>(0.005) | 0.0547**<br>(0.024) |
| Loan and borrower variables           | Yes                | Yes                 | Yes                | Yes               | Yes                  | Yes                  | Yes                 | Yes                 | Yes                  | Yes                 |
| Regional variables                    | Yes                | Yes                 | Yes                | Yes               | Yes                  | Yes                  | Yes                 | Yes                 | Yes                  | Yes                 |
| Year fixed effects                    | Yes                | Yes                 | Yes                | Yes               | Yes                  | Yes                  | Yes                 | Yes                 | Yes                  | Yes                 |
| Inverse Mills ratio                   |                    |                     |                    |                   | -0.564***            | 4.522***             |                     |                     |                      |                     |
| R <sup>2</sup> /pseudo-R <sup>2</sup> | 0.604              | 0.653               | 0.186              | 0.142             |                      |                      | 0.604               | 0.6503              | 0.1695               | 0.2267              |
| Wald $\chi^2$                         |                    |                     |                    |                   | 7126.7               | 6382.2               |                     |                     |                      |                     |
| No. of obs.                           | 243,042            | 243,030             | 60,966             | 60,970            | 244,517              | 244,517              | 224,442             | 224,431             | 55,555               | 55,558              |

Panel B. Low Versus High Economic Development

| Variable                              | SUCCESS    |                   | FRACTION            |                    | OWNERSHIP           |                     | AMOUNT             |                     |
|---------------------------------------|------------|-------------------|---------------------|--------------------|---------------------|---------------------|--------------------|---------------------|
|                                       | Low        | High              | Low                 | High               | Low                 | High                | Low                | High                |
|                                       | B_SC_INDEX | 0.002*<br>(0.001) | 0.002***<br>(0.001) | 0.005**<br>(0.002) | 0.003***<br>(0.001) | -0.028**<br>(0.013) | -0.01**<br>(0.005) | 0.139***<br>(0.054) |
| Loan and borrower variables           | Yes        | Yes               | Yes                 | Yes                | Yes                 | Yes                 | Yes                | Yes                 |
| Regional variables                    | Yes        | Yes               | Yes                 | Yes                | Yes                 | Yes                 | Yes                | Yes                 |
| Year fixed effects                    | Yes        | Yes               | Yes                 | Yes                | Yes                 | Yes                 | Yes                | Yes                 |
| R <sup>2</sup> /pseudo-R <sup>2</sup> | 0.6265     | 0.5839            | 0.6522              | 0.6527             | 0.2005              | 0.1827              | 0.2974             | 0.1234              |
| No. of obs.                           | 119,618    | 123,424           | 119,610             | 123,420            | 30,863              | 30,103              | 30,865             | 30,105              |
| Difference                            |            | 0.000             |                     | 0.002              |                     | -0.018**            |                    | -0.007              |

(continued on next page)

TABLE 5 (continued)  
Robustness Tests

|                                     | SUCCESS              | FRACTION            | OWNERSHIP           | AMOUNT               |
|-------------------------------------|----------------------|---------------------|---------------------|----------------------|
|                                     | 1                    | 2                   | 3                   | 4                    |
| <i>Panel C. Guo Meimei Incident</i> |                      |                     |                     |                      |
| POST                                | -0.047***<br>(0.011) | 0.008<br>(0.014)    | 0.157*<br>(0.095)   | -1.026***<br>(0.259) |
| B_SC_INDEX_H                        | -0.020<br>(0.023)    | -0.019<br>(0.016)   | -0.143<br>(0.110)   | -0.012<br>(0.229)    |
| POST × B_SC_INDEX_H                 | 0.042**<br>(0.018)   | 0.053***<br>(0.017) | 0.108<br>(0.114)    | 0.609**<br>(0.283)   |
| Constant                            |                      | 0.553***<br>(0.044) | 1.342***<br>(0.283) | -2.821***<br>(0.999) |
| Loan and borrower variables         | Yes                  | Yes                 | Yes                 | Yes                  |
| Regional variables                  | Yes                  | Yes                 | Yes                 | Yes                  |
| Year fixed effect                   | Yes                  | Yes                 | Yes                 | Yes                  |
| No. of obs.                         | 12,097               | 12,097              | 1,348               | 1,348                |
| $R^2$ /pseudo- $R^2$                | 0.271                | 0.297               | 0.106               | 0.201                |

### *b. Selection Bias*

Much of our empirical analysis uses data from fully funded loans, which account for 24.9% of all loan listings. To account for potential bias, we employ the Heckman 2-step treatment-effects procedure. In the first equation, we estimate the probability that a loan will be fully funded; here, the dependent variable is a dummy of funding success. This equation uses the same specification as in column 1 of [Table 3](#). In the second equation, we use the inverse Mills ratio to correct the selection bias for the performance equations. These equations use the same specifications as columns 6 and 8 of [Table 3](#). Columns 5 and 6 of Panel A in [Table 5](#) present the results of the Heckman selection model. The effect of SC on loan ownership and amount remains significant.

### *c. Familiarity Bias*

We are also concerned about familiarity bias in our results. The top group of high-SC provinces consists of key provinces, that is, Shanghai and Beijing. By contrast, the bottom group consists of unpopular provinces, that is, Gansu, Qinghai, and Ningxia, where most people in populated coastal areas may never meet someone from these places. To mitigate familiarity bias, we re-run our model specifications that exclude the top group and the bottom group, that is, Shanghai, Beijing, Gansu, Qinghai, and Ningxia. Columns 7–10 of Panel A in [Table 5](#) present the results. The coefficients of SC carry the same signs and remain statistically significant.

## 2. Social Capital or Economic Development?

Another concern is that our SC index appears to correlate with the economic development of the provinces. Our results will be spurious if, for whatever reason, borrowers in economically prosperous regions are more trustworthy. Although we have controlled for economic development (per-capita GDP) and other institutional variables in all specifications, ruling out the confounding impact of economic development is not sufficient. To address this concern, we employ two methods.

First, we reestimate our basic specifications, splitting the sample between provinces with low economic development (per-capita GDP below the median) and provinces with high economic development (per-capita GDP above the median). Panel B of [Table 5](#) shows that our results are not driven by either subsample. The negative relationship between SC and loan ownership seems strong among the low-economic-development regions. This result indicates that the number of lenders for a given loan (OWNERSHIP) responds more to SC in less developed regions.

Next, we perform a difference-in-differences test by investigating how a negative shock to SC (unrelated to economic development) affects peer-to-peer lending. The shock we exploit is the Guo Meimei incident.<sup>18</sup> In June 2011, a woman nicknamed “Guo Meimei baby,” who claimed herself the general manager of the Chinese Red Cross, showed off her wealth on a blog. This incident provides an ideal

<sup>18</sup>See incident description on Wikipedia: [https://en.wikipedia.org/wiki/Guo\\_Meimei\\_\(Internet\\_celebrity\)](https://en.wikipedia.org/wiki/Guo_Meimei_(Internet_celebrity)).

laboratory for the following reasons. First, it generated a severe trust crisis for the Red Cross Society of China (RCSC), causing donations to suffer.<sup>19</sup> Second, it was an explicit, temporary shock to trust. A police investigation in 2012 showed that Guo Meimei's wealth was actually not from the RCSC, and the RCSC gradually restored its reputation in the following months. Third, the incident isolates the effects of SC from local economic conditions because the incident was unrelated to local economic conditions. If SC has a real impact on lending, then the shock could temporarily change investors' beliefs about the risk of their assets being stolen, causing them to withdraw or reduce their investments.

Thus, we design a difference-in-differences test surrounding the Guo Meimei incident. The incident date is set as month 0, and we focus on the 6 months prior to and the 6 months after the incident.<sup>20</sup> POST is a dummy variable for the months following the Guo Meimei incident (i.e., [1, 6]). We divide our sample into 2 groups according to the borrower SC index. B\_SC\_INDEX\_H is a dummy variable that equals 1 if the SC index in a region is above the median, and 0 otherwise. The coefficients on POST  $\times$  B\_SC\_INDEX\_H allow us to estimate the differences in the changes in lending activities between regions with different SC. Panel C of Table 5 reports the results. The results in columns 5–8 show a consistent negative relation between POST and the probability of funding success and loan size; they also show a positive relation with loan ownership. In addition, funding success exhibits a decline. Given a fully funded loan, loan size becomes smaller, and loan ownership becomes increasingly diffused. This finding suggests that in response to the Guo Meimei incident, investors perceived an increased risk of theft, and they in turn withdrew or reduced their investments. Of particular interest are the positive coefficients of the interaction terms, POST  $\times$  B\_SC\_INDEX\_H, on SUCCESS, FRACTION, and AMOUNT. The positive values imply that borrowers in regions with high SC experienced fewer reductions in investment after the Guo Meimei incident.

### 3. Instrumental-Variable Approach

This section employs an instrumental-variable approach to tackle the potential omitted-variable bias. A valid instrument should induce changes in our key explanatory variable (regional SC) but should have no independent effect on the dependent variable (debt crowdfunding outcomes), other than through its impact on regional SC.

We employ 2 instrumental variables. The first instrument traces back a province's agricultural specialization of growing rice versus wheat. Subsistence style theory argues that some forms of subsistence require more functional interdependence than other forms, and ecology narrows the types of subsistence that are possible. Talhelm, Zhang, Oishi, Shimin, Duan, Lan, and Kitayama (2014) find that Chinese regions with a history of farming rice have a more cooperative norm than those with a history of growing wheat. This is because paddy rice requires irrigation and high labor demand, causing farmers in rice-growing regions to form

<sup>19</sup>A survey administered after the incident showed that over 80% of respondents said they would not donate to the RCSC anymore, and actual donations to the RCSC and other charity organizations also decreased as a result of the Guo Meimei incident (see <https://finance.qq.com/a/20110805/001991.htm>).

<sup>20</sup>Our "manual bidding" transactions on RRD are available from Jan. 2011 because we have only 6 months of transaction data before the Guo Meimei incident.

cooperative labor exchanges. By contrast, wheat does not need to be irrigated, and wheat farmers can rely on rainfall, which does not require coordination with their neighbors. On the one hand, societies that need to cooperate intensively develop more interdependent cultures and accumulate higher SC stock over time.<sup>21</sup> On the other hand, a region's environmental suitability for rice, which relies on soil, climate, and topographic factors, should not have a direct impact on today's urban consumer credit, except for its impact on the formation of regional cooperative culture and SC.<sup>22</sup> Specifically, we calculate the logarithm of the "rice suitability" index of Chinese provinces (RICE\_SUIT). The index is a z-score of the environmental suitability of each province for growing wetland rice according to the United Nations Food and Agriculture Organization's Global Agro-Ecological Zones database.

Our second instrument exploits the ethnic diversity in Chinese provinces. The ethnic diversity in China provides an exogenous driving force behind the regional variation in SC.<sup>23</sup> Prior cross-country studies show that the diversity of ethnic groups in a country increases communication costs, social fragmentation, and the probability of civil conflict (Easterly and Levine (1997)); reduces social trust (Guiso et al. (2009)); and leads to poor quality of institutions (Alesina, Devleeschauwer, Easterly, Kurlat, and Wacziarg (2003)). In total, 56 ethnic groups are unequally distributed across China's 31 provinces, and each group has its own language, core values, and customs. Ang et al. (2015) find that ethnic and linguistic diversities in each Chinese province are negatively related to local trustworthiness. Following this literature, we extract data from the 2009 China Statistical Yearbook to construct a variable, ETHNIC, that refers to the fractionalization of the largest ethnic group in a province, which should be positively correlated with regional SC stock. However, conceiving a direct impact of regional ethnic diversity on the outcomes of nationwide debt crowdfunding is difficult, other than through its impact on the local SC stock.

Using the full sample, Table 6 reports the results from the instrumental variables RICE\_SUIT and ETHNIC. Columns 1 and 2 run the regression of the probit and linear models for funding success, and columns 3–5 run the linear regression models for fraction, loan ownership, and amount, respectively. We control for loan and borrower variables, regional variables, and year fixed effects, but we omit their coefficients for brevity. Consistent with expectation, the first-stage results in Panel B show that RICE\_SUIT and ETHNIC are positive and significantly

<sup>21</sup>As Talhelm et al. (2014) wrote, for southerners growing rice, "strict self-reliance might have meant starvation" (p. 604).

<sup>22</sup>One way to think about the indirect impact of rice specialization on credit would be to consider the credit needs of rice-growing households, which need to limit their exposure to shocks that can be handled with available credit and insurance (Morduch (1995)). A complete specialization in rice requires highly seasonal labor demand, which often cannot be procured locally and exposes farmers to high risk against production failure or decreasing prices (Klasen, Priebe, and Rudolf (2013), Di Falco and Chavas (2008)). In the long run, regions with high rice specialization might develop a deeper agricultural credit and insurance market. This effect, however, is indirect and pertinent to agricultural finance as opposed to urban consumer credit.

<sup>23</sup>Ethnic diversity, which requires a long duration of uninterrupted human settlements (Ahlerup and Olsson (2012)), is typically treated as an exogenous explanatory factor in economics. For a good review of this literature, see Alesina and La Ferrara (2005).

TABLE 6  
Instrumental-Variable Regressions

Panels A and B of Table 6 report the second- and first-stage results of our instrumental-variable analysis, respectively. Our first instrument, RICE\_SUIT, refers to the suitability of each province for growing wetland rice according to the United Nations Food and Agriculture Organization's Global Agro-Ecological Zones database. The second instrument is ETHNIC, which denotes the fraction of the largest ethnic group in a province. Panel C reports the regression results of the residuals of the second-stage regression on both instrumental variables. Panel D reports the estimates of including both instrumental variables in the benchmark regressions. Borrowers' characteristics, regional variables, and year dummies are included. Robust standard errors clustered at the province level are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

| Variable   | SUCCESS             |                     | FRACTION            | OWNERSHIP            | AMOUNT              |
|--|---------------------|---------------------|---------------------|----------------------|---------------------|
|  | 1                   | 2                   | 3                   | 4                    | 5                   |
| <i>Panel A. Second Stage</i>                       |                     |                     |                     |                      |                     |
| B_SC_INDEX   | 0.016**<br>(0.008)  | 0.002**<br>(0.001)  | 0.003***<br>(0.001) | -0.021***<br>(0.007) | 0.200***<br>(0.050) |
| Constant   |                     | 1.256***<br>(0.006) | 1.455***<br>(0.007) | 2.109***<br>(0.059)  | 1.244***<br>(0.538) |
| Loan and borrower variable                         | Yes                 | Yes                 | Yes                 | Yes                  | Yes                 |
| Regional variable                                  | Yes                 | Yes                 | Yes                 | Yes                  | Yes                 |
| Year fixed effects                                 | Yes                 | Yes                 | Yes                 | yes                  | Yes                 |
| No. of obs.  | 240,923             | 240,923             | 240,911             | 60,821               | 60,825              |
| <i>Panel B. First Stage</i>                        |                     |                     |                     |                      |                     |
| RICE_SUIT  | 0.479***<br>(0.002) | 0.479***<br>(0.002) | 0.479***<br>(0.002) | 0.460***<br>(0.004)  | 0.461***<br>(0.004) |
| ETHNIC   | 2.396***<br>(0.011) | 2.396***<br>(0.011) | 2.396***<br>(0.011) | 2.725***<br>(0.025)  | 2.745***<br>(0.025) |
| $R^2$  |                     | 0.820               | 0.820               | 0.805                | 0.805               |
| Log-likelihood                                     | -321,695            |                     |                     |                      |                     |
| F-statistics (p-value)                             |                     | 0.000               | 0.000               | 0.000                | 0.000               |
| Minimum eigenvalue statistics                      |                     | 65,777              | 65,777              | 14,116               | 14,285              |
| Critical value: 10%                                |                     | 19.93               | 19.93               | 19.93                | 19.93               |
| Overidentification (p-value)                       |                     | 0.073               | 0.494               | 0.051                | 0.173               |
| <i>Panel C. Residual Regression on Instruments</i> |                     |                     |                     |                      |                     |
| RICE_SUIT  |                     | 0.0006<br>(0.0005)  | -0.0003<br>(0.0006) | -0.0049<br>(0.0040)  | 0.0211<br>(0.0285)  |
| ETHNIC   |                     | 0.0052<br>(0.0040)  | 0.0022<br>(0.0040)  | 0.0478<br>(0.0315)   | -0.2044<br>(0.2260) |
| $R^2$  |                     | 0                   | 0                   | 0.0001               | 0                   |
| <i>Panel D. Tests for Exclusion Restriction</i>    |                     |                     |                     |                      |                     |
| B_SC_INDEX   | 0.002**<br>(0.001)  | 0.002***<br>(0.001) | 0.002***<br>(0.001) | -0.021***<br>(0.005) | 0.214***<br>(0.046) |
| RICE_SUIT  | -0.000<br>(0.001)   | -0.001<br>(0.001)   | 0.000<br>(0.001)    | -0.001<br>(0.005)    | 0.015<br>(0.022)    |
| ETHNIC   | 0.004<br>(0.004)    | 0.006<br>(0.004)    | 0.005<br>(0.005)    | 0.048<br>(0.038)     | -0.294<br>(0.213)   |
| $R^2$  | 0.605               | 0.683               | 0.653               | 0.131                | 0.108               |

correlated with the SC index. The second-stage results in Panel A validate our baseline results that regional SC is an important determinant of funding success, loan ownership, and loan amount. In addition, we conduct an overidentification test because the number of instrumental variables is greater than the number of endogenous variables. Because the reported  $p$ -value of the Hansen J statistics is larger than 0.05, we conclude that the overidentification restriction is valid.

A valid instrument should satisfy the relevance condition and exclusion-restriction condition. The  $p$ -value for the  $F$  statistics for the joint significance of the instrumental variables is 0.000, which is sufficient to alleviate the relevance



concern. We implement tests from Stock and Yogo (2005) for weak instruments. Panel B gives critical values for 2-stage least squares (2SLS) at the 10% level.<sup>24</sup> The reported minimum eigenvalue statistic greatly exceeds the critical value of 19.93 and is large enough to reject the null hypothesis of weak instruments. Another concern is that the instruments (rice production suitability and ethnic diversity) are likely correlated with the local economy and thus do not satisfy the exclusion restriction. With regard to the exclusion-restriction condition (i.e., the instrumental variable does not affect lending through channels other than SC), we implement an additional test. If the instrumental variable influences lending only through the SC channel, then the instrumental variable should have statistically insignificant effects on lending conditional on SC.

We implement 2 additional tests on the exclusion restrictions. First, if the instrumental variable influences lending through other channels, then the residuals of the second-stage regression should be correlated with the instrumental variable. Panel C of Table 6 reports the regression results of the residuals of the second-stage regression on both instrumental variables. The coefficients in both instruments are statistically and economically insignificant. Second, if the instrumental variables influence lending activities only through SC, then the instrumental variable should have statistically insignificant effects on lending conditional on SC. In Panel D, we include both instrumental variables in the benchmark regressions. For simplicity, we include but do not report borrowers' personal characteristics, regional economic variables, and financial variables. The SC index yields consistent results, but all the estimated coefficients of the instrumental variables are statistically insignificant.

#### 4. City-Level Evidence

Our SC measure at the province level may be too coarse.<sup>25</sup> China is a large country, and each of its provinces is comparable to a European country by population.<sup>26</sup> People would certainly not consider that all Italians, French, and British are alike in trustworthiness. Fortunately, one of our SC proxies, CITIZEN, employs data from the CGSS for 125 cities in 28 provinces. The number of cities in the CGSS varies from 1 city in Hainan Province to 7 cities in Guangdong Province.<sup>27</sup> City-level analysis provides more variation and testing power than provincial-level analysis. Columns 1–4 of Table 7 present the results, which are qualitatively unchanged. The city-level citizen proxy, CITIZEN\_CITY, positively correlates with funding success and loan amounts and negatively correlates with the number of lenders.

<sup>24</sup>We also use the limited information maximum likelihood (LIML) estimator at 10% level and obtain similar results.

<sup>25</sup>We thank an anonymous referee for raising this issue.

<sup>26</sup>For example, eight Chinese provinces have a population that is comparable to that of Italy (60.5 million), France (65 million), and the UK (68 million). These provinces are Guangdong (104 million), Shandong (100 million), Henan (94 million), Sichuan (81 million), Jiangsu (79 million), Hebei (72 million), Hunan (66 million), and Anhui (60 million).

<sup>27</sup>One limitation of city-level analysis is that borrowers are located in 200 cities in China, but the city-level SC data are available only for 87 cities.

TABLE 7  
City-Level Analysis and Time-Series Evidence

Table 7 presents the results from the regressions of the success indicator, fraction, loan size, and ownership onto citizen survey at the city level (CITIZEN\_CITY) and nongovernmental organization (NGO) participation in year  $t - 1$  (NGO\_  $t-1$ ), as well as a set of control variables. Columns 1–4 present the results of city-level analysis for all cities. Columns 5–8 present the results of city-level analysis for a smaller sample of 11 cities in the 3 neighboring provinces of Yunnan, Guizhou, and Sichuan. Columns 9–12 present the results of NGO participation by controlling for borrower fixed effects. Borrowers' characteristics, regional variables, and year dummies are included. Robust standard errors clustered at the province level are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

| Variable                   | City, Full Sample  |                     |                      |                     | City, Small Sample |                   |                    |                   | Time-Varying      |                    |                    |                    |
|----------------------------|--------------------|---------------------|----------------------|---------------------|--------------------|-------------------|--------------------|-------------------|-------------------|--------------------|--------------------|--------------------|
|                            | SUCCESS            | FRACTION            | OWNERSHIP            | AMOUNT              | SUCCESS            | FRACTION          | OWNERSHIP          | AMOUNT            | SUCCESS           | FRACTION           | OWNERSHIP          | Amount             |
|                            | 1                  | 2                   | 3                    | 4                   | 5                  | 6                 | 7                  | 8                 | 9                 | 10                 | 11                 | 12                 |
| CITIZEN_CITY               | 0.009**<br>(0.005) | 0.016***<br>(0.005) | -0.154***<br>(0.035) | 0.842**<br>(0.394)  | 0.052**<br>(0.025) | 0.067*<br>(0.031) | -0.672*<br>(0.324) | 0.893*<br>(0.460) |                   |                    |                    |                    |
| NGO_ $t-1$                 |                    |                     |                      |                     |                    |                   |                    |                   | 0.190*<br>(0.115) | 0.197*<br>(0.117)  | -3.129*<br>(1.727) | 3.602*<br>(2.026)  |
| Constant                   |                    | 1.455***<br>(0.014) | 2.294***<br>(0.098)  | -1.808**<br>(0.889) |                    | 1.124*<br>(0.508) | 7.180**<br>(2.534) | 5.813<br>(11.605) | 0.708<br>(0.775)  | 0.237<br>(422.823) | 3.524<br>(3.965)   | 20.366<br>(22.098) |
| Loan and borrower variable | Yes                | Yes                 | Yes                  | Yes                 | Yes                | Yes               | Yes                | Yes               | Yes               | Yes                | Yes                | Yes                |
| Regional variable          | Yes                | Yes                 | Yes                  | Yes                 | Yes                | Yes               | Yes                | Yes               | Yes               | Yes                | Yes                | Yes                |
| Year fixed effects         | Yes                | Yes                 | Yes                  | Yes                 | Yes                | Yes               | Yes                | Yes               | Yes               | Yes                | Yes                | Yes                |
| No. of obs.                | 104,812            | 104,804             | 31,913               | 31,916              | 10,601             | 10,600            | 2,323              | 2,323             | 244,711           | 241,720            | 61,094             | 61,093             |
| $R^2$ /pseudo- $R^2$       | 0.662              | 0.709               | 0.167                | 0.112               | 0.602              | 0.635             | 0.23               | 0.4               | 0.003             | 0.008              | 0.001              | 0.021              |

To further exploit the SC variations within a common region, we turn to a smaller sample of 11 cities in 3 neighboring provinces of Yunan (3 cities), Guizhou (2 cities), and Sichuan (6 cities).<sup>28</sup> The “Yun–Gui–Chuan” region (collectively termed the “southwest region”) is one of the seven geographical divisions in China;<sup>29</sup> historically, these provinces were often jointly governed.<sup>30</sup> People in this region interact with one other intensively and share similar cultures and dialects.<sup>31</sup> Standard errors tend to increase because we have only 11 cities in the sample, and we cluster the standard errors at the city level. Columns 5–8 present the results, which remain robust in the smaller sample. For a robustness check, we also use a sample of another 11 cities in the two adjacent provinces of Guangdong and Guangxi, and we obtain similar results.<sup>32</sup>

## 5. Time-Series Evidence

One criticism of our results is that our proxy for SC is cross-sectional in nature. Indeed, the common proposition is that a society’s SC, which accumulates over a long time, is highly persistent (Putnam (1993)). However, certain shocks may cause societal SC to change quickly (Algan and Cuhuc (2014), Guriev and Melnikov (2016)), which will bias our result. Fortunately, one of our provincial-level measures of SC, NGO, is time-varying. We thus include borrower-level fixed effects to control for time-invariant unobservable heterogeneity. Columns 9–12 of Table 7 show the results. These columns show that NGO participation in year  $t - 1$ ,  $NGO_{t-1}$ , is significantly positively related to funding success and loan size, and it is negatively related to the number of lenders (ownership).

## D. Social Capital and Default Rates

In this section, we use the ex post measure of default rates to test whether borrowers from high-SC regions are indeed trustworthy. To test this proposition, we run probit models in which the dependent variable is DEFAULT, which takes the value of 1 if borrowers do not make a repayment on time, and 0 otherwise.

Column 1 of Table 8 shows a negative relation between SC and DEFAULT. The coefficients of marginal effects are statistically and economically significant. A 1-standard-deviation increase in borrowers’ SC index leads to a decline in the default rate of approximately 0.4 percentage points, or 8% of the sample mean. In an extreme case, a loan made to a borrower in Gansu (SC index of  $-1.887$ ) has a probability of default that is approximately 1.7 percentage points higher than that

<sup>28</sup>The analysis based on one single province will produce inaccurate estimation because of the small sample of cities.

<sup>29</sup>Southwest China, in a narrow sense, covers only the 3 provinces of Sichuan, Guizhou, and Yunnan. In a broad sense, it also covers the Chongqing municipality and the Tibet autonomous region.

<sup>30</sup>The region covering the 3 provinces was historically jointly governed by the state of Shu Han during the Eastern Han Dynasty (220–280). In the 13th century, the Mongolian army conquered the Southern Song Dynasty and created the Sichuan, Yunnan, and Guizhou administrative region (Fei (2017)). Following that, the region was administratively governed by Mongols in the Yuan Dynasty (1271–1368), by Hans in the Ming Dynasty (1368–1644), and by the Manchu in the Qing Dynasty (1636–1912).

<sup>31</sup>Southwestern Mandarin is spoken by 260 million people in most of central and southwestern China. See [https://en.wikipedia.org/wiki/Southwestern\\_Mandarin](https://en.wikipedia.org/wiki/Southwestern_Mandarin).

<sup>32</sup>Results are saved for brevity and are available from the authors.

TABLE 8  
Borrower Social Capital and Default Rates

Table 8 presents the regression results of default rates for a given loan onto B\_SC\_INDEX, as well as different sets of control variables. Columns 1 and 2 implement probit and OLS regressions, respectively. Columns 3 and 4 re-run the regression by using subsamples of undereducated versus highly educated borrowers. Columns 5, 6, and 7 employ the Heckman selection model, the bootstrapping method, and instrumental-variable regressions, respectively. The first-stage results are not reported here for brevity. Loan, borrowers' personal characteristics, and regional economic and financial variables are included, but they are also not reported. Year fixed effects are included. Robust standard errors clustered at the province level are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

| Variable                    | Probit<br>1         | OLS<br>2             | Education            |                   | Selection<br>5      | Bootstrap<br>6     | Instrument<br>7      |
|-----------------------------|---------------------|----------------------|----------------------|-------------------|---------------------|--------------------|----------------------|
|                             |                     |                      | Low<br>3             | High<br>4         |                     |                    |                      |
| B_SC_INDEX                  | -0.002**<br>(0.001) | -0.002***<br>(0.001) | -0.003***<br>(0.001) | -0.000<br>(0.002) | -0.002**<br>(0.001) | -0.002*<br>(0.001) | -0.048**<br>(0.024)  |
| Constant                    |                     | -0.118***<br>(0.013) |                      |                   | -0.018<br>(0.011)   |                    | -7.526***<br>(0.890) |
| Loan and borrower variables | Yes                 | Yes                  | Yes                  | Yes               | Yes                 | Yes                | Yes                  |
| Regional variables          | Yes                 | Yes                  | Yes                  | Yes               | Yes                 | Yes                | Yes                  |
| Year fixed effects          | Yes                 | Yes                  | Yes                  | Yes               | Yes                 | Yes                | Yes                  |
| No. of obs.                 | 60,984              | 60,984               | 45,471               | 15,513            | 244,517             | 60,984             | 60,825               |
| $R^2$ /pseudo- $R^2$        | 0.475               | 0.212                | 0.496                | 0.39              |                     | 0.475              |                      |

for a loan made to a borrower in Shanghai (SC index of 5.768); this value is approximately one-third of the sample mean. Column 2, which is based on OLS regression, presents a similar result. As shown in Columns 3 and 4, we separately investigate the impact of SC on default rates for undereducated and highly educated borrowers. Among highly educated borrowers, SC does not significantly predict default. By contrast, in the sample of undereducated borrowers, SC is negatively related to default. This result suggests that SC constrains the opportunistic behavior of undereducated borrowers more than it does for highly educated borrowers. As shown in columns 5, 6, and 7, we employ the Heckman selection model, bootstrapping method, and instrumental-variable regression,<sup>33</sup> respectively, in our probit model of default. We find a significantly negative relationship between SC and default rates, which validates our baseline results.

## E. Lender Fixed Effect

Thus far, the results using each loan as a unit of observation show the collective wisdom that borrowers from high-SC regions are more trustworthy. To see whether the same is true among individual lenders, we use each lender's bid as a unit of observation. In debt crowdfunding, a borrower can obtain funding from multiple lenders. Each lender also bids on different borrowers. Our 61,577 fully funded loans are composed of 2,172,520 bids made by 114,119 unique-ID lenders. Although RRD assigns each lender a unique user ID, it does not require lenders to provide the personal information required from borrowers. Thus, we control for lenders' fixed effects to examine how borrowers' SC affects lenders' bids. The regression model is as follows:

<sup>33</sup>Column 7 of Table 9 reports the results from the instrument variables RICE\_SUIT and ETHNIC.

$$(1) \quad \text{BID\_AMOUNT}_{ij,t}(\text{DEFAULT}_{ij,t}) = \beta_0 + \beta_1 \text{B\_SC\_INDEX}_j + \beta_2 \text{CONTROL}_{j,t} + \delta_i + \delta_t + e_{ij,t}$$

where  $\text{BID\_AMOUNT}_{ij,t}(\text{DEFAULT}_{ij,t})$  represents the bid amount ( $\text{DEFAULT}$ ) of lender  $i$  in borrower  $j$  in time  $t$ .  $\text{B\_SC\_INDEX}_j$  is the home SC of borrower  $j$ , and  $\text{CONTROL}_{j,t}$  represents the loan and borrowers' characteristics and regional variables.  $\delta_i$  and  $\delta_t$  represent the lender fixed effects and time fixed effects, respectively.  $e_{ij,t}$  is the standard error.

The results presented in Table 9 confirm our baseline finding. That is, columns 1–3 show that individual lenders make larger investments to borrowers from higher-SC regions. A 1-standard-deviation increase in a borrower's home SC increases a lender's bid size by 86.1 RMB (USD 13), an increase of almost a fifth in the median amount of a lender's investment. The effects are significant at the 1% confidence level. We also construct the variable  $\text{BID\_RATIO}$ , which is the fraction of lender  $i$ 's bid relative to the loan amount requested by borrower  $j$  ( $\text{BID\_RATIO}_{ij}$ ). Columns 4–6 show that higher SC is associated with a larger  $\text{BID\_RATIO}$ . Finally, the results in columns 7–9 confirm that a borrower's SC significantly reduces default probabilities.

## VI. Empirical Results on Social Capital and Generalized Trust

### A. Dyadic Analysis

Although the results suggest that lenders use information about potential borrowers' SC when making lending decisions, little is known about the influence of SC on lenders' generalized trust. One unique advantage of our study is that we can extract crucial details in a subsample of lending in which borrower and lender information is available. In other words, we can identify a specific lending relationship (i.e., who is borrowing and from whom) and examine how lenders' and borrowers' SC affects lending decisions. We proceed in 2 steps. First, we identify lender characteristics from borrowers' information set and construct lender–borrower pairs. We then study how SC affects lender bids and the consequences of loans in terms of observable outcomes (i.e., the probability of default).

### B. The Lender–Borrower

We match a lender's user ID with a borrower's ID, yielding a nontrivial group of borrowers who bid on the same platform. The data show 1,743 unique lenders (bidding borrowers) with investments in 21,727 loans, accounting for more than one-third of total fully funded loans. We first identify the factors that affect the likelihood of borrowers becoming bidders in the platform. The dependent variable equals 1 if borrowers bid in the RRD online lending market, and 0 otherwise. The main variable of interest is the level of SC. The control variables are i) listing and loan characteristics, ii) borrower characteristics, and iii) provincial environment.

Table 10 shows the results of probit and logistic regressions, and we report the marginal effects for each variable. Clearly, high SC increases the chance of a

TABLE 9  
Lender Fixed Effects

Table 9 estimates the basic regressions by controlling for lender fixed effects. The Renrendai (RRD) platform assigns a unique ID to each customer. A lender can bid for many loan lists. Our approach enables us to control for the lender fixed effects. The BID\_AMOUNT, BID\_RATIO, and DEFAULT\_RATE of a given investment are regressed onto borrowers' social capital index and sets of control variables. Robust standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

| Variable                         | BID_AMOUNT            |                       |                       | BID_RATIO             |                       |                       | DEFAULT                |                        |                        |
|----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|------------------------|
|                                  | 1                     | 2                     | 3                     | 4                     | 5                     | 6                     | 7                      | 8                      | 9                      |
| B_SC_INDEX                       | 0.0054***<br>(0.0004) | 0.0049***<br>(0.0004) | 0.0043***<br>(0.0004) | 0.0003***<br>(0.0000) | 0.0002***<br>(0.0000) | 0.0003***<br>(0.0001) | -0.0011***<br>(0.0001) | -0.0012***<br>(0.0001) | -0.0003**<br>(0.0001)  |
| Constant                         | 0.2078***<br>(0.0105) | 0.1869***<br>(0.0120) | 0.1938***<br>(0.0123) | 0.0613***<br>(0.0021) | 0.0678***<br>(0.0030) | 0.0701***<br>(0.0030) | -0.0740***<br>(0.0028) | -0.0768***<br>(0.0038) | -0.0664***<br>(0.0038) |
| Loan and borrower variables      | Yes                   | Yes                   | Yes                   | Yes                   | Yes                   | Yes                   | Yes                    | Yes                    | Yes                    |
| Regional variables               | No                    | No                    | Yes                   | No                    | No                    | Yes                   | No                     | No                     | Yes                    |
| Year fixed effects               | No                    | Yes                   | Yes                   | No                    | Yes                   | Yes                   | No                     | Yes                    | Yes                    |
| No. of obs.                      | 2,172,520             | 2,172,520             | 2,172,520             | 2,172,520             | 2,172,520             | 2,172,520             | 2,172,520              | 2,172,520              | 2,172,520              |
| $\bar{R}^2$ /pseudo- $\bar{R}^2$ | 0.0044                | 0.0082                | 0.0083                | 0.0302                | 0.0376                | 0.0378                | 0.2284                 | 0.2320                 | 0.2325                 |
| No. of investors                 | 114,119               | 114,119               | 114,119               | 114,119               | 114,119               | 114,119               | 114,119                | 114,119                | 114,119                |

TABLE 10  
Determinants of Borrowers Bidding in the Platform

Table 10 reports the results of probit and logistic regressions for determinants of borrowers who also bid on the platform. We report the marginal effects for each variable. Columns 1 and 2 use probit models. Columns 3 and 4 use logistic regressions. Robust standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

| Variable              | Probit                 |                        | Logistic               |                        |
|-----------------------|------------------------|------------------------|------------------------|------------------------|
|                       | 1                      | 2                      | 3                      | 4                      |
| B_SC_INDEX            | 0.0020***<br>(0.0002)  | 0.0062***<br>(0.0004)  | 0.0021***<br>(0.0002)  | 0.0066***<br>(0.0005)  |
| AGE                   | -0.0003***<br>(0.0001) | -0.0003***<br>(0.0001) | -0.0003***<br>(0.0001) | -0.0003***<br>(0.0001) |
| GENDER                | -0.0128***<br>(0.0013) | -0.0120***<br>(0.0013) | -0.0140***<br>(0.0015) | -0.0130***<br>(0.0015) |
| GRADE                 | 0.0017***<br>(0.0002)  | 0.0018***<br>(0.0002)  | 0.0014***<br>(0.0002)  | 0.0016***<br>(0.0002)  |
| EDU                   | 0.0075***<br>(0.0005)  | 0.0075***<br>(0.0005)  | 0.0077***<br>(0.0005)  | 0.0077***<br>(0.0005)  |
| MARRIAGE              | 0.0037***<br>(0.0008)  | 0.0040***<br>(0.0008)  | 0.0039***<br>(0.0008)  | 0.0041***<br>(0.0008)  |
| INCOME                | -0.0012***<br>(0.0003) | -0.0008***<br>(0.0003) | -0.0012***<br>(0.0003) | -0.0008***<br>(0.0003) |
| HOUSE                 | 0.0058***<br>(0.0009)  | 0.0061***<br>(0.0008)  | 0.0062***<br>(0.0009)  | 0.0066***<br>(0.0009)  |
| HOUSE_LOAN            | 0.0056***<br>(0.0009)  | 0.0061***<br>(0.0009)  | 0.0053***<br>(0.0009)  | 0.0057***<br>(0.0009)  |
| WORK_EXP              | 0.0041***<br>(0.0004)  | 0.0039***<br>(0.0004)  | 0.0041***<br>(0.0004)  | 0.0039***<br>(0.0004)  |
| PAST_NUM              | 0.0026***<br>(0.0001)  | 0.0026***<br>(0.0001)  | 0.0024***<br>(0.0001)  | 0.0024***<br>(0.0001)  |
| LAW_OFFICE            |                        | 0.0072<br>(0.0046)     |                        | 0.0107**<br>(0.0049)   |
| LOAN                  |                        | 0.0061***<br>(0.0012)  |                        | 0.0057***<br>(0.0013)  |
| PGDP                  |                        | -0.0063***<br>(0.0005) |                        | -0.0070***<br>(0.0006) |
| No. of obs.           | 120,454                | 120,454                | 120,454                | 120,454                |
| Pseudo-R <sup>2</sup> | 0.1159                 | 0.1357                 | 0.1133                 | 0.1339                 |

borrower bidding in the lending market. This result suggests that compared with borrowers who never bid in the market, individuals in regions with high SC are more likely to extend loans. In addition, bidding borrowers are more likely to be male, married, younger, and highly educated. Bidding borrowers are also likely to have more work experience and are more likely to own properties. However, in contrast to borrowers who never bid in the market, bidding borrowers tend to have lower credit ratings and personal income. Bidding borrowers are also more likely to come from less developed regions and regions with a higher ratio of total bank loan to GDP. We interpret this surprising result as follows: Borrowers with lower credit ratings and lower income from less developed regions typically have less access to finance and investment opportunities. Once they are familiar with the platform and become aware of investment opportunities available to them, they are more likely to become bidders. By contrast, in regions with a high ratio of private debt to GDP, borrowers have easy access to credit and can afford to be profligate. As a result, they are more likely to bid in pursuit of higher return.

### C. Lenders' Social Capital and Investment

Next, we focus on bids made by these borrowers, whose information is available. As a result, we have borrower and lender characteristics, which yield 49,759 lender–borrower bid pairs in 21,727 fully funded loan projects.

Panel A of Table 11 reports the summary statistics for the main variables of lenders and borrowers. Consistently, individuals from high-SC regions are likely to be lenders. The difference in the SC of the two groups is economically large and statistically significant. Compared with lenders, borrowers are more likely to be female, married, older, and undereducated. Borrowers are also likely to have a shorter work experience and are less likely to own properties. Interestingly, borrowers tend to have higher credit ratings and income, indicating the importance of repayment ability.<sup>34</sup> In addition, lenders are more likely to come from rich regions with better legal and financial development. Panel B shows the bid information for this sample. The mean and median size of lender investment are 1,000 RMB and 300 RMB, respectively. Most loans are long term and charge an average of 2.22 times the benchmark lending interest rates.<sup>35</sup>

TABLE 11  
Lender–Borrower Pairs

Panel A of Table 11 reports the summary statistics for lenders and borrowers. We conduct *t*-value tests for the mean difference and Wilcoxon signed-rank tests for the median difference. Panel B reports the summary statistics of lenders' bids. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

*Panel A. Characteristics of Lenders and Borrowers*

| Variable   | Lender |        | Borrower |        | Difference |           |
|------------|--------|--------|----------|--------|------------|-----------|
|            | Mean   | Median | Mean     | Median | Mean       | Median    |
| SC_INDEX   | 1.889  | 1.530  | 0.857    | 0.269  | 1.032***   | 1.261***  |
| AGE        | 35.226 | 33     | 38.736   | 37     | -3.510***  | -4.000*** |
| GENDER     | 0.035  | 0      | 0.153    | 0      | -0.118***  | 0.000***  |
| GRADE      | 5.262  | 7      | 3.432    | 2      | 1.830***   | 5.000***  |
| EDU        | 2.653  | 3      | 1.984    | 2      | 0.669***   | 1.000***  |
| MARRIAGE   | 0.748  | 1      | 0.789    | 1      | -0.041***  | 0.000***  |
| INCOME     | 3.113  | 3      | 4.007    | 4      | -0.894***  | -1.000*** |
| HOUSE      | 0.704  | 1      | 0.474    | 0      | 0.230***   | 1.000***  |
| HOUSE_LOAN | 0.325  | 0      | 0.176    | 0      | 0.149***   | 0.000***  |
| WORK_EXP   | 2.750  | 3      | 2.564    | 2      | 0.186***   | 1.000***  |
| PAST_NUM   | 7.145  | 2      | 4.785    | 1      | 2.360***   | 1.000***  |
| LAW_OFFICE | 0.313  | 0.160  | 0.191    | 0.149  | 0.122***   | 0.010***  |
| LOAN       | 1.381  | 1.105  | 1.126    | 1.002  | 0.254***   | 0.104***  |
| PGDP       | 5.738  | 5.883  | 5.190    | 5.171  | 0.549***   | 0.712***  |

*Panel B. Characteristics of Bids*

| Variable      | Mean   | Std. Dev. | Minimum | P50    | Maximum  |
|---------------|--------|-----------|---------|--------|----------|
| BID_AMOUNT    | 0.10   | 0.39      | 0.00    | 0.03   | 30       |
| INTEREST_RATE | 2.22   | 0.39      | 0.76    | 2.15   | 5.38     |
| MATURITY      | 15.22  | 9.62      | 1       | 12     | 48       |
| LONG_TERM     | 0.68   | 0.46      | 0       | 1      | 1        |
| DEFAULT       | 0.04   | 0.19      | 0       | 0      | 1        |
| DISTANCE      | 968.97 | 561.16    | 0       | 970.03 | 3,463.17 |

<sup>34</sup>Borrowers need to have their repayment ability assessed by the platform to be allowed to borrow. However, lenders have no eligibility requirement to be a bidder.

<sup>35</sup>One natural concern is that borrower-lenders can differ from non-borrower-lenders in systematic ways. Assuming that is true, then we should find systematic differences in loan properties between our



Moreover, we calculate the geographical distance between lenders and borrowers. Their mean and median distances are 969.73 and 970.03 km, respectively, suggesting that most lending takes place across provinces.

We first examine how lenders' SC affects their bid behaviors. We use this sample to estimate how lenders' SC affects their bid amount while controlling for borrower fixed effects. Our regression specifications mimic those in column 3 of Table 9, except that all control variables are on the side of *lenders*. Our working hypothesis is that lenders from higher-SC regions have a higher level of generalized trust, which positively predicts investment. Panel A of Table 12 reports results that are consistent with our hypothesis. Columns 1–3 show that lenders' SC index is positively related to bid amount.<sup>36</sup> These results suggest that for the same borrower, lenders from regions with higher SC are more trusting; in turn, they bid larger. This finding is consistent with that of Bottazzi et al. (2016), who find a positive relationship between generalized trust and investment in the context of venture capital.

The results so far reflect how lenders' SC affects the magnitude of loans conditional on observing lenders' SC. The potential problem is that pairs with lending relationships are only observable when borrowers bid on the same platform. For example, the results in Table 10 show that borrowers in regions with high SC are more likely to bid. However, important differences in SC may exist in lender–borrower pairs for which we do not observe lenders' SC.

We address this issue by implementing a Heckman selection model, which considers the selection bias arising from considering only lender–borrower pairs with observable information. Columns 4–6 of Table 12 report the results of the second-stage Heckman estimation. The first stage of the Heckman approach is a probit model, mimicking Table 10, in which the dependent variable equals 1 if a borrower bids in the lending market (the lender's information is available), and 0 otherwise. The explanatory variables are the same as those in column 2 of Table 10. The second stage is an OLS regression that includes control variables from the lender side and the inverse Mills ratio to correct the selection bias. The results show that the positive effect of lender SC in bid size remains qualitatively unchanged. The significant coefficients on the Mills ratio indicate the importance of correcting selection bias.

Next, we ask whether and how the *differences* in regional SC between borrower and lender affect lending transactions. To isolate the effects of SC and eliminate alternative explanations, we control for the distance between lender and borrower provinces, as well as other observable differences between lenders and borrowers that affect investments.

$$(2) \quad \text{BID\_AMOUNT}_{ij,t} = \beta_0 + \beta_1 \text{D\_SC\_INDEX}_j + \beta_2 \text{D\_CONTROL}_{ij,t} \\ + \beta_3 \ln(\text{DISTANCE}_{ij}) + \delta_t + \delta_i + \delta_j + e_{ij,t},$$

where  $\text{BID\_AMOUNT}_{ij,t}$  is lender  $i$ 's bid size for borrower  $j$  at time  $t$ , and  $\text{D\_SC\_INDEX}_j$  is the effects of the difference in lenders' and borrowers' SC index

average and paired-loan sample. However, as Panel B shows, no differences in loan terms are statistically significant, as reported in Table 2.

<sup>36</sup>The results remain qualitatively unchanged when we use the ratio of bid amount over loan size.

TABLE 12  
Lender SC and Investment in Lender–Borrower Pairs

Panel A of Table 12 estimates the impact of a lender’s social capital (SC) on bid amount, controlling for borrower fixed effects. Lenders’ personal characteristics and regional economic and financial variables are included but are not reported. Panel B presents OLS and Heckman selection model regressions for the impact of lenders’ and borrowers’ SC, as well as their difference (L\_SC\_INDEX minus B\_SC\_INDEX), on bid amount. The differences in the other explanatory variables between lender and borrower are included but are not reported. OLS regressions include observations in which lenders’ information is available. Heckman regressions include all borrowers in regressions. Year dummies are also included. Robust standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

| Variable   | OLS                   |                        |                        | Heckman               |                        |                        |
|--|-----------------------|------------------------|------------------------|-----------------------|------------------------|------------------------|
|  | 1                     | 2                      | 3                      | 4                     | 5                      | 6                      |
| <i>Panel A. Borrower Fixed Effects</i>   |                       |                        |                        |                       |                        |                        |
| L_SC_INDEX   | 0.0089***<br>(0.0012) | 0.0089***<br>(0.0012)  | 0.0090***<br>(0.0012)  | 0.0079***<br>(0.0008) | 0.0078***<br>(0.0008)  | 0.0078***<br>(0.0008)  |
| Constant   | 0.0859***<br>(0.0023) | 0.0859***<br>(0.0023)  | 0.4170***<br>(0.0015)  | 0.1231***<br>(0.0037) | 0.1213***<br>(0.0070)  | 0.0972***<br>(0.0098)  |
| Loan and lender variables  | Yes                   | Yes                    | Yes                    | No                    | Yes                    | Yes                    |
| Regional variables (lender)  | No                    | No                     | No                     | No                    | No                     | Yes                    |
| Year fixed effects   | No                    | Yes                    | Yes                    | No                    | Yes                    | Yes                    |
| Mills ratio  |                       |                        |                        | −0.0406***            | −0.0398***             | −0.0379***             |
| No. of obs.  | 48,742                | 48,742                 | 48,145                 | 271,151               | 271,151                | 271,151                |
| R <sup>2</sup> /pseudo-R <sup>2</sup>  | 0.0136                | 0.0136                 | 0.0135                 |                       |                        |                        |
| No. of borrowers   | 18,090                | 18,090                 | 18,017                 | 18,090                | 18,090                 | 18,017                 |
| <i>Panel B. OLS and Heckman Selection Model Regressions for Investments in Lender–Borrower Pairs</i> |                       |                        |                        |                       |                        |                        |
| B_SC_INDEX   |                       |                        |                        | 0.0068***<br>(0.0011) |                        |                        |
| L_SC_INDEX   | 0.0050***<br>(0.0011) |                        |                        | 0.0049***<br>(0.0010) |                        |                        |
| D_SC_INDEX   |                       | −0.0991***<br>(0.0157) | −0.0962***<br>(0.0169) |                       | −0.0090***<br>(0.0011) | −0.0123***<br>(0.0012) |
| ln(DISTANCE)   | 0.0023*<br>(0.0013)   | 0.0037*<br>(0.0020)    |                        | 0.0023**<br>(0.0012)  | 0.0047***<br>(0.0012)  |                        |
| BORDER   |                       |                        | −0.0063<br>(0.0048)    |                       |                        | −0.0088<br>(0.0054)    |
| D_SC_INDEX × BORDER  |                       |                        | 0.0011<br>(0.0022)     |                       |                        | 0.0028<br>(0.0019)     |
| Constant   | 0.1161***<br>(0.0195) | 0.1759*<br>(0.0974)    | 0.2174**<br>(0.0977)   | 0.1397***<br>(0.0186) | 0.2259***<br>(0.0264)  | 0.2605***<br>(0.0261)  |
| Loan and lender variables (difference)   | Yes                   | Yes                    | Yes                    | Yes                   | Yes                    | Yes                    |
| Regional variables (difference)  | No                    | Yes                    | Yes                    | No                    | Yes                    | Yes                    |
| Year fixed effects   | No                    | Yes                    | Yes                    | No                    | Yes                    | Yes                    |
| Lender and borrower fixed effects  | No                    | Yes                    | Yes                    | No                    | Yes                    | Yes                    |
| No. of obs.  | 47,067                | 47,067                 | 44,229                 | 270,288               | 270,228                | 267,390                |
| R <sup>2</sup> /pseudo-R <sup>2</sup>  | 0.0082                | 0.1180                 | 0.1218                 |                       |                        |                        |

(L\_SC\_INDEX<sub>*i*</sub> − B\_SC\_INDEX<sub>*j*</sub>). The SC difference allows us to estimate directly if loans flow from an individual in a low-SC region to an individual in a high-SC region, or vice versa. A negative coefficient implies that lenders bid less when lenders have higher SC than a borrower. D\_CONTROL<sub>*ij*</sub> represents the difference in the other explanatory variables between lender *i* and borrower *j* (in absolute value). These variables capture the “distance” between each lender–borrower pair in terms of gender, education, income, grade, marriage, house ownership, and so on. We also include the natural logarithm of the physical distance between lender *i* and borrower *j* (DISTANCE<sub>*ij*</sub>). δ<sub>*t*</sub> represents the time fixed effect.

In addition, equation (2) allows us to control for lenders' and borrowers' fixed effects ( $\delta_i$  and  $\delta_j$ ).

Columns 1–3 of Panel B in Table 12 report the results for lender bid amounts for a given loan with different specifications.<sup>37</sup> A direct way to capture how borrower and lender SC affects investment is to consider a simple regression of  $B\_SC\_INDEX_j$  and  $L\_SC\_INDEX_i$  on bid amount.<sup>38</sup> Consistent with our expectation, column 1 shows that  $B\_SC\_INDEX$  and  $L\_SC\_INDEX$  are positively correlated with  $BID\_AMOUNT$ . This result suggests that on average, lenders from regions with higher SC tend to make larger investments, whereas borrowers from regions with higher SC receive larger bids. These effects are statistically and economically significant. Column 2 presents the effects of the difference in lender and borrower SC indexes ( $D\_SC\_INDEX$ , lender minus borrower) on  $BID\_AMOUNT$  after controlling for the difference in other explanatory variables. The negative coefficient suggests that lenders bid less (more) when borrowers are from provinces with lower (higher) SC. Thus, an investment is more likely to push through if a borrower is from a region with high SC. This result is important and intuitive. Together with the results in Table 10, this finding suggests that individuals with high SC are more likely to bid but bid less when borrowers are from provinces with low SC. To the extent that trust is a relative concept, our results show that trustors from high-trust environments are more cautious when dealing with trustees from low-trust environments.<sup>39</sup>

Of interest is the finding that the coefficients of  $\ln(DISTANCE)$  are statistically significant in columns 1 and 2 of Table 12, suggesting that lenders tend to bid more for distant borrowers. Prior work shows that investors tend to trust counterparties that are close to home more than they do those in remote regions (Coval and Moskowitz (1999), Grinblatt and Keloharju (2001), Petersen and Rajan (2002), and Chan, Covrig, and Ng (2005)). To disentangle the effect of home bias on investment from that of SC, we employ the following strategy: First, we exclude investments in which lenders and borrowers come from the same province. Second, we include an indicator variable that equals 1 if the two provinces share the same border (BORDER), and 0 otherwise. We then repeat the similar regressions in column 2 of Panel B and include BORDER and the interaction term between BORDER and the SC index. The results in column 3 show that both coefficients on BORDER and  $B\_SC\_INDEX$  are statistically insignificant. In sum, we find no evidence that home bias eliminates the effect of SC on investment.

We also implement a Heckman selection model to address selection bias. Columns 4–6 of Table 12 report the results of the second-stage Heckman estimation. The first stage is a probit model, which is the same as Panel A. The second stage is an OLS regression that includes control variables capturing the difference in the other explanatory variables between lender and borrower, along with the inverse

<sup>37</sup>We also examine how borrowers' and lenders' social capital affects the bid ratio and obtain similar results. For brevity, we do not report the results.

<sup>38</sup>We do not control for lenders' and borrowers' fixed effects when we include  $B\_SC\_INDEX$  and  $L\_SC\_INDEX$  separately in our regression because the fixed effects are captured by their corresponding social capital.

<sup>39</sup>This evidence is consistent with the findings of Giannetti and Yafeh (2012), who find that culturally distant lead banks offer borrowers small loans at a high interest rate.

Mills ratio. The results show that the OLS regression is robust to this correction for selection. In sum, lenders bid less (more) for borrowers from lower (higher) SC provinces.

#### D. Lenders' Social Capital and Investment Performance

After exploring the direction and magnitude of loans, we focus on understanding how lenders' SC affects investment performance. We first examine if lender SC predicts default while controlling for borrower fixed effects. Our regression specifications mimic those in Panel A of Table 12, except that the dependent variable is DEFAULT, which equals 1 if borrowers do not pay on time, and 0 otherwise. Probit models have difficulty dealing with lender fixed effects. Thus, we run linear probability models controlling for characteristics from the lender side and borrower fixed effects.<sup>40</sup>

Our working hypothesis is that lenders from regions with higher SC are more trusting of others. On the one hand, lender SC could positively predict investment; on the other hand, it may induce investment in high-risk projects, leading to high default rates. We report the results in Panel A of Table 13. Columns 1–3 show a marginally higher default probability for bids made by lenders from regions with high SC than for those made by lenders from regions with low SC.

We also implement a Heckprobit model to address selection bias (probit model with sample selection). Columns 4–6 of Table 13 report the results of the second-stage Heckprobit estimation. The first stage is a probit model, which is the same as Panel A of Table 10. The results from the second stage are consistent, suggesting that a lender's SC is positively related to the probability of loan default. The coefficient of  $\alpha$  is statistically significant, indicating the importance of addressing selection bias.

Next, we focus on lender–borrower pairs and explore how the difference of regional SC between borrowers and lenders affects the probability of default. We adopt the same estimation method as equation (2), except that the dependent variable is DEFAULT. Columns 1–3 of Panel B in Table 13 report the results for the probability of default in a given loan with different specifications. We first consider a simple regression of B\_SC\_INDEX and L\_SC\_INDEX on default. Column 1 reports that the coefficients of borrowers' SC (B\_SC\_INDEX) are negative and statistically significant at the 1% level. By contrast, the coefficients of lenders' SC (L\_SC\_INDEX) are positively related to default rates. Consistent with our previous findings, borrowers from regions with high SC are more trustworthy, whereas lenders from regions with high SC have higher generalized trust, which leads to higher default rates.

Of particular interest is the positive coefficient of D\_SC\_INDEX in column 2 of Table 13 after controlling for borrower and lender fixed effects. It indicates that the higher default rates incurred by lenders from high-SC regions are likely explained by their investment in borrowers from lower-SC regions; the latter are more likely to default. In column 3, we repeat the regressions in column 2 of

<sup>40</sup>We also implement a Heckprobit model (probit model with sample selection) to check the robustness of our results.

TABLE 13  
Lender Social Capital and Default in Lender–Borrower Pairs

Panel A of Table 13 estimates the impact of a lender’s social capital on the probability of loan default, controlling for borrower fixed effects. Lenders’ personal characteristics and regional economic and financial variables are included but are not reported. Panel B presents OLS and Heckprobit regressions for the impact of borrowers’ and lenders’ social capital on the probability of loan default. The difference in the other explanatory variables between lender and borrower are included but are not reported. OLS regressions include observations in which lenders’ information is available. Heckman regressions include all borrowers in regressions. Year dummies are also included. Robust standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

| Variable   | OLS                    |                       |                       | Heckprobit             |                       |                       |
|--|------------------------|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|
|  | 1                      | 2                     | 3                     | 4                      | 5                     | 6                     |
| <i>Panel A. Borrower Fixed Effects</i>   |                        |                       |                       |                        |                       |                       |
| L_SC_INDEX   | 0.0003*<br>(0.0002)    | 0.0003*<br>(0.0002)   | 0.0003<br>(0.0002)    | 0.0004**<br>(0.0001)   | 0.0003*<br>(0.0002)   | 0.0003*<br>(0.0002)   |
| Constant   | 0.1034<br>(0.0672)     | 0.1034<br>(0.0672)    | 0.0481<br>(0.0849)    |                        |                       |                       |
| Loan and lender variables  | Yes                    | Yes                   | Yes                   | No                     | Yes                   | Yes                   |
| Regional variables (lender)  | No                     | No                    | Yes                   | No                     | No                    | Yes                   |
| Year fixed effects   | No                     | Yes                   | Yes                   | No                     | Yes                   | Yes                   |
| Athrho   |                        |                       |                       | 0.8123***<br>(0.0268)  | 0.5833***<br>(0.0245) | 0.5830***<br>(0.0245) |
| No. of obs.  | 47,378                 | 47,378                | 46,796                | 270,325                | 269,893               | 269,893               |
| R <sup>2</sup> /pseudo-R <sup>2</sup>  | 0.0216                 | 0.0216                | 0.0224                |                        |                       |                       |
| No. of borrowers   | 17,872                 | 17,872                | 17,799                |                        |                       |                       |
| <i>Panel B. OLS and Heckprobit Regressions for Defaults in Lender–Borrower Pairs</i> |                        |                       |                       |                        |                       |                       |
| B_SC_INDEX   | –0.0014***<br>(0.0004) |                       |                       | –0.0007***<br>(0.0001) |                       |                       |
| L_SC_INDEX   | 0.0007*<br>(0.0004)    |                       |                       | 0.0002*<br>(0.0001)    |                       |                       |
| D_SC_INDEX   |                        | 0.0822*<br>(0.0447)   | 0.0845*<br>(0.0469)   |                        | 0.0004***<br>(0.0001) | 0.0004***<br>(0.0001) |
| ln(DISTANCE)   | –0.0001<br>(0.0005)    | –0.0004<br>(0.0004)   |                       | –0.0001<br>(0.0001)    | 0.0001<br>(0.0001)    |                       |
| BORDER   |                        |                       | 0.0000<br>(0.0017)    |                        |                       | –0.0012*<br>(0.0007)  |
| D_SC_INDEX × BORDER  |                        |                       | –0.0004<br>(0.0005)   |                        |                       | 0.0001<br>(0.0002)    |
| Athrho   |                        |                       |                       | 0.9586***<br>(0.0147)  | 1.0389***<br>(0.0189) | 1.0370***<br>(0.0200) |
| Constant   |                        | 0.1843***<br>(0.0650) | 0.1718***<br>(0.0637) |                        |                       |                       |
| Loan and lender variables (difference)   | Yes                    | Yes                   | Yes                   | Yes                    | Yes                   | Yes                   |
| Regional variables (difference)  | No                     | Yes                   | Yes                   | No                     | Yes                   | Yes                   |
| Year fixed effects   | No                     | Yes                   | Yes                   | No                     | Yes                   | Yes                   |
| Lender and borrower fixed effects  | No                     | Yes                   | Yes                   | No                     | No                    | No                    |
| No. of obs.  | 48,002                 | 47,067                | 44,229                | 47,936                 | 47,067                | 44,229                |
| R <sup>2</sup> /pseudo-R <sup>2</sup>  | 0.0339                 | 0.0920                | 0.0984                |                        |                       |                       |

Panel B and include the dummy variable BORDER and the interaction term between BORDER and the SC index. Both coefficients on BORDER and B\_SC\_INDEX are statistically insignificant. Columns 4–6 of Panel B show the same specifications on default rates by correcting the selection bias. We find similar results for SC’s effect on the probability of loan default. In addition, the results in column 6 show that being in neighboring provinces reduces the probability of loan default, but the interaction term BORDER × B\_SC\_INDEX is statistically

insignificant. In sum, we find no evidence that investors' home bias eliminates the effect of SC on default.

### E. Does Bad Experience Affect Generalized Trust?

The results reported previously suggest that lenders from high-SC provinces are more likely to bid, and when they do, they bid more, but they incur more defaults. This indicates that SC affects its trustors' generalized trust. However, we expect that trustors' propensity to trust others would be affected by past experience, especially when a trustor had a bad experience in trusting others.

To test this hypothesis, we partition lenders into those who had experienced default (experienced) and those who had not (inexperienced). We reestimate the lender–borrower pair regressions, mimicking Tables 12 and 13. The results are reported in Table 14.<sup>41</sup> In each group, we first examine if lender SC affects their bid behaviors and predicts default while controlling for borrower fixed effects. We then turn to examining the effect of the differences in regional SC while controlling for both lender and borrower fixed effects. Columns 1–6 show the results of inexperienced lenders, and columns 7–12 report those of experienced lenders. Consistent with expectation, the impact of lender SC on default is positive and significant for inexperienced lenders but is not significant for experienced lenders. Moreover, experienced lenders reduce their investment amount to borrowers from a lower-SC environment. Taken together, our evidence suggests that lenders learn from their experience on the platform, and the instantaneous impact of SC on generalized trust concentrates on inexperienced trustors.

### F. Social Capital and Regional Capital Flows

To observe clearly how regional SC affects cross-border investment flows, we prepare a 2-by-2 matrix. First, we classify Chinese provinces into high- and low-SC regions on the basis of the sample medium in our SC index. Next, we divide lenders and borrowers into those from high- and low-SC regions. We then calculate the i) number of bids, ii) mean/medium size of bids, and iii) total amount of investment for each pair.

Table 15 reports the findings. Approximately 63% of total investments (28,148 bids with a total size of 32.3 million RMB (USD 4.97 million)) flow from high-SC regions to high-SC regions. The mean and medians of bid size are 1,150 and 300 RMB, respectively. By contrast, only approximately 4.2% of total investments (2,708 bids with a total size of 2.14 million RMB (USD 0.33 million)) flow from low-SC regions to low-SC regions. In addition, approximately 21% of investment flows from lenders in high-SC regions to borrowers in low-SC regions, and 11.7% of investment flows are from lenders in low-SC regions to borrowers in high-SC regions. The difference between the median of each two groups (high – low) is statistically significant at the 1% level.

The results in Table 15 suggest how cross-regional investment flows are affected by the aggregate level of trust among trading partners. The aggregate level of trust is strongest when counterparties come from high-SC regions and is weakest

<sup>41</sup>We obtain similar results when we exclude lenders who bid only one time.

TABLE 14  
Inexperienced Versus Experienced Investors

Table 14 reestimates lender–borrower pair regressions by partitioning lenders into those who had experienced default (experienced) and those who had not (inexperienced). Columns 1, 4, 7, and 10 control only for borrower fixed effects, whereas the rest of the columns control for borrower and lender fixed effects. Borrowers’ characteristics and regional variables are included. Year dummies are also included. Robust standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively. For variable definitions and details of their construction, see the Appendix.

| Variable                               | Inexperienced Lenders |                      |                        |                     |                       |                       | Experienced Lenders   |                      |                        |                    |                       |                       |
|--|-----------------------|----------------------|------------------------|---------------------|-----------------------|-----------------------|-----------------------|----------------------|------------------------|--------------------|-----------------------|-----------------------|
|  | AMOUNT                |                      |                        | DEFAULT             |                       |                       | AMOUNT                |                      |                        | DEFAULT            |                       |                       |
|  | 1                     | 2                    | 3                      | 4                   | 5                     | 6                     | 7                     | 8                    | 9                      | 10                 | 11                    | 12                    |
| L_SC_INDEX                             | 0.0103***<br>(0.0021) |                      |                        | 0.0005*<br>(0.0003) |                       |                       | 0.0099***<br>(0.0015) |                      |                        | 0.0001<br>(0.0003) |                       |                       |
| D_SC_INDEX                             |                       | -0.8713*<br>(0.5070) | -0.9673***<br>(0.3263) |                     | 0.0012**<br>(0.0005)  | 0.0010**<br>(0.0005)  |                       | -0.1247*<br>(0.0722) | -0.1122***<br>(0.0220) |                    | -0.0001<br>(0.0003)   | 0.0001<br>(0.0004)    |
| ln(DISTANCE)                           |                       | 0.0055<br>(0.0050)   |                        |                     | -0.0004<br>(0.0007)   |                       |                       | 0.0042*<br>(0.0025)  |                        |                    | -0.0003<br>(0.0004)   |                       |
| BORDER                                 |                       |                      | 0.0019<br>(0.0114)     |                     |                       | 0.0008<br>(0.0019)    |                       |                      | -0.0096*<br>(0.0053)   |                    |                       | 0.0013<br>(0.0023)    |
| D_SC_INDEX × BORDER                    |                       |                      | 0.0065<br>(0.0059)     |                     |                       | 0.0008<br>(0.0010)    |                       |                      | 0.0000<br>(0.0025)     |                    |                       | -0.0009<br>(0.0006)   |
| Loan and lender variables              | Yes                   | No                   | No                     | Yes                 | No                    | No                    | Yes                   | No                   | No                     | Yes                | No                    | No                    |
| Regional variables (lender)            | Yes                   | No                   | No                     | Yes                 | No                    | No                    | Yes                   | No                   | No                     | Yes                | No                    | No                    |
| Loan and lender variables (difference) | No                    | Yes                  | Yes                    | No                  | Yes                   | Yes                   | No                    | Yes                  | Yes                    | No                 | Yes                   | Yes                   |
| Regional variables (difference)        | No                    | Yes                  | Yes                    | No                  | Yes                   | Yes                   | No                    | Yes                  | Yes                    | No                 | Yes                   | Yes                   |
| Year fixed effects                     | No                    | Yes                  | Yes                    | No                  | Yes                   | Yes                   | No                    | Yes                  | Yes                    | No                 | Yes                   | Yes                   |
| Constant                               | -0.1926<br>(0.1778)   | -0.7308<br>(0.5500)  | -0.6980**<br>(0.2774)  | 0.0215<br>(0.1342)  | 0.1252***<br>(0.0149) | 0.1225***<br>(0.0145) | 0.5614***<br>(0.0703) | 0.1082<br>(0.1817)   | 0.1890<br>(0.1465)     | 0.0822<br>(0.0567) | 0.0984***<br>(0.0244) | 0.0967***<br>(0.0254) |
| No. of obs.                            | 19,293                | 19,322               | 18,115                 | 19,293              | 19,322                | 19,322                | 27,503                | 27,745               | 26,114                 | 27,503             | 27,745                | 26,114                |
| R <sup>2</sup>                         | 0.0073                | 0.7039               | 0.2367                 | 0.0121              | 0.2845                | 0.2845                | 0.0253                | 0.4135               | 0.0956                 | 0.0303             | 0.0337                | 0.0360                |

TABLE 15  
Social Capital and Regional Capital Flows

The 2-by-2 matrix in Table 15 shows how investment flows from lenders in regions with high (low) social capital (SC) to borrowers in regions with high (low) SC. A province is classified as a high-SC (low-SC) region if it is above (below) the sample median. *N* is the number of bids, "Mean/Median" is the mean/median size of the bid, and "Total" is the total amount of investment. We conduct *t*-value tests for the mean difference and Wilcoxon signed-rank tests for the median difference. \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

| Borrower   | High   |          |                      | Low     |          |                     | High – Low |          |                      |         |
|------------|--------|----------|----------------------|---------|----------|---------------------|------------|----------|----------------------|---------|
|            | Lender | <i>N</i> | Mean/Median          | Total   | <i>N</i> | Mean/Median         | Total      | <i>N</i> | Mean/Median          | Total   |
| High       |        | 28,148   | 0.115<br>0.030       | 3,230.8 | 11,118   | 0.098<br>0.030      | 1,085.7    | 17,030   | 0.017***<br>0.000*** | 2,145.1 |
| Low        |        | 7,459    | 0.081<br>0.025       | 600.5   | 2,708    | 0.079<br>0.020      | 214.4      | 4,751    | 0.002<br>0.005***    | 386.1   |
| High – Low |        | 20,689   | 0.034***<br>0.005*** | 2,630.3 | 8,410    | 0.018**<br>0.010*** | 871.2      |          |                      |         |

when counterparties are from low-SC regions. If the trust level is too low, then trade opportunities are unlikely to be realized. This evidence is consistent with the findings of Guiso et al. (2009), who show that trade and investment flows are larger between countries and exhibit higher mutual trust.

## VII. Conclusion

This article presents the first empirical evidence on the impact of regional SC in a noninstitutional lending setting. Using highly granular data from a Chinese peer-to-peer lending website, we show that regional SC affects lending decisions and outcomes through its impact on borrowers' trustworthiness and lenders' generalized trust. *Ceteris paribus*, borrowers from high-SC regions have high funding success, large loan sizes, concentrated loan ownership, and low default rates. The effect is particularly strong among low-quality borrowers and is robust to endogeneity concerns. By contrast, lenders from higher-SC regions make larger investments but have lower success. Regional heterogeneities in SC also affect investment flows. Cross-regional transactions are most (least) easily realized when counterparties are from high-SC (low-SC) regions. Our results suggest that fintech users use nonstandard soft information, such as regional SC, to facilitate their decision making, and SC is an important antecedent of cross-border transactions.

## Appendix. Variable Definitions and Data Sources

### *Borrowers' Characteristics*

AGE: Age of borrower. Source: RRD.

EDU: Equals 4 if the borrower's highest qualification is a master's degree or above, 3 if the borrower's highest qualification is a bachelor's degree, 2 if the borrower's highest qualification is post-tertiary, and 1 if the borrower's highest qualification is secondary or below. Source: RRD.

GENDER: A dummy variable that equals 1 if the borrower is female, and 0 otherwise. Source: RRD.



GRADE: Credit score of borrowers when a listing is created, ranging from 1 (high) to 7 (low). Source: RRD.

HOUSE: A dummy variable that equals 1 if the borrower has a house, and 0 otherwise. Source: RRD.

HOUSE\_LOAN: A dummy variable that equals 1 if the borrower has a house mortgage loan, and 0 otherwise.

INCOME: Monthly income provided by a borrower during registration. Possible values are between 1 and 6, where 1 indicates less than 1,000 RMB, 2 means between 1,000 and 5,000 RMB, 3 means between 5,000 and 10,000 RMB, 4 means between 10,000 and 20,000 RMB, 5 means between 20,000 RMB and 50,000 RMB, and 6 means more than 50,000 RMB. Source: RRD.

MARRIAGE: A dummy variable that equals 1 if the borrower is married, and 0 otherwise. Source: RRD.

OWNERSHIP: Number of bids placed on a listing when the listing is fully funded. Source: RRD.

PAST\_NUM: Number of loans made in the past. Source: RRD.

WORK\_EXP: Employment length in years. Possible values are between 1 and 4, where 1 means less than 1 year, 2 means between 1 and 3 years, 3 means between 3 and 5 years, and 4 means more than 5 years. Source: RRD.

### *Loan Information*

AMOUNT: Requested loan amount in RMB ten thousands. Source: RRD.

BID\_AMOUNT: Amount that lenders bid on a loan in RMB ten thousands. Source: RRD.

BID\_RATIO: Ratio of bid size divided by the loan amount requested. Source: RRD.

BID\_TIME: Time (in minutes) between the time the listing is created and the time the listing is fully funded. Source: RRD.

CONTENT: State provided by the borrower in the loan application. Source: RRD.

DEFAULT: An indicator that equals 1 if the loan status is “repayment by platform” or “overdue,” and 0 otherwise. Source: RRD.

FRACTION: Proportion of campaign proceeds out of the total loan amount. Source: RRD.

FUND: An indicator that equals 1 if a listing is fully funded, and 0 otherwise. Source: RRD.

INTEREST\_RATE: Interest rate that the borrower pays on the loan (rate is adjusted by the benchmark rate of the People’s Bank of China). Source: RRD.

LISTING\_DATE: Date when the listing is created. Source: RRD.

MATURITY: Loan maturity in months. Source: RRD.

OWNERSHIP: Number of lenders in a given loan.

WORDS: Number of words used by the borrower in the listing text. Source: RRD.

### *Social Capital Variables*

**BLOOD:** Amount of blood, in milliliters, donated voluntarily in a province divided by its population in 2000. Source: Chinese Society of Blood Transfusion (data from 2000).

**CITIZEN:** The response to the question: “How trustworthy are the people in your city?” The responses range from 1 (“highly untrustworthy”) to 5 (“highly trustworthy”). We capture a region’s level of trustworthiness by its cities’ average score in a province. Source: CGSS.

**ENTERPRISE:** Enterprise Survey System (Trust 3: enterprise trust). In this survey, managers answer the following question: “According to your experience, could you list the top five provinces where enterprises are most trustworthy?” Source: Zhang and Ke (2003).

**NGO:** NGO participation, measured as the number of registered NGO members per thousand population in a province. Source: China Statistical Yearbook, various years.

**SC\_INDEX:** Constructed by applying loadings (coefficient) to the standardized 4 proxies of SC. Source: Authors’ estimation.

### *Provincial Variables*

**DISTANCE:** Physical distance between provincial capital cities of lenders and borrowers. Source: Authors’ estimation.

**ETHIC:** Population percentage of major ethnic groups in a province. Source: China Statistical Yearbook.

**LAW\_OFFICE:** Number of law office units per ten thousand population in a province. Source: Provincial reports of qualification examinations for attorneys and certified accountants, various years.

**LOAN:** Ratio of total bank loans to GDP in a province. Source: China Statistical Yearbook, various years.

**PGDP:** GDP in the province (in RMB ten thousands) divided by the population in the province. Source: China Statistical Yearbook, various years.

**RICE\_SUIT:** Logarithm of “rice suitability,” which is a z-score of the environmental suitability of each province for growing wetland rice according to the United Nations Food and Agriculture Organization’s Global Agro-Ecological Zones database. Source: United Nations Food and Agriculture Organization’s Global Agro-Ecological Zones database.

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