

**Venture Capital Certification in Product Market:
Evidence from P2P lending platforms**

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November 2018

Abstract

This paper examines whether VC extends the certification effect beyond capital markets into the product markets and provides “extra-financing” value to firms through certifying the value of firms to potential customers. Using weekly trading data from P2P platforms in China, we find that the amount of facilitated loans and the number of lenders (P2P platforms’ customers) increase significantly by 25.7% and 49.3%, respectively right after P2P platforms obtain VC investment. We find that this certification effect increases with measures of VC reputation and with the measures of information asymmetry between the startups and potential customers.

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We are grateful to brownbag participants at University of Washington. We are also grateful for advice of Stephan Siegel, Xuan Tian, Xiaoyan Zhang, Ning Zhu, Li An, Bibo Liu and Jingjian Xiao. We thank the WDZJ’s help desk for prompt assistance and for clarification of their policies. We also thank Yinghui Deng for excellent research assistance.

I. Introduction

The role of venture capital (VC) financing in creating value for entrepreneurial firms has been widely discussed in both academic and practitioner literatures. In literature, researchers argued that, in addition to providing financing to firms, VCs provide other services to private firms that considerably enhance the probability of success of these firms through screening and monitoring (see, e.g., Chemmanur et al. 2014; Chemmanur et al. 2010; Casamatta 2003; Hellmann 1998). In capital markets, VCs are also argued to reduce information asymmetry by certifying the value of security issued by relatively unknown startups between entrepreneurs and public investors (Megginson and Weiss 1991). Practitioners in the industry also argue that, in addition to providing funding for private firms and reducing information asymmetry in the capital markets, VCs contribute greatly to their success in many other ways; for example, by allowing firms to increase the access to potential customers in the product market through VCs' reputation and network in the market.

We are asking whether VCs extend the certification effect beyond capital markets into the product markets and provide “extra-financing” value to the firms through certifying the value of the firms to potential customers. Such empirical questions on whether VCs indeed provide a certification effect on customers in the product market hasn't been investigated in literature, perhaps due to the availability of data from the customers of private firms.

We conducted a novel sample study from several existing and hand collected databases in order to examine the role of venture capitalists in the product market of startup companies. We use a unique proprietary customer level database covering one hundred and fifty four startup companies with extremely similar business models and products in the P2P lending

industry in China¹. For each startup company, we collect weekly data associated with company's customers including both lenders and borrowers, such as the amount of facilitated loans and the number of lenders.

This context and the data have two key advantages that provide us a rare opportunity to study whether VCs are able to certify relatively unknown companies in the product market that are characterized by high information asymmetry between corporate insiders and their customers. The first key advantage is that our relatively high-frequent data allows us to measure customers' immediate response to the announcement of VC investment, which overcomes some difficulties by using low-frequent survey data that researchers generally use to measure individual economic activities (Gelman et al., 2014). In particular, we have customer response or real economy data before the VC investments, which is very hard to obtain somewhere else. The second key advantage is that the "products" from each startup company in our settings, namely P2P loans, are relatively homogenous from customers' (P2P lenders) perspective. Most of the Chinese P2P platforms have similar business model and lending procedure. Almost all platforms provide principal guarantee that compensates lenders' principal once borrowers default. Therefore, for P2P lenders, P2P loans on different P2P platforms are relatively similar fixed income investments with only difference in interest rate, term, and default risk associated with the platforms. This advantage mitigates the potential biases caused by the heterogeneous features of products in other startup companies.

We answer several questions regarding the role played by VCs in certifying the value of

¹ P2P lending is a lending procedure where borrowers and lenders are directly matched in marketplaces. The compound annual growth rate of P2P loan issuance in China, the US, the UK and Australia between 2010 and 2014 is 123%. The outstanding P2P loans in China reached CNY 1224.6 billion at the end of 2017.

these startup platforms in which VCs invest. First, do VCs provide a certification effect in the product market and attract more customers (e.g. P2P lenders) immediately after the VC investment announcement? In particular, are those start-ups which receive investment from VCs with high-reputation more likely to attract more customers compared to those who receive investment from low-reputation VCs? Further, is the magnitude of the certification effect associated with the degree of information asymmetry between platforms and their customers?

The results of our empirical analysis can be summarized as follows. We first find that the proxies for customer response through the amount of facilitated loans and the number of lenders increase significantly by 25.7% and 49.3%, respectively, after the announcement of the first round VC investment into those startup platforms, while the number of borrowers does not change much. This result is consistent with the existence of the VC certification effect to the potential customers in the product market. In regarding the differences between high-reputation and low-reputation VCs, we find that VCs' certification effect in the product market is positively associated with VCs' reputation². In the end, we show that VCs certification effect in the product market decreases with platforms' age, a proxy that is negatively correlated with the information asymmetry between the companies and outsiders. We also find that the VC certification effect is prominent on new lenders of the platforms, who have more information asymmetry with startup platforms compared to the existing lenders. These results are consistent with Focarelli (2008) which points out certification effect increases with information asymmetry.

² Following Nahata (2008) and Gompers (1996), we use VCs' age and accumulative IPO values to measure VCs' reputation.

Considering potential media or news effects on the increase of the amount of facilitated loans and the number of lenders, we collected the number of the news articles associated with each P2P platform in each week. Our results remains consistent after controlling for the number of news, suggesting a certification effect exists beyond the news impact, even though the number of news increases significantly in the first month after VC investment announcement.

This paper is the first one to examine VCs' certification role beyond capital markets into the product market and shows that VCs certify the quality of startups by reducing information asymmetry between startups and potential customers. This paper also contributes to the role of venture capital (VC) financing in creating value for entrepreneurial firms in general by documenting the certification role played by VCs in the product market. VCs' certification effect in capital markets has been well documented since 1990 (Barry et al., 1990; Megginson and Weiss, 1991). VC backing may provide valuable certifications to outside investors and thus reduce IPO underpricing. In addition to the certification effect, VCs can improve efficiency (Chemmanur et al., 2011), provide mentoring services to firms (Hsu, 2004; Cochrane, 2005), play an administrative role in the companies (Barry et al., 1990; Lerner, 1995; Hellmann, 1998), lead to more innovation (Bernstein, 2016), and help the timing of firms' IPOs (Lerner, 1994). VC can also create product market value and financial market value for portfolio firms through forming syndication (Tian, 2011).

Second, our study contributes to the literature on the real effects of signaling or a certification role played by the financial institutions. In general, existing studies find that the certification of financial institutions, such as debt rating, investment banks, and commercial

banks, has an important real effect for the firms. For example, Sufi (2007) shows that rating agency helps firms increase the use of debt, asset growth, cash acquisitions, and investment in working capital. Titman and Trueman (1985) demonstrate that the higher quality of auditor and investment bankers signals the higher value of the issuing firms and reduces issuance costs. Puri (1996) finds that bank underwriters also certify the issuing firms' value and lead to lower issuance costs. Slovin and Young (1990) argue that bank debt or credit lines signal the good value of firms and hence lowers IPO underpricing. Our findings provide new evidence that supports the positive real effect of financial institutions' signaling and certification.

Last, our study is also related to the growing literature on crowd funding and P2P lending. Duarte et al. (2012) find that P2P borrowers that look trustworthy have higher funding probability and lower default rate. Lin et al. (2013) show that lenders more likely fund loans of borrowers who have a stronger online social network. Lin et al. (2015) show that P2P lenders have local bias in selecting borrowers. Wei and Lin (2016) find that, in P2P lending, the posed-prices mechanism leads to higher funding probability, higher interest rate, and higher default rate. Jiang et al. (2018) examines how P2P lenders select from thousands of P2P platforms using cross-platform data, and find that SOE-backed platforms have larger amount of facilitated loans, attract more lenders, and pay lower interest rate to lenders. Our study complements this growing strand of literature by highlighting the roles of VCs in P2P lenders' investment decisions.

The rest of this paper is organized as follows. Section II presents institutional features. Section III describes our data and proxies. Section IV introduces our methodology and empirical results. Section V concludes.

II. Institutional Features

In recent years, P2P lending market has grown dramatically around the globe. From 2010 to 2014, the compound annual growth rate of P2P loan issuance in China, US, UK and Australia is 123% (Morgan Stanley, 2015). P2P lending has become a prime example of how technology innovations transform financial service (Wei and Lin, 2016). China has the largest P2P market in the world³. Thousands of P2P platforms have been founded in China and the outstanding balance of P2P loans in China have reached USD 204 billion at the end of 2017. Similar to other startups, one of the funding sources for P2P lending platforms is from venture capitalists. Before June 2017, VCs had backed around 180 P2P platforms, or 2-3% P2P platforms out of over 5,000 P2P platforms. The presence of VC investment in P2P platforms provides us a unique chance to study the real effect of certification from VC on a relatively large number of homogenous startups. Different from many other product markets and industries, the customers of the P2P lending platforms generally have relatively homogenous goals, which are to maximize the financial returns.

There are three key features of the Chinese P2P lending market, which are well documented in Jiang et al. (2018). First, almost all the Chinese P2P platforms provide principal guarantee to the individual lenders on the P2P platforms: at the event that borrowers defaulted, platforms would compensate lenders for the unpaid principal. Therefore, the individual lenders are mainly exposed to the default risk of the P2P platforms and less to the individual borrowers' default risk.

Second, Chinese P2P platforms have high bankruptcy rate: over half of Chinese P2P

³ <https://www.nasdaq.com/article/the-rise-of-peertopeer-p2p-lending-cm685513>

platforms stopped operation and became defunct platforms. Jiang et al. (2018) find that 40% of defunct platforms were engaging in fraudulent behaviors, like Ponzi scheme. No real borrowers financed through these platforms and platforms listed faked loan applications to attract lenders' money. Another type of defunct platforms is due to inadequate risk management, which leads to higher default rate across platforms' borrowers. Therefore, these platforms are unable to fulfill guarantee obligations and go bankrupt. Though platform bankruptcy does not waive borrowers' repayment obligation, it is costly and time-consuming for such a large number of P2P lenders to collect the debts. In most of the cases, defunct platforms can bring huge loss to lenders. The default risk of P2P platforms is one of the primary risks for Chinese P2P lenders.

Third, the Chinese P2P lending industry was not regulated at the early stage of the industry. The Chinese authorities released the first regulatory rules in August 2016, nine years after the introduction of the P2P lending in China. Before the August 2016, the Chinese P2P lending platforms were not required to disclose their operational and financial information to the public or to P2P lenders, leaving high information asymmetry between P2P platforms and P2P lenders.

Those key features of Chinese P2P lending market shares some similarity with the venture market in general: high information asymmetry of the product/service itself in relatively under-regulated market. For example, Chinese P2P lending market share some similarities with the startups in ride-sharing/space-sharing industry, in which customers are usually unable to identify ex-ante whether the service provided by the startups is safe and of high quality. However, our findings would less likely to apply to the startups in the

pharmaceutical industries with external certification required from the government or other regulatory bodies.

In some industry, the information asymmetry between individual customers and startups is relatively high due to the opaque nature of the business. Considering the high risk associated in those industries/markets, it is challenge for customers to distinguish “low risk” companies from “high risk” companies in making their decisions whether to use the service or lend the money on those startup platforms. VC certification to the potential customers can be one of the key elements in overcoming such challenges.

III. Data and Proxy Measures

To examine the real effect of VC certification, we obtain several comprehensive datasets. Our first dataset contains weekly platform-aggregated trading data from over 1,600 P2P platforms. The data are collected from www.wdzj.com, the largest online information provider for the Chinese P2P lending market. This dataset contains amount of facilitated loans, number of lenders, number of borrowers, interest, and maturity at the platform-week level.

The second dataset is obtained from www.P2Peye.com, the second largest information provider for the Chinese P2P lending market. The data contains 348 P2P platforms’ weekly trading data, including the number of new P2P lenders and the number of existing lenders for each platform in the given week. New lenders are those who begin to invest on the platform in the given week, while existing lenders are those who have invested on the platform both before and during the given week.

The third dataset contains the weekly number of news associated with each of the VC-backed P2P platforms between January 2012 and June 2016. For each platform-week observation, we search in Baidu News⁴ (the largest search engine for news in China) using the platform's name as the keyword, and collect the number of online news which is associated with the platform and is published in the given week.

The last dataset is a manually collected dataset that contains information related to the first-round VC investments for Chinese P2P platforms. The data contains each investment's announcement date, which is the date of the first published news of the investment. Our dataset also contain the lead VCs' information, such as founded year and past investments. Following a series of papers (e.g. Barry et al, 1990; Lin and Smith, 1998; Lee and Wahal, 2004), we define the lead VC as the venture capital with the largest equity position in the platform after the first financing round. The information related to VC investment, such as number of investments, dollar value of financing rounds, dollar value of the investment, are collected from PEdata, a leading database for VCs and startups in China. We cross check this information with WIND, a leading financial data provider in China, and major news websites for P2P lending (e.g. wdzj.com and P2Peye.com) and early stage investment (e.g. Itjuzi.com and cyzone.cn) in China.

We manually combined the above data sources: our full sample is all P2P platforms that have ever received investments from VCs before June 2017, together with customer trading information collected from www.wdzj.com, the largest information provider of the Chinese P2P lending industry. The full sample includes one hundred and fifty-four VC-backed P2P

⁴ <https://news.baidu.com/>

platforms and 21,134 platform-week observations between January 2012 and June 2017. Therefore we can compare the customers' immediate responses both before and after the announcement of VC investments in the P2P platforms. The direct comparison can largely mitigate the problems from matching between VC and non-VC backed firms.

Our key independent variable, *AfterVC*, is the dummy variable, which takes the value of one for the weeks in or after the week of VC investment announcement or takes zero for the weeks before the week of VC investment announcement. To examine how P2P lenders respond to VC investments, we focus on two variables: *Amount* and *Lenders*. *Amount* is the amount of facilitated loans on the platform in the given week, and *Lenders* is the total number of P2P lenders that successfully lends on the platform in the given week. To study the respond of P2P borrowers, we use *Borrowers*, which is the number of borrowers that have successful borrowed on the platform in the given week. The control variables are *Interest* and *Maturity*. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. *News* is the number of news associated with the given P2P platform in the given week. We use the number of news as a proxy for the effect of news on lenders' attention (Barber and Odean, 2008).

Table I Panel A presents the summary statistics of the full sample. The mean and median values for amount of facilitated loans are CNY 69.77 million and CNY 15.78 million in a week, respectively. For the number of lenders, the mean and median are 4702.45 and 755 each week. For the number of borrowers, the mean and median are 2091.55 and 19 respectively. The average interest rate paid to lenders is 12.68%, while the average loan

maturity is 6.19 months, indicating that the Chinese P2P lending market facilitate high interest rate and short-term loans. The average number of news associated with these platforms in each week is close to 1.

[Insert Table I about Here]

To investigate whether VC plays a different certification role between new lenders and existing lenders, we adopted a smaller sample using VC invested platforms before Jun 2016 and customer trading data from P2Peye, which identifies the number of new lenders and number of the existing lenders. This sample includes 7,472 platform-week observations of eighty-seven VC-backed platforms. Panel C presents the summary statistics of the P2Peye sample. The average interest rate and maturity is 12.70% and 5.37 months respectively, which is similar compared to our full sample. The mean of new lenders and existing lenders is 405.33 and 2368.01, respectively.

We construct several variables to document some features of the VC investments in order to examine the heterogeneity of the VC certification effect. We adopt two variables to measure VC reputation. Following Gompers (1996), we first compute *Age_VC* as the age of the lead VC at the year of the investment into the P2P platform. For each lead VC, we also follow Nahata (2008) to compute *IPO_VC* as the cumulative market capitalization of IPOs before the investment in the P2P platform. To measure the information asymmetry between P2P platforms and P2P lenders, for each platform, we follow Avramov et al. (2007) to compute *Age_Platform* as its age at the year of the VC investment.

Table I Panel C presents the summary statistics for the one hundred and fifty four

VC-backed P2P platforms and the corresponding lead VCs. For the age of the lead VC, the mean and median is 8.05 and 3.5 years respectively. Before the date of VC investments, the lead VCs had taken companies to public with the average cumulative market capitalization at CNY 46.42 billion. The mean of the age of P2P platforms at the year of VC investment is 1.38 years.

IV. Methodology and Results

A. Methodologies

To investigate the effect of VC backing on customers of P2P platforms, we look at how P2P platforms' customers respond to VC investment announcements. Following Agrawal (2013), we estimate the coefficients of the following OLS regression model.

$$Y_{it} = \beta \text{AfterVC}_{it} + \gamma X_{it} + u_i + v_t + \varepsilon_{it} \quad (1)$$

In model (1), the dependent variable Y_{it} includes the logarithm of the amount of facilitated loans, the logarithm of the number of lenders, and the logarithm of the number of borrowers. AfterVC_{it} is the dummy variables that takes the value of one if week t is in or after the week of the announcement of the first round VC investment for platform i or takes the value of zero otherwise. X_{it} are control variables, including average interest rate and average maturity of loans transacted on platform i at week t . u_i denotes the platform fixed effects and v_t denotes the week fixed effects. ε_{it} is the error term. Similar to the framework of Agrawal (2013), the coefficient β is a DID estimate of the effect of VC investment announcements on the dependent variable.

To show the dynamics of the customer response around the VC investment, we estimate the following model:

$$Y_{it} = \sum_{j=1}^{j=5} \beta_{-j} \text{Month_before}(j)_{it} + \sum_{j=1}^{j=5} \beta_j \text{Month_after}(j)_{it} + \beta_6 \text{Month_after}(6+)_{it} + \gamma X_{it} + u_i + v_t + \varepsilon_{it} \quad (2)$$

In model (2), $\text{Month_before}(j)_{it}$ ($j=1,2,3,4,5$) is the dummy variable of whether week t is in the j month before the announcement of VC investment in platform i . $\text{Month_after}(j)_{it}$ ($j=1,2,3,4,5$) is the dummy variable of whether week t is in the j month after the announcement of VC investment in platform i . $\text{Month_after}(6+)_{it}$ is the dummy variable of whether week t is in the 6 or more months after the announcement of VC investments in platform i . X_{it} are control variables. The coefficients of these dummy variables, $\{\beta_j\}$, represent the dynamics of the dependent variables around the announcement date with controlling the platform fixed effects and week fixed effects.

After each regression, we run three F-tests to examine whether each dependent variable has a parallel trend before VC investments and whether each dependent variable significantly changes after investments. First, we test whether the parallel trend assumption holds for dependent variables of interest before VC investment announcements through an F-test on whether the coefficients of $\text{Month_before}(j)_{it}$ ($j=1,2,3,4,5$) are jointly equal. Second, to examine whether the dependent variable changes immediately after VC investments, we test the difference between the coefficient of $\text{Month_after}(1)_{it}$ and the average of coefficients of $\text{Month_before}(j)_{it}$ ($j=1,2,3,4,5$). Third, to examine whether the effect is present in longer horizon, we test the difference between the average coefficients of $\text{Month_before}(j)_{it}$ ($j=1,2,3,4,5$) and that of $\text{Month_after}(j)_{it}$ ($j=1,2,3,4,5$).

B. Customer response and VC investment

In Figure I Panel A, Panel B and Panel C, we graphically plot the time dynamics of the logarithm of the amount of facilitated loans, the logarithm of the number of lenders, and the logarithm of the number of borrowers, respectively.

[Insert Figure I about Here]

Figure I suggest the parallel trend of the amount of facilitated loans, the number of lenders, and the number of borrowers within the first five months before the announcement of VC investment. After the announcement of VC investment, the amount of facilitated loans and the number of lenders increases significantly. These results are consistent with the results in Table II, suggesting the existence of certification.

[Insert Table II about Here]

The results of estimating the coefficients in model (1) are reported in Table II. In Column (1), we use the logarithm of the amount of facilitated loans as the dependent variable and include only *AfterVC*, platform fixed effects and week fixed effects on the right-hand side. This result indicates that the amount of facilitated loans on the same platform has increased by 25.7% ($=\text{Exp}(0.229)-1$) after the announcement of VC investments. The results are robust after we include interest rate and maturity as the control variables, indicating a positive effect of VC investment announcement on the amount of facilitated loans on P2P platforms.

In Column (3), we use the logarithm of the number of lenders as the dependent variable. In Column (3), the coefficient of *AfterVC* is 0.401 with the t-statistics of 18.370, suggesting that the number of lenders has increase 49.3% ($=\text{Exp}(0.401)-1$) after the announcement of VC investment when netting out platform and week fixed effects. It also suggests that P2P

platforms attract more lenders after the announcement of VC investment. In Column (4), we also control for interest rate and maturity and find similar results.

In Column (5), we use the logarithm of the number of borrowers as the dependent variable. The coefficient of *AfterVC* is -0.008 with the t-statistics of -0.279. This suggests that there is no significant difference between the number of borrowers before and after the announcement of VC investment. That is to say, the number of borrowers does not increase after the announcement of VC investment. In Column (6), we also control for interest rate and maturity and find similar results.

[Insert Table III about Here]

Following Agrawal (2013), we estimate model (2) to examine the dynamics of the amount of facilitated loans, the number of lenders, and the number of borrowers around VC investments. As is shown in F-statistics in Table 3 Column (1), the coefficients of $\text{Month_before}(j)_{it}$ ($j=1,2,3,4,5$) are not significantly different from each other, suggesting a parallel trend of the amount of facilitated loans within the first five months before the announcement date. However, our second F-statistics suggests that $\text{Month_after}(1)_{it}$ is significantly larger than the average coefficients of $\text{Month_before}(j)_{it}$ ($j=1,2,3,4,5$), and the average coefficients of $\text{Month_after}(j)_{it}$ ($j=1,2,3,4,5$) are also significantly larger than $\text{Month_before}(j)_{it}$ ($j=1,2,3,4,5$). These results are consistent with the previous results that VC investment announcement has a significantly positive effect on the amount of facilitated loans for P2P platforms.

Column (2) shows the results with the logarithm of the number of lenders as the dependent variable. The results are similar to Column (1): the coefficients of

Month_before(j)_{it} (j=1,2,3,4,5) are not significantly different, suggesting the parallel trend assumption holds within the first five months before VC investment announcements; Month_after(1)_{it} is significantly larger than the average coefficients of Month_before(j)_{it} (j=1,2,3,4,5) and the average coefficients of Month_after(j)_{it} (j=1,2,3,4,5) are also significantly larger than the average coefficients of Month_before(j)_{it} (j=1,2,3,4,5). The above results suggesting that the number of lenders increases significantly after the announcement of VC investments.

Column (3) shows the results with the logarithm of the number of borrowers as the dependent variable. The parallel trend holds within the first five months before VC investment announcements. However, both the coefficient of Month_after(1)_{it} and the average coefficient of Month_after(j)_{it} (j=1,2,3,4,5) are not significantly different from the average coefficient of Month_before(j)_{it} (j=1,2,3,4,5), indicating that the number of borrowers does not significantly change after the announcement of VC investment.

C. VC Reputation and Certification Effect

Researchers have documented that certification effect increases with the reputation of the certifier, e.g. VC, investment bank, and firm management (see e.g. Chemmanur and Paeglis, 2005; Gompers, 1996). Now we test whether the certification effect on the customers of the startup companies is related to VCs' reputation. We use two variables to measure the reputation of VCs: 1) the accumulated IPO value of VC before the investment (Mahata, 2008); 2) Age of the VC at the investment year (Gompers, 1996). We estimate the coefficients of the following model.

$$Y_{it} = \beta \text{AfterVC}_{it} + \theta \text{AfterVC}_{it} * \text{Reputation}_i + \gamma X_{it} + u_i + v_t + \varepsilon_{it}$$

(3)

In model (3), $Reputation_i$ is the accumulated IPO value of the lead VC of platform i or the age of the lead VC. θ measures how VC certification effect is related to the VCs' reputation. We expect that θ is significantly larger than zero as the VC certification effect increases with the level of reputation.

[Insert Table IV about Here]

The results are reported in Table IV and Table V. In Table IV, we use the logarithm of the cumulative IPO value as the proxy for VCs' reputation. In Column (1), we report the results with the logarithm of the amount of facilitated loans as the dependent variable. The coefficient of $AfterVC * \ln(IPO_VC)$ is 0.008 with 1% significance, suggesting that VC certification effect increases with VC's reputation. The estimated certification effect on the amount of facilitated loans of the platforms backed by VCs with high reputation (90th percentile of IPO capitalization value) is 39.3%, which is 16.3 percentage higher compared to the estimated certification effect on the amount of facilitated loans on the platforms backed by VCs which have never conducted IPOs. In Column (2), we control for interest rate and maturity at the right-hand side and find similar results.

In Column (3), we use the logarithm of the number of lenders as the dependent variable. We estimate the average estimated certification effect increases from 37.6% ($=\text{Exp}(0.319)-1$) to 112.5%⁵ while the measure of VC's reputation increases from zero to its 90th percentile. In Column (4), we also control for interest rate and maturity and find the similar results.

[Insert Table V about Here]

In Table V, following Gompers (1996), we use the age of VC as the proxy for VC

⁵ $112.5\% = \text{Exp}(0.319 + 0.028 * \ln(1 + 55.23 * 10^9)) - 1$

reputation. In Column (1), we use the logarithm of the amount of facilitated loans as the dependent variable. The result suggests that the estimated certification effect on the amount of facilitated loans increases from 15.5% to 27.1% when the age of VC increases from the first quartile to the third quartile. In Column (2), we include interest rate and maturity as the control variables and find that the coefficient of $AfterVC*Age_VC$ is significantly larger than zero.

In Column (3), we use the logarithm of the number of P2P lenders as the dependent variable. We find that the coefficient of $AfterVC*Age_VC$ is also significantly larger than zero. These results demonstrate that the VC certification effect on the amount of facilitated loans and the number of lenders increases with VCs' age, suggesting that the reputation of VC is positively related to its certification effect on P2P platforms. In Column (4), we show our results are robust when controlling for interest rate and maturity.

D. Information Asymmetry and Certification Effect

According to various theoretical and empirical evidence (e.g. Focarelli, 2008), the magnitude of the certification effect should be larger when information asymmetry between two agents is larger. Following Avramov et al. (2007), we use age of the platforms at VC investment to measure the level of information asymmetry, as it is argued that older platforms/startups have less information uncertainty compared to the new ones.

To investigate this, we estimate the coefficients of the following model.

$$Y_{it} = \beta AfterVC_{it} + \theta AfterVC_{it} * PlatformAge_i + \gamma X_{it} + u_i + v_t + \varepsilon_{it} \quad (3)$$

In model (3), Y_{it} is the logarithm of the amount of facilitated loans or the logarithm of the number of lenders. $AfterVC_{it}$, X_{it} , u_i , v_t , and ε_{it} are defined as in the previous sections.

Platformage_i is the age of years of platform i at the date of VC investments. θ measures the relationship between the certification effect and the age of platforms. We expect that θ is significantly less than zero as the VC certification effect increases with the level of information asymmetry.

[Insert Table VI about Here]

The results are reported in Table VI. In Column (1), we use the logarithm of the amount of facilitated loans as the dependent variable. The coefficient of $\text{AfterVC}_{it} * \text{PlatformAge}_i$ is -0.275 with the t-statistics of -20.275. This suggests that the VC certification effect on the amount of facilitated loans decreases with the platform's age, suggesting that VC with large information uncertainty has a larger certification effect. To illustrate its economic significance, we show that the estimated certification effect on the amount of facilitated loans decreases dramatically from 115.1% ($=\text{Exp}(0.766-0.275*0)-1$) to 24.1% ($=\text{Exp}(0.766-0.275*2)-1$) when the platform's age increases from the first quartile (0 years) to the third quartile (2 years). In Column (2), we control for the interest rate and maturity and obtain the similar results.

In Column (3), we replace the logarithm of the amount of facilitated loans by the logarithm of the number of lenders. The estimated certification effect on the number of lenders decreases dramatically from 87.6% ($=\text{Exp}(0.629-0.116*0)-1$) to 48.7% ($=\text{Exp}(0.629-0.116*2)-1$) when the platform's age increases from the first quartile to the third quartile. The results indicate that the certification effect on the number of lenders also decreases with the platforms' age. In Column (4), we also control for interest rate and maturity and find similar results.

In addition, we investigate the role of VC certification effect among different type of customers of the startup platforms, we use a smaller dataset collected from www.P2Peye.com, which separates the number of new lenders and the number of existing lenders. we investigate the effect of VC investment on these two types of lenders respectively. For the same P2P platforms, we expect larger information asymmetry between platforms and new lenders, as compared to the information asymmetry between platforms and existing lenders. Therefore, if certification effect decreases with information asymmetry, we should find the effect is more prominent in new lenders compared to existing lenders.

[Insert Table VII about Here]

The results are presented in Table VII. In Column (1) we find that the coefficient of *AfterVC* is 0.047 with the t-statistics of 1.321, suggesting that there is no significant certification effect on the number of existing lenders. In Column (2), we include interest rate and maturity in the right-hand side and find the similar results. However, when we use the number of new lenders as the dependent variable in Column (3)-(4), we find the coefficient of *AfterVC* is larger than zero at 1% significance in both regressions. The effect is also of economic significance as the coefficient shows that the number of new lenders increase 20.1% ($=\text{Exp}(0.183)-1$) after the announcement of VC investments. It is consistent with that VC certification effect for P2P platforms decreases with information asymmetry.

E. Certification Effect and News Effect

One alternative explanation for previous results can be the news effect: announcement of VC backing attracts more lenders since the news of the investments on media arouses lenders' attention. We search in Baidu News using the platform's name as the keyword, and collect

the number of associated online news that is published in the given week as a measure of news effect (Barber and Odean, 2008).

[Insert Figure II about Here]

In Figure II, we present the dynamics of the number of news associated with P2P platforms around the announcement of VC investments. We find that the number of news significant increases in the first month after VC investment announcement, but reduces almost to the previous level in the longer term.

[Insert Table VIII about Here]

To control the potential news effect/attention effect, we add the number of news as a control variable in our baseline regressions. Table VIII presents the results, indicating that our results remain robust after controlling for news effect.

V. Conclusion

Previous literature on the certification effect of VCs primarily focuses on the effect in mitigating information asymmetry between startups and outside investors in capital markets. In this paper, we extend the literature by investigating whether VCs play a role to mitigate the information asymmetry between startups and their customers in product market. Using the Chinese P2P lending market, a growing fintech industry with serious information asymmetry between P2P platforms and P2P lenders, we find that VC backing can also provide certification role to mitigate information asymmetry between the startups (P2P platforms) and their customers (P2P lenders).

In this study, we use weekly trading data of 154 P2P platforms that have obtained VC

investment. We also manually collect information of P2P platforms and the VCs. With this high frequent data, we find that after the announcement of VC investment, both the amount of facilitated loans and the number of lenders increases significantly, suggesting that VCs' certification helps these P2P platforms to attract more P2P lenders. These results remain significant after controlling for the news effect. However, the number of borrowers does not increase after VC investment announcements.

We also examine the heterogeneity of the certification effect. First, we find that this certification effect increases with the VCs' age and the accumulated IPO market value of all the portfolio companies of VCs, suggesting that the certification effect increases with VCs' reputation. Second, we also find evidence that this certification effect decreases with the information asymmetry between P2P platforms and P2P lenders: the certification effect on an older platform is significantly lower than that on a younger platform; the certification effect is more prominent for new lenders than it is for existing lenders. In addition, our results remains consistent after controlling for the number of weekly news, suggesting certification effect exists beyond the news impact.

References

- Agrawal, A. K., 2013. The impact of investor protection law on corporate policy and performance: Evidence from the blue sky laws. *Journal of Financial Economics*, 107(2), 417-435.
- Avramov, D., Chordia, T., Jostova, G., Philipov, A., 2007. Momentum and credit rating. *The Journal of Finance*, 62(5), 2503-2520.
- Barber, B. M., Odean, T., All That Glitters: The Effect of Attention and News on the Buying Behavior of Individual and Institutional Investors, *The Review of Financial Studies*, 21(2), 785–818
- Barry, C. B., Muscarella, C. J., Peavy Iii, J. W., Vetsuypens, M. R., 1990. The role of venture capital in the creation of public companies: Evidence from the going-public process. *Journal of Financial Economics*, 27(2), 447-471.
- Bernstein, S., Giroud, X., Townsend, R. R., 2016. The impact of venture capital monitoring. *The Journal of Finance*, 71(4), 1591-1622.
- Carter, R. B., Dark, F. H., Singh, A. K., 1998. Underwriter reputation, initial returns, and the long-run performance of IPO stocks. *The Journal of Finance*, 53(1), 285-311.
- Carter, R., Manaster, S., 1990. Initial public offerings and underwriter reputation. *The Journal of Finance*, 45(4), 1045-1067.
- Casamatta, C., 2003. Financing and advising: optimal financial contracts with venture capitalists. *The Journal of Finance*, 58(5), 2059-2085.
- Chemmanur, T. J., Hu, G., Huang, J., 2010. The role of institutional investors in initial public offerings. *The Review of Financial Studies*, 23(12), 4496-4540.
- Chemmanur, T. J., Krishnan, K., Nandy, D. K., 2011. How does venture capital financing improve efficiency in private firms? A look beneath the surface. *The Review of Financial Studies*, 24(12), 4037-4090.
- Chemmanur, T. J., Loutskina, E., Tian, X., 2014. Corporate venture capital, value creation, and innovation. *The Review of Financial Studies*, 27(8), 2434-2473.
- Chemmanur, T. J., Paeglis, I., 2005. Management quality, certification, and initial public offerings. *Journal of Financial Economics*, 76(2), 331-368.
- Cochrane, J. H., 2005. The risk and return of venture capital. *Journal of Financial Economics*, 75(1), 3-52.
- Duarte, J., Siegel, S., Young, L., 2012. Trust and credit: The role of appearance in peer-to-peer lending. *The Review of Financial Studies*, 25(8), 2455-2484.
- Focarelli, D., Pozzolo, A. F., Casolaro, L., 2008. The pricing effect of certification on syndicated loans. *Journal of Monetary Economics*, 55(2), 335-349.
- Gelman, M., Kariv, S., Shapiro, M. D., Silverman, D., Tadelis, S., 2014. Harnessing naturally occurring data to measure the response of spending to income. *Science*, 345(6193), 212-215.
- Gompers, P. A., 1996. Grandstanding in the venture capital industry. *Journal of Financial Economics*, 42(1), 133-156.
- Hellmann, T., 1998. The allocation of control rights in venture capital contracts. *The Rand Journal of Economics*, 57-76.
- Hsu, D. H., 2004. What do entrepreneurs pay for venture capital affiliation?. *The Journal of Finance*, 59(4), 1805-1844.
- Jiang, J., Liao, L., Wang, Z., and Zhang, X., 2018, Government Affiliation and Fintech Industry: The Peer-to-Peer Lending Platforms in China. Available at SSRN: <https://ssrn.com/abstract=3116516> or <http://dx.doi.org/10.2139/ssrn.3116516>

- Lerner, J., 1994. Venture capitalists and the decision to go public. *Journal of Financial Economics*, 35(3), 293-316.
- Lerner, J. (1995). Venture capitalists and the oversight of private firms. *the Journal of Finance*, 50(1), 301-318.
- Lin, M., Prabhala, N. R., Viswanathan, S., 2013. Judging borrowers by the company they keep: Friendship networks and information asymmetry in online peer-to-peer lending. *Management Science*, 59(1), 17-35.
- Lin, M., Viswanathan, S., 2015. Home bias in online investments: An empirical study of an online crowdfunding market. *Management Science*, 62(5), 1393-1414.
- Lin, T., Smith, R., 1998, Insider reputation and selling decisions: the unwinding of venture capital investments during equity IPOs. *Journal of Corporate Finance*, 4(3), 241-263.
- Meggison, W. L., Weiss, K. A., 1991. Venture capitalist certification in initial public offerings. *The Journal of Finance*, 46(3), 879-903.
- Morgan Stanley, 2015, *Global Marketplace Lending Disruptive Innovation in Financials*
- Nahata, R., 2008. Venture capital reputation and investment performance. *Journal of Financial Economics*, 90(2), 127-151.
- Puri, M., 1996. Commercial banks in investment banking conflict of interest or certification role?. *Journal of Financial Economics*, 40(3), 373-401.
- Slovin, M. B., Young, J. E., 1990. Bank lending and initial public offerings. *Journal of Banking Finance*, 14(4), 729-740.
- Sufi, A., 2007. The real effects of debt certification: Evidence from the introduction of bank loan ratings. *The Review of Financial Studies*, 22(4), 1659-1691.
- Tian, X., 2011. The role of venture capital syndication in value creation for entrepreneurial firms. *Review of Finance*, 16(1), 245-283.
- Titman, S., Trueman, B., 1986. Information quality and the valuation of new issues. *Journal of Accounting and Economics*, 8(2), 159-172.
- Wei, Z., Lin, M., 2016. Market mechanisms in online peer-to-peer lending. *Management Science*, 63(12), 4236-4257.

Tables and Figures

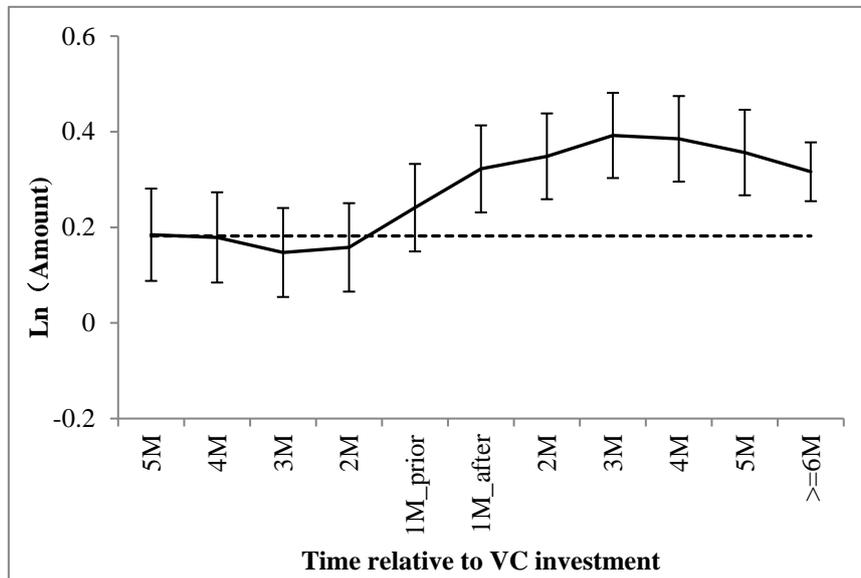
Figure I. The Dynamics around the VC Investment

This figure illustrates the dynamics of the amount of facilitated loans, the number of lenders, and the number of borrowers around the announcement date of VC investment. Each point on the graph is the corresponding estimated coefficient of the following OLS regression model.

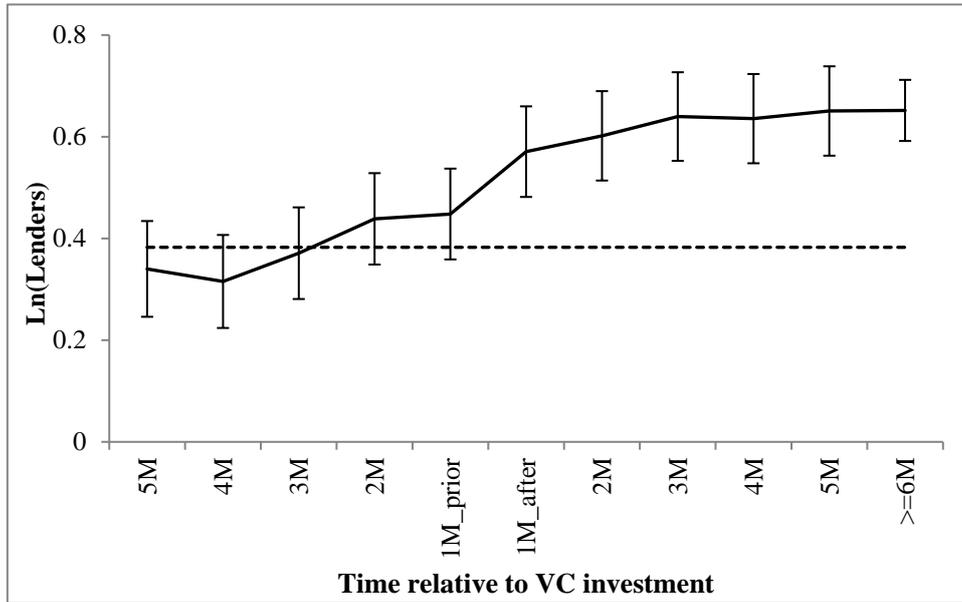
$$Y_{it} = \sum_{j=1}^{j=5} \beta_{-j} \text{Month_before}(j)_{it} + \sum_{j=1}^{j=5} \beta_j \text{Month_after}(j)_{it} + \beta_6 \text{Month_after}(6+)_{it} + \gamma X_{it} + u_i + v_t + \varepsilon_{it}$$

The sample consists of the weekly information of 154 VC-backed platforms between January 2012 and June 2017. Y_{it} includes the logarithm of the amount of facilitated loans, the logarithm of the number of lenders, and the logarithm of the number of borrowers. $\text{Month_before}(j)$ (where $j=1,2,3,4,5$) is the dummy variable of whether week t is in the j th month before the announcement of VC investment in platform i . $\text{Month_after}(j)$ (where $j=1,2,3,4,5$) is the dummy variable of whether week t is in the j th month after the announcement of VC investment in platform i . $\text{Month_after}(6+)$ is the dummy variable of whether week t is in the 6 or more months after the announcement of VC investments in platform i . X_{it} includes *Interest* and *Maturity*. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. Vertical bands represent the 95% confidential interval. The horizontal dashed line denotes the average coefficients of $\text{Month_before}(j)$ ($j=1,2,3,4,5$).

Panel A. The Amount of Facilitated Loans



Panel B. The Number of Lenders



Panel C. The Number of Borrowers

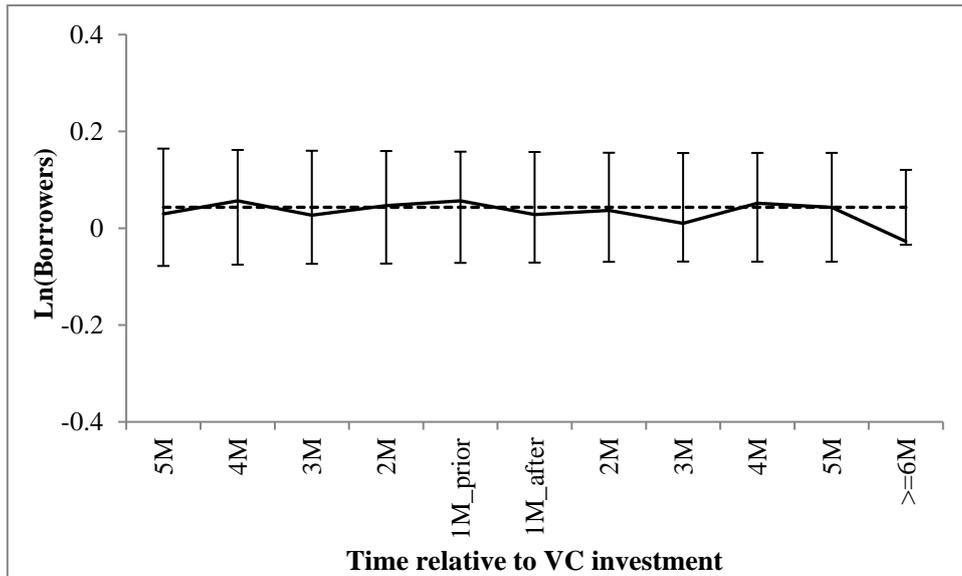


Figure II. News around VC Investment

This figure illustrates the dynamics of the number of news around the announcement date of VC investment. Each point on the graph is the corresponding estimated coefficient of the following OLS regression model.

$$\ln(\text{News}_{it} + 1) = \sum_{j=1}^{j=5} \beta_{-j} \text{Month_before}(j)_{it} + \sum_{j=1}^{j=5} \beta_j \text{Month_after}(j)_{it} + \beta_6 \text{Month_after}(6+)_{it} + u_i + v_t + \varepsilon_{it}$$

The sample consists of the weekly news information of 154 VC-backed platforms between January 2012 and June 2017. *News* is the number of news associated with the given P2P platform in the given week, collected by searching in Baidu News, the largest search engine for news in China, with the platform's name as the keyword. *Month_before(j)* (where $j=1,2,3,4,5$) is the dummy variable of whether week t is in the j th month before the announcement of VC investment in platform i . *Month_after(j)* (where $j=1,2,3,4,5$) is the dummy variable of whether week t is in the j th month after the announcement of VC investment in platform i . *Month_after(6+)* is the dummy variable of whether week t is in the 6 or more months after the announcement of VC investments in platform i . Vertical bands represent the 95% confidential interval. The horizontal dashed line denotes the average coefficients of *Month_before(j)* ($j=1,2,3,4,5$).

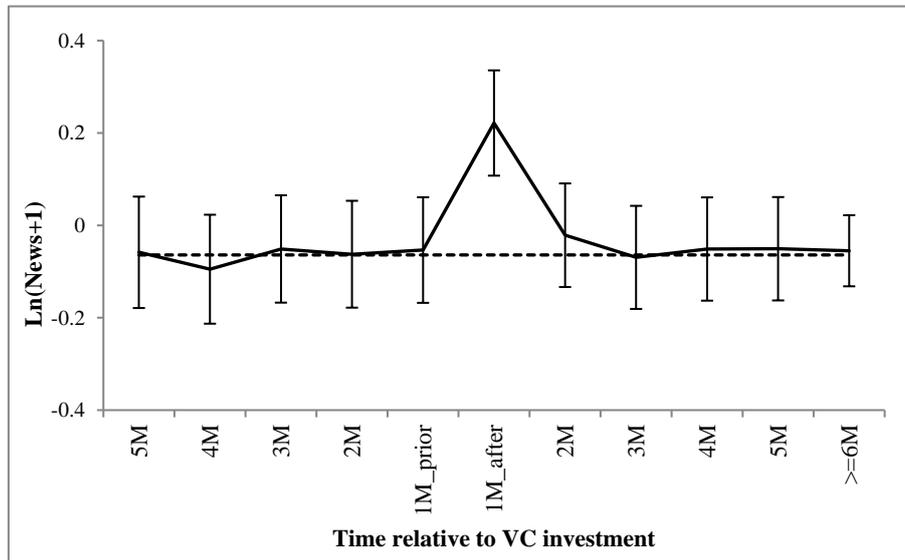


Table I. Summary Statistics

Panel A reports the summary statistics for the full sample. The data (except for news data) are collected from www.wdzj.com, the largest information provider of the Chinese P2P lending market. The sample consists of 21,134 platform-week level observations of 154 VC-backed platforms between January 2012 and June 2017. *AfterVC* is the dummy variable which takes the value of one for the weeks in or after the week of VC investment announcement or takes zero for the weeks before the week of VC investment announcement. *Amount* is the amount of facilitated loans on the platform in the given week. *Lenders* is the total number of P2P lenders that successfully lends on the platform in the given week. *Borrowers* is the number of borrowers that have successful borrowed on the platform in the given week. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. *News* is the number of news associated with the given P2P platform in the given week, collected by searching in Baidu News, the largest search engine for news in China, with the platform's name as the keyword. Panel B summarize the variables in the dataset that is collected from www.P2Peye.com, the second largest information provider of P2P lending market. The data consist of the weekly information of 87 VC-backed P2P platforms between January 2012 and June 2016. *AfterVC*, *Interest*, *Maturity*, and *News* are defined as in Panel A. *Newlenders* is the number of lenders who begin to invest on the platform in the given week. *Existinglenders* is the number of lenders who have invested on the platform before the given week and also invest on the platform in the given week. Panel C reports the summary statistics of 154 VC-backed platforms and the corresponding lead VCs. *Age_Platform* is the age of the platforms at VC investment announcement. *Age_VC* is the age of the lead VC at the year of the investment announcement. *IPO_VC* is the cumulative market capitalization of IPOs before the investment in the P2P platform.

Panel A. Full Sample

	N	Mean	Std	Min	Q1	Median	Q3	Max
AfterVC	21134	0.63	0.48	0.00	0.00	1.00	1.00	1.00
Amount (CNY Million)	21134	69.77	146.06	0.04	4.79	15.78	58.80	908.27
Lenders	19957	4702.45	12465.26	5	189	755	2708	80118
Borrowers	21042	2091.55	10303.89	1	3	19	160	84497
Interest (%)	21134	12.68	3.86	6.26	9.87	12.00	14.99	25.04
Maturity (Months)	21134	6.19	7.00	0.41	2.15	3.97	6.73	34.66
News	21134	0.82	2.31	0.00	0.00	0.00	1.00	16.00

Panel B. P2Peye Sample

	N	Mean	Std	Min	Q1	Median	Q3	Max
AfterVC	7393	0.58	0.49	0	0	1	1	1
Interest (%)	7393	12.70	3.07	6.84	10.28	12.52	15	20.18
Maturity (Months)	7393	5.37	6.26	0.45	1.86	3.49	5.93	33.84
Newlenders	7393	405.33	1051.20	0	14	62	256	7834
Existinglenders	7393	2368.01	6437.22	0	102	433	1556	45683
News	7393	0.67	1.90	0	0	0	1	13

Panel C. VC-backed platforms and Lead VC

	N	Mean	Std	Min	Q1	Median	Q3	Max
Age_Platform (Years)	154	1.38	1.24	0	0	1	2	6
Age_VC (Years)	154	8.05	13.75	0	1	3.5	10	145
IPO_VC (CNY Billion)	154	46.42	231.98	0.00	0.00	0.00	0.00	2005.91

Table II. Baseline Regression

This table presents the OLS estimates of our baseline model. The data are collected from www.wdzj.com, the largest information provider of the Chinese P2P lending market. The sample consists of the weekly information of 154 VC-backed platforms between January 2012 and June 2017. *AfterVC* is the dummy variable which takes the value of one for the weeks in or after the week of VC investment announcement or takes zero for the weeks before the week of VC investment announcement. *Amount* is the amount of facilitated loans on the platform in the given week. *Lenders* is the total number of P2P lenders that successfully lends on the platform in the given week. *Borrowers* is the number of borrowers that have successfully borrowed on the platform in the given week. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. T-statistics are reported in parentheses. ***, **, * denote the significance at the 1%, 5%, 10% level respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Ln(Amount)	Ln(Amount)	Ln(Lenders)	Ln(Lenders)	Ln(Borrowers)	Ln(Borrowers)
AfterVC	0.229*** (10.334)	0.239*** (10.804)	0.401*** (18.370)	0.413*** (19.040)	-0.008 (-0.279)	-0.016 (-0.579)
Interest		0.041*** (10.965)		0.068*** (17.850)		0.023*** (4.789)
Maturity		-0.004 (-1.598)		0.005** (2.046)		0.030*** (10.376)
Platform FE	Y	Y	Y	Y	Y	Y
Week FE	Y	Y	Y	Y	Y	Y
Observations	21,134	21,134	19,957	19,957	21,042	21,042
R-squared	0.796	0.797	0.823	0.826	0.841	0.842

Table III. Dynamics around VC Investment Announcement

This table presents the regression results to show the dynamics of dependent variables around VC investment announcement. The data are collected from www.wdzt.com, the largest information provider of the Chinese P2P lending market. The sample consists of the weekly information of 154 VC-backed platforms between January 2012 and June 2017. *Month_before(j)* (where $j=1,2,3,4,5$) is the dummy variable of whether week t is in the j th month before the announcement of VC investment in platform i . *Month_after(j)* (where $j=1,2,3,4,5$) is the dummy variable of whether week t is in the j th month after the announcement of VC investment in platform i . *Month_after(6+)* is the dummy variable of whether week t is in the 6 or more months after the announcement of VC investments in platform i . *Amount* is the amount of facilitated loans on the platform in the given week. *Lenders* is the total number of P2P lenders that successfully lends on the platform in the given week. *Borrowers* is the number of borrowers that have successfully borrowed on the platform in the given week. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. T-statistics are reported in parentheses. F-Statistics are with respect to the corresponding F-tests. ***, **, * denote the significance at the 1%, 5%, 10% level respectively.

	(1) Ln(Amount)	(2) Ln(Lenders)	(3) Ln(Borrowers)
Month_before(5)	0.184*** (3.745)	0.340*** (7.080)	0.030 (0.479)
Month_before (4)	0.179*** (3.714)	0.315*** (6.760)	0.057 (0.938)
Month_before (3)	0.147*** (3.104)	0.371*** (8.071)	0.027 (0.450)
Month_before (2)	0.158*** (3.347)	0.439*** (9.564)	0.047 (0.786)
Month_before (1)	0.241*** (5.164)	0.448*** (9.837)	0.057 (0.964)
Month_after(1)	0.322*** (6.938)	0.571*** (12.556)	0.028 (0.487)
Month_after (2)	0.349*** (7.610)	0.602*** (13.418)	0.037 (0.639)
Month_after (3)	0.392*** (8.630)	0.640*** (14.384)	0.010 (0.174)
Month_after (4)	0.385*** (8.432)	0.636*** (14.202)	0.052 (0.902)
Month_after (5)	0.356*** (7.811)	0.651*** (14.509)	0.043 (0.750)
Month_after (6+)	0.316*** (10.073)	0.652*** (21.257)	-0.027 (-0.692)
Interest	0.042*** (11.197)	0.070*** (18.569)	0.023*** (4.828)
Maturity	-0.003 (-1.465)	0.005** (2.107)	0.031*** (10.445)
F-Statistics: The coefficients of Month_before(j) (where j=1,2,3,4,5) are jointly equal	0.70	1.85	0.07
F-Statistics: $\text{Month_after}(0) = 1/5 * \sum_{j=1}^5 \text{Month_before}(j)$	8.94***	16.8***	0.06
F-Statistics: $\sum_{j=1}^5 \text{Month_after}(j) = \sum_{k=1}^5 \text{Month_before}(k)$	42.07***	77.54***	0.07
Week FE	Y	Y	Y
Platform FE	Y	Y	Y
Observations	21,134	19,957	21,042
R-squared	0.796	0.825	0.841

Table IV. VC Reputation (IPO value) and Certification Effect

This table presents the results of how VC reputation is associated with VC certification effect by using accumulated IPO value as the proxy for VC reputation. The data are collected from www.wdzj.com, the largest information provider of the Chinese P2P lending market. The sample consists of the weekly information of 154 VC-backed platforms between January 2012 and June 2017. *AfterVC* is the dummy variable which takes the value of one for the weeks in or after the week of VC investment announcement or takes zero for the weeks before the week of VC investment announcement. *IPO_VC* is the accumulative IPO capitalization value of the VC at the investment date. *Amount* is the amount of facilitated loans on the platform in the given week. *Lenders* is the total number of P2P lenders that successfully lends on the platform in the given week. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. T-statistics are reported in parentheses. ***, **, * denote the significance at the 1%, 5%, 10% level respectively.

	(1)	(2)	(3)	(4)
	Ln(Amount)	Ln(Amount)	Ln(Lenders)	Ln(Lenders)
AfterVC	0.207*** (8.848)	0.222*** (9.513)	0.319*** (13.933)	0.343*** (15.033)
AfterVC*ln(IPO_VC)	0.008*** (3.102)	0.006** (2.394)	0.028*** (11.323)	0.024*** (9.823)
Interest		0.041*** (10.775)		0.065*** (17.160)
Maturity		-0.004* (-1.761)		0.003 (1.266)
Platform FE	Y	Y	Y	Y
Week FE	Y	Y	Y	Y
Observations	21,134	21,134	19,957	19,957
R-squared	0.796	0.797	0.825	0.827

Table V. VC Reputation (VC Age) and Certification Effect

This table presents the results of how VC reputation is associated with VC certification effect by using VC age as the proxy for VC reputation. The data are collected from www.wdzj.com, the largest information provider of the Chinese P2P lending market. The sample consists of the weekly information of 154 VC-backed platforms between January 2012 and June 2017. *AfterVC* is the dummy variable which takes the value of one for the weeks in or after the week of VC investment announcement or takes zero for weeks before the week of VC investment announcement. *Age_VC* is the year of age of the lead VC at the year of the VC investment announcement. *Amount* is the amount of facilitated loans on the platform in the given week. *Lenders* is the total number of P2P lenders that successfully lends on the platform in the given week. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. T-statistics are reported in parentheses. ***, **, * denote the significance at the 1%, 5%, 10% level respectively.

	(1)	(2)	(3)	(4)
	Ln(Amount)	Ln(Amount)	Ln(Lenders)	Ln(Lenders)
AfterVC	0.132*** (5.206)	0.128*** (5.070)	0.350*** (13.990)	0.343*** (13.846)
AfterVC*Age_VC	0.012*** (7.845)	0.014*** (9.057)	0.006*** (4.173)	0.008*** (5.799)
Interest		0.045*** (11.837)		0.070*** (18.371)
Maturity		-0.005** (-2.343)		0.004 (1.566)
Platform FE	Y	Y	Y	Y
Week FE	Y	Y	Y	Y
Observations	21,134	21,134	19,957	19,957
R-squared	0.796	0.798	0.824	0.827

Table VI. Information asymmetry (Platform Age) and Certification Effect

This table presents the results of how information asymmetry is associated with VC certification effect by using the age of platform as the proxy for information asymmetry. The data are collected from www.wdzj.com, the largest information provider of the Chinese P2P lending market. The sample consists of the weekly information of 154 VC-backed platforms between January 2012 and June 2017. *AfterVC* is the dummy variable which takes the value of one for the weeks in or after the week of VC investment announcement or takes zero for the weeks before the week of VC investment announcement. *Age_Platform* is the age of the platforms at VC investment announcement. *Amount* is the amount of facilitated loans on the platform in the given week. *Lenders* is the total number of P2P lenders that successfully lends on the platform in the given week. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. T-statistics are reported in parentheses. ***, **, * denote the significance at the 1%, 5%, 10% level respectively.

	(1)	(2)	(3)	(4)
	Ln(Amount)	Ln(Amount)	Ln(Lenders)	Ln(Lenders)
AfterVC	0.766*** (22.251)	0.757*** (22.023)	0.629*** (18.401)	0.610*** (17.968)
AfterVC*PlatformAge	-0.275*** (-20.251)	-0.266*** (-19.570)	-0.116*** (-8.651)	-0.100*** (-7.531)
Interest		0.036*** (9.653)		0.066*** (17.384)
Maturity		-0.004* (-1.782)		0.004* (1.912)
Platform FE	Y	Y	Y	Y
Week FE	Y	Y	Y	Y
Observations	21,134	21,134	19,957	19,957
R-squared	0.800	0.801	0.824	0.827

Table VII. Certification Effect on New Lenders and Existing Lenders

This table presents the results of VC certification effect on existing lenders and new lenders. The data consist of the weekly information of 87 VC-backed P2P platforms between January 2012 and June 2016. *AfterVC* is the dummy variable which takes the value of one for the weeks in or after the week of VC investment announcement or takes zero for the weeks before the week of VC investment announcement. *Age_VC* is the year of age of the lead VC at the year of the VC investment announcement. *Amount* is the amount of facilitated loans on the platform in the given week. *Lenders* is the total number of P2P lenders that successfully lends on the platform in the given week. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. T-statistics are reported in parentheses. ***, **, * denote the significance at the 1%, 5%, 10% level respectively. *Newlenders* is the number of lenders who begin to invest on the platform in the given week. *Existinglenders* is the number of lenders who have invested on the platform before the given week and also invest on the platform in the given week.

	(1)	(2)	(3)	(4)
	Ln(Existinglenders)	Ln(Existinglenders)	Ln(Newlenders)	Ln(Newlenders)
AfterVC	0.048 (1.336)	0.047 (1.330)	0.180*** (3.451)	0.180*** (3.455)
Interest		0.085*** (10.337)		-0.034*** (-2.855)
Maturity		-0.014*** (-2.895)		-0.017** (-2.465)
Platform FE	Y	Y	Y	Y
Week FE	Y	Y	Y	Y
Observations	7,393	7,393	7,393	7,393
R-squared	0.853	0.855	0.681	0.682

Table VIII. Certification Effect and News Effect

This table presents the results of how news effect is associated with VC certification effect. The data are collected from www.wdzj.com, the largest information provider of the Chinese P2P lending market. The sample consists of the weekly information of 154 VC-backed platforms between January 2012 and June 2017. *AfterVC* is the dummy variable which takes the value of one for the weeks in or after the week of VC investment announcement or takes zero for the weeks before the week of VC investment announcement. *Age_Platform* is the age of the platforms at VC investment announcement. *Amount* is the amount of facilitated loans on the platform in the given week. *Lenders* is the total number of P2P lenders that successfully lends on the platform in the given week. *Borrowers* is the number of borrowers that have successfully borrowed on the platform in the given week. *Interest* is the average of the interest rate across all the P2P loans facilitated on the given P2P platform in the given week, weighted by loan amount. *Maturity* is the average of the maturity of all the facilitated loans, weighted by loan amount. *News* is the number of news associated with the given P2P platform in the given week, collected by searching in Baidu News, the largest search engine for news in China, with the platform's name as the keyword. T-statistics are reported in parentheses. ***, **, * denote the significance at the 1%, 5%, 10% level respectively.

	(1)	(2)	(3)
	Ln(Amount)	Ln(Lenders)	Ln(Borrowers)
AfterVC	0.237*** (10.707)	0.413*** (19.009)	-0.021 (-0.761)
Interest	0.039*** (10.343)	0.067*** (17.626)	0.018*** (3.801)
Maturity	-0.004 (-1.575)	0.005** (2.064)	0.031*** (10.466)
Ln(News+1)	0.139*** (8.958)	0.031** (2.056)	0.280*** (14.448)
Platform FE	Y	Y	Y
Week FE	Y	Y	Y
Observations	21,134	19,957	21,042
R-squared	0.798	0.827	0.844