

Research on Problems and Countermeasures of P2P Campus Network Lending Platform from the Perspective of Game

Zhang Yujuan, Yuan Fang, Wu Huaqiong, Xu Xia

Nanjing University of Posts and Telecommunications, Nanjing, Jiangsu province, 210000, China

Keywords: P2P campus network loan; Internet finance; incomplete information dynamic game

Abstract: P2P campus network loan platform, as the product of Internet financial innovation, has been developing rapidly, but it has been stuck in the bottleneck period of development due to various reasons. Lending through network platform at home and abroad, and comparison between Chinese and foreign net platform loan rate of interest, risk control, capital source of differences in such aspects, as well as the advantages and disadvantages are described in this paper; The dynamic game model of incomplete information is constructed through the status quo, and the optimization of benefits is realized under the premise of reasonable risk aversion. Finally, according to the status of the questionnaire, according to the questions reflected in the questionnaire, the proposal of P2P campus network lending platform is proposed to provide college students with practical needs, safe and reliable products, and gain social recognition.

1. Introduction

"Internet + financial" is a subversive breakthrough of traditional financial industry, net credit platform is more effective to a certain extent to correct the shortcomings of the traditional loans, expanded the scope of mass consumption, virtually gradually changed people's spending habits, had a huge influence on social economy. As shown in figure 1 shows, growth tends to be stable platform, as of the end of December 2016, the normal operation of net lending industry platform number 2448, decreased by 985 at the end of 2015, compared with annual quantity to maintain normal operation platform reduced step by step. According to incomplete statistics, in March 2016, the country affected by lending to nonstandard network tens of thousands of students, involved amount is up to more than 2000, because of unable to repay, the "naked" loan scandal, the college students suicide, dropout phenomenon emerge in endlessly.

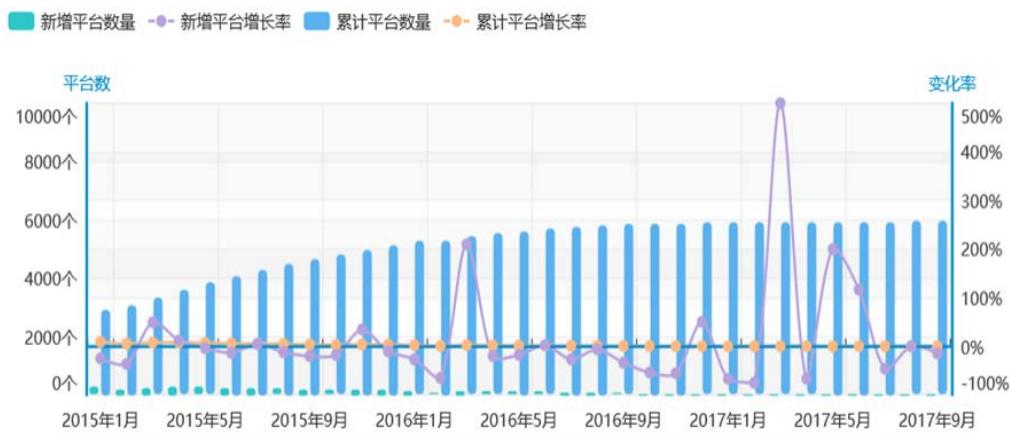


Figure 1. Changes in the number of online loans in 2015-2017

Mining under government supervision, this article as the interaction and the game will be the deepening continuously, from game interactive game both sides can get more information about each other, in the face of lending platform and college students' respective problems in the game, to form a more effective strategy. Under the premise of reasonable risk aversion, effective countermeasures are put forward to optimize their respective interests.

2. Comparison of Domestic and Foreign Student Online Loan Platforms

GoHenry is a financial firm focused on providing consumer financial solutions for young people. Parents can set up the use rules and consumption caps of pocket money through goHenry, set up rewards or characters for teenagers, and parents will receive SMS alerts when their children are consuming. Unlike campus loans, goHenry mainly includes parents and teenagers. On the one hand, goHenry can control financial freedom for teenagers, prevent excessive consumption of the border, and realize the whole-process monitoring of children's consumption by parents.^[1]

SoFi through understanding the students various information (transcripts, etc.), professional, and to evaluate its repayment ability, and constantly update student loans risk rating method (using employment history, debt repayment records and monthly cash flows as a major risk rating standard student loans, according to student's FICO credit scores, to determine the loan interest rate), loan interest rates tend to be the best.^[2]

Table 1 Comparison of domestic and foreign student loan platforms

	GoHenry	SoFi	Elite loan	fast loan	installment
In your country	U.K.	U.S.A.	China	China	China
type	A controlled debit card.	Composite mediations provide supervision and management.	Cash loan	Cash loan	Online mall + cash loan.
Sources of funding	Household savings	Asset securitization	Investors and financial products.	Investor investment	Investors and financial products.
Risk control	No overdraft consumption;Parents can monitor the student's expenditure in real time.	FICO credit score;Provide employment opportunities for students to suspend repayment tasks	Archives of student personal credit;Identity information assessment;collection	Archives of student personal credit;Identity information assessment;collection	Archives of student personal credit;Identity information assessment;collection
Interest level (%/ year)	—	2.14~7.74	11.88~17.88	34.8	36
advantage	Prevent excessive consumption, realize the parents to the child consumption of the whole process control;Help children develop the right consumption concept.	More efficient than violent collection;Save capital cost and improve customer viscosity.	To provide public service projects; Tailor different lending options	The borrowing limit is high;Use big data credit to check user qualification;Effectively protect user information security.	Use third-party credit rating agencies to effectively prevent credit risks.
disadvantage	Restricting students' freedom of consumption will not make up for the demand for student borrowing.	Pay attention to credit rating and school rankings, the threshold is too high.	Low screening threshold;High interest rates	High cost of credit audit;Violent collection;High interest rate	The screening threshold is too low;Violent collection;The interest rate is too high

It is an important attempt of small and micro consumer finance on the Internet. Its product sales to college students can pay by installments, the small platform - orange financial creditor's rights by its small the consumer loans as creditor's rights and sold to investors, and then make commodity

price difference and bond spreads, respectively. On the front end of the consumption, stage music has enhanced the user shopping experience through cooperation with jd.com. At the end of the creditor's rights, the closed-loop ecology is formed.^[3]

At present, China's supervision of the industry lacks top-level design. From the perspective of Shanghai, jiangsu and shandong, local financial management departments have started to explore the supervision mode of P2P lending industry. Therefore, it is necessary and urgent to study the regulation mode of this industry.^[4]

The empirical research and analysis show that the borrower's work experience or education has a significant positive correlation with the success rate of the loan; Borrowers, however, the interaction of hours of work and educational background are contrary to intuition.^[5]

In the western developed countries, the supervision of P2P lending platforms has never been known to encourage the development stage. The British government even invested funds in Zopa to support the development of small and medium-sized enterprises. Although its regulatory framework is still under construction and immature, regulators, lending platforms, the legal profession and academia are already moving forward. At present, China's supervision of the industry lacks top-level design. From the perspective of Shanghai, jiangsu and shandong, local financial management departments have started to explore the supervision mode of P2P lending industry. Therefore, it is necessary and urgent to study the regulation mode of this industry.

3. Questionnaire Survey

3.1 Data collection and sorting

Mainly through the spread of the online questionnaire way to full-time undergraduate and fill in the questionnaire, collected 106 questionnaires, and then filtered to fill out the questionnaire of the IP will be duplicate IP questionnaire to delete, and view the short time of filling out a questionnaire, to see if the answer options are the same, and questionnaire topic "you want to choose the online loan?" And "do you support campus network loans?" Two questions have a certain degree of similarity. If the answer is different and the answer is short, then it is regarded as invalid questionnaire. After screening, 94 valid questionnaires were retained. The following is a sample of the survey.

Table 2 Sample data of college students

project	Sample distribution	sample size	The percentage
School classes	undergraduates	75	79.79%
	Specialized subject	10	10.64%
	Higher vocational students	9	9.57%
gender	female	61	64.89%
	male	33	35.11%
Have you ever borrowed money	No	77	18.09%
	Yes	17	81.91%
Main use of loans	Clothing, cosmetics	11	64.71%
	Digital products	7	41.18%
	School supplies	7	41.18%

3.2 Reliability and validity test

Reliability refers to the consistency, stability and reliability of test results, and the internal consistency is generally used to indicate the low level of the test reliability. A reliability coefficient method is currently the most commonly used methods in marketing research, is generally thought that a reliability coefficient should be between 0 ~ 1, scale of reliability coefficient is close to 1, indicates the reliability of questionnaire, the better.

Table 3 Reliability statistics

Cronbach's Alpha	A number of
0.956	56

It can be seen from the above results that the reliability coefficient of Cronba is 0.956, and the reliability coefficient is greater than 9, indicating a high degree of internal consistency of the questionnaire survey.

Table 4 KMO and Bartlett tests

Check the amount	Data results
Kaiser- meyer-olkin with enough sampling.	0.790
Bartlett's sphericity is approximately square.	780.186
inspection Df	66
Sig.	0.000

3.3 Introduction to the investigation

Research object of this study was to nationwide and students of higher vocational colleges of undergraduate course, specialized subject, from the point of the basic information of the respondents, the survey involved in undergraduate students accounted for about 79% of students accounted for about 10%, accounted for about 9% of higher vocational students, from the perspective of gender, girls account for about 65% of the total. The average monthly consumption of college students is about 1,388 yuan (see table 2). This survey hand altogether collected 94 valid questionnaires, including 17 students with net credit records, accounting for 18% of the total number of investigation. In these used in student loans, used the platform of order from high to low is: traditional electricity installment service (such as ants spend bai, jingdong ious) 16 people, specialized in installment shopping platform (in installment, orange installment) 4 m, online lending platform (school loans, to borrow treasure, pleasant to borrow) 2 m, offline campus loan 2 passengers.

In short, college students should form good consumption habits and can borrow and consume, but they cannot rely on loans. Therefore, it is of great significance for the state to restrict the distribution of loans to college students.

4. Campus Loan Platform and College Students under the Dynamic Game of Incomplete Information

As in the process of the P2P lending transaction both sides there are serious information asymmetry: P2P lending platforms is very difficult to get real information of borrowers, only according to the judgment of borrowers to provide material, regulation and system is the government regulators and market subjects according to their preferences for information structure and interests game to maximize their income in the process of formation, in the process information is incomplete, and in the process of game, the game both sides according to the sequence implementation strategy choice and behavior, so this game belongs to the typical incomplete information dynamic game.

4.1 Model establishment and theoretical hypothesis

In the process of P2P online lending, the lending platform ACTS as the agent for lenders, and focuses on the benefits and risks of loan lending. In general, high returns are often accompanied by high risk, so it becomes a key issue to ensure that the lending platform guarantees a relatively low risk of large profits. However, in the real network loan environment, the information is not completely mobile, and the campus loan platform has far less information than the loan students themselves.^[6]

4.2 The game process between the individual and the students who make loans on the platform or on the platform

Assumes that the virtual nature and nature will be applying for campus students into good credit loan (G) and (B) with poor credit, credit good students returned to the campus network bandwidth platform loan on time, on the contrary, students with poor credit disguised himself as a credit platform good students to borrow money, and will tend to default payments. Among them, the students who are good credit appears the probability for P, students with poor credit appeared probability of $1 - P$, $P \in [0, 1]$, the student loans for L, students through the P2P platform loan interest rates for i_1 , bank deposit rates (i.e., lenders choose to lend money to students rather than the opportunity cost of deposited in the bank to pay) for i_2 , P2P platform collection cost for C, student default or not on their credibility influence coefficient on the conditions of w. $P(g|J)$, $P(b|J)$ campus network platform choose whether loan lending probability, respectively, $P(t|S)$, $P(f|S)$ borrowing platform is the probability of collection, $P(t|A)$, $P(f|A)$ were collected the probability of success.

In view of future behavior, the expected benefits are shown as follows:

After further calculation and analysis, we can draw the expectation of the payer:

$$-PL_w + (1 - P)(L - L_w) = -PLi_1 + L_w w - L$$

The expectation of the non-payer is:

$$PL_w + (1 - P)(-Li_1 + L_w) = PLi_1 + L_w w - Li_1$$

When $P > \frac{2+i_1-2w}{2+i_1}$, the borrower chooses to repay; When P is less than or equal to $P \leq \frac{2+i_1-2w}{2+i_1}$, the borrower chooses not to pay.

4.3 Correlation analysis of government supervision and loan platform

Loan according to the college students' network status quo of the research questionnaire survey analysis, its loans for college students cognitive level, the government regulatory risk perception, cognition and platform for college students and the correlation analysis to malicious arrears cognitive, the results shown in the table below:

Table 5 Correlation coefficient

		self-knowledge	The government regulation	Platform risk	There is a phenomenon of malicious default by college students.
Speaman's rho	self-knowledge	The correlation coefficient Sig. (bilateral) N	1.000 0.686 94	-0.42 0.035 94	-0.218 0.035 94
	The government regulation	The correlation coefficient Sig. (bilateral) N	-0.42 0.686 94	1.000 0.000 94	0.639 0.000 94
	Platform risk	The correlation coefficient Sig. (bilateral) N	-0.218 0.035 94	0.639 0.000 94	1.000 0.235 94
	There is a phenomenon of malicious default by college students.	The correlation coefficient Sig. (bilateral) N	0.157 0.132 94	0.328 0.001 94	0.235 0.023 94

*. When the confidence level (bilateral) was 0.05, the correlation was significant.

**. When the confidence level (bilateral) was 0.01, the correlation was significant.

Sig is the test value with significant difference, which is generally compared with 0.05 or 0.01, and the Sig value is usually denoted by $P > 0.05$, indicating that the difference is not significant. $0.01 < P < 0.05$ indicates significant difference; $P < 0.01$ indicates significant difference. Through the analysis of SPSS.18, it can be found that there is a strong correlation between

government regulation and platform risk, which indicates that government regulation has a great influence on the campus network lending platform.

5. Suggestions from the Perspective of Government Supervision and Loan Platform

P2P lending platform for the development of campus network is a dynamic and complex process, China's current P2P lending industry in advance without market access mechanism, make continuous supervision mechanism, after the event has no exit mechanism of the status quo, failures have occurred.P2P lending as financial innovation is becoming an important channel for private financing, and P2P platforms have become functionally dissimilated and lack effective regulation. ^[7]

5.1 Government regulation

5.1.1 Require both parties to pay a certain percentage of the risk penalty

In order to protect the interests of the lender, each platform is required to pay a certain percentage of the risk penalty. At the same time, to protect the interests of the normal lending platform, build system of margin, when used in case of borrower default compensation, the lenders income payments to the default of the borrower to remind, warning, lower credit rating, such as punishment, once appear malicious default, rules forever is not allowed to enter the P2P platform for borrowing. ^[8]

5.1.2 Strengthen credit system construction and improve credit information sharing mechanism

At present, the central bank credit reporting system is not yet open to Internet financial enterprise, also do not have credit information sharing mechanism, therefore, the current exists within the campus network platform does not have a similar commercial bank loan risk control and compliance mechanism, the risk is bigger. Should establish the credit system in the industry, at the same time seeking to open the bank credit reporting system, improve the credit information sharing mechanism, the borrower's bank account for college students, social security number, personal credit record and so on carries on the strict inspection, strict controls of the emergence of bad lending transactions. ^[9]

5.2. Improve the method of interest rate determination

By the P2P lending platform according to borrower's credit rating classification to determine the loan interest rate from Britain, the United States the development of P2P network platform loan, posted by the borrower loan demand by lenders bid again decided to interest rate pricing has been abandoned by industry leaders. There are three reasons. In theory, Chen ^[10] and other studies have shown that double-blind auctions do not provide the lowest possible interest rate for borrowers in P2P lending. In practice, even the more attractive the borrowers are attracted to, the lower the interest rate is, not the less efficient pricing of the higher interest rate. ^[11]

Acknowledgements

Innovation and entrepreneurship training program for college students: SZDG2017034.

References

- [1] Yang Li. How British "student loan" prevents excessive consumption [J]. Manager,2017, (02):50-51.
- [2] Du Shuting, SoFi net lending to build the "university dream" [J]. The 21st century business review, 2014, (13): 58-59.
- [3] Guo Mingtai. Analysis of online lending combined with college students' stage market business

model [D]. Yunnan university,2016.

[4] Song Pengcheng, Wu Zhiguo, Zhao Jing, Melissa Guzy. Research on supervision mode of P2P lending industry in China [J]. Southern finance,2014, (01):16-20.

[5] Sun Wujun, Fan Xiaoying. Can the background of practice and education improve the success rate of borrowing? -- empirical evidence from P2P platforms [J]. Journal of central university of finance and economics,2016(03)

[6] Qian Zhitong, Liu Liu. Research on Internet lending behavior under the perspective of incomplete information game -- taking P2P network loans as an example [J]. Mathematical theory and application,2016,36(02):110-117.

[7] Zhao Liu, Yin Shi. Alienation of P2P network platform [J]. China finance,2015, (15):90-92.

[8] Zhang Yi. Study on the risk margin mode of P2P online lending platform [D]. Huazhong university of science and technology,2016.

[9] Liu Painting, Shen Qingli. Research on the risk and supervision of P2P lending in China [J]. Research on financial issues,2015, (01):52-59.

[10] Chen, Ning. Social Lending [A]. Proceedings of the 10th ACM Conference on Electronic Commerce [C]. New York: ACM, 2009:335-344.

[11] Song Pengcheng, Wu Zhiguo, Melissa Guzy. The way of survival: research on the business model of P2P lending platforms [J]. New finance,2013(11):59-63.