

A Critical Study of Chinese P2P Platform Default Risk and Its Coping Strategies

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Abstract: Recently, there are increasing numbers of people who are willing to choose P2P products because of their convenient operation and less strict entry requirements. In addition to the risks of P2P products themselves, individual investors should also deal with the potential default risk of P2P platforms. In this article, a model will be constructed to predict the probability of platform default risk. After the definition of the model and key variables, there will be two case studies to test the feasibility of the model. It is confirmed that whether platforms will have a default in next month can be predicted from the observed information in the past. It also found that those problematic platforms usually have poor historical performance by comparing them with those platforms operating normally. This article will also provide some suggestions for both individual investors and regulators to respond to different status of the platform such as normal operation or having problems.

1. Introduction

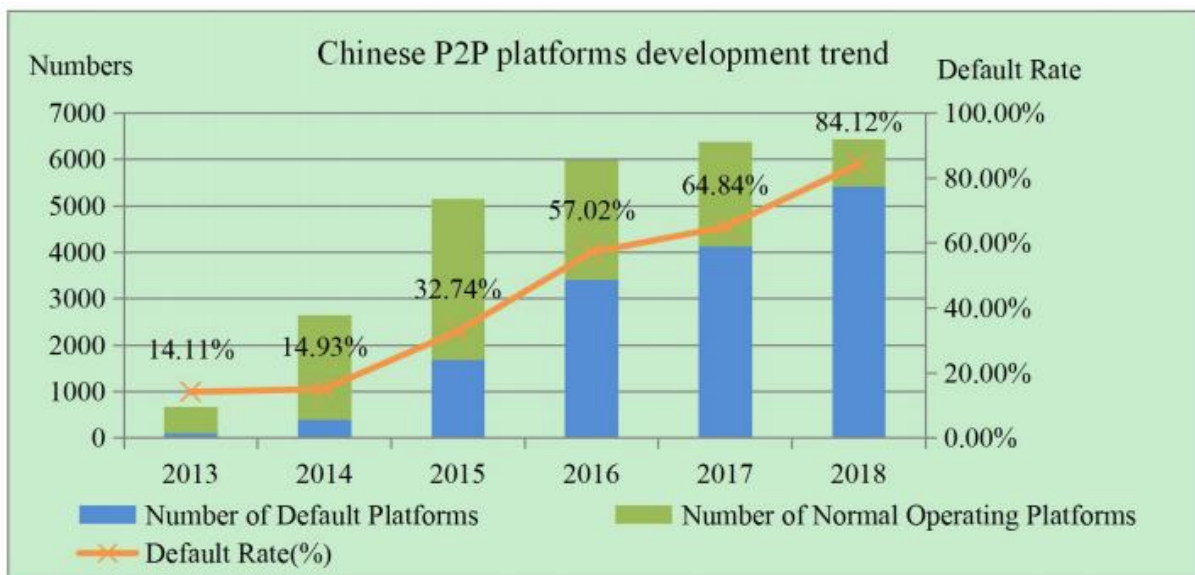
Peer to peer (P2P) lending, also known as private microfinance, is one of the Internet finance products. With the assistance of internet and mobile internet technology, P2P provides such financial services that pooling a large amount of small funds and lending them to those individuals in need [1]. Compared with traditional financial mode, they are different in terms of participation, cost, process and rate of return. In general, there are strict and complex requirements in traditional financing. As for P2P, it has lower entry requirements and almost everyone can participate in. In addition, P2P has fewer costs than traditional one because of its simple operation. Interest rate returns are always higher in P2P lending as well [2]. Therefore, unlike traditional lending mode, P2P is meritorious mainly in pooling and providing funds to individuals, developing personal credit systems and improving utilization rate of social idle funds [3].

The promotion and growth of P2P has led to the emergence of online credit company (third-party company or website), referring to P2P platform. Acting as an intermediary platform, it provides online channel for information release and transaction realization, and connects both the borrowers and lenders to realize their respective borrowing and lending needs [4]. The borrower issues the loan bid on the platform while the investor makes a competitive bid to lend to the borrower, and the platform conducts a deal next [5, 6]. In the process of borrowing and lending, all the information,

fund, contract and procedures are realized through the network. Therefore, P2P platform has the advantage of convenience, fast and free of geographical restrictions.

The first P2P platform, Zopa, was founded in London in 2005, the same year of P2P's first occurrence [7]. After the establishment of China's first P2P online lending platform in Shanghai in 2007, it was recognized by the public. It was not until 2010 that the online lending platforms were favored by many individual investors. During the rapid expansion period dominated by regional borrowing, the number of domestic P2P platforms increased rapidly from about 20 to around 240. By the end of 2012, the number of effective investors was between 25,000 and 40,000. It is estimated that the monthly capital turnover of P2P platforms nationwide has exceeded 16 billion RMB, and there were around 1,300 platforms in 2014 [8]. At present, the domestic market of P2P is intended to expand the business to foreign markets, and import high-quality overseas assets.

Although P2P and the online lending platform will have a great trend of future evolution, there do have increasing risks of both participants and P2P platforms themselves. Those risks can be divided into credit risks, operational risks and market risks in general. They have already occurred since late 2011, when P2P had been widely accepted by the public [8]. Those issues include stopping business without returning the money, delayed payment and being interposed by economic investigation. According to Figure 1, it illustrates the number of Chinese P2P platforms that have defaulted from 2013 to 2018. In addition, it emphasizes the trend of growing numbers of online lending platforms with risks. Although the total number of platforms is increasing, there are also many problematic platforms, accounting for a large proportion. For instance, by the end of 2018, the cumulative number of P2P platforms has reached 6,430, among which 5,409 have problems, with a default rate of about 84% [9].



Source: WDZJ, 2019, <https://www.wdzt.com/news/yc/3699010.html>

Figure 1: Chinese P2P platforms development trend.

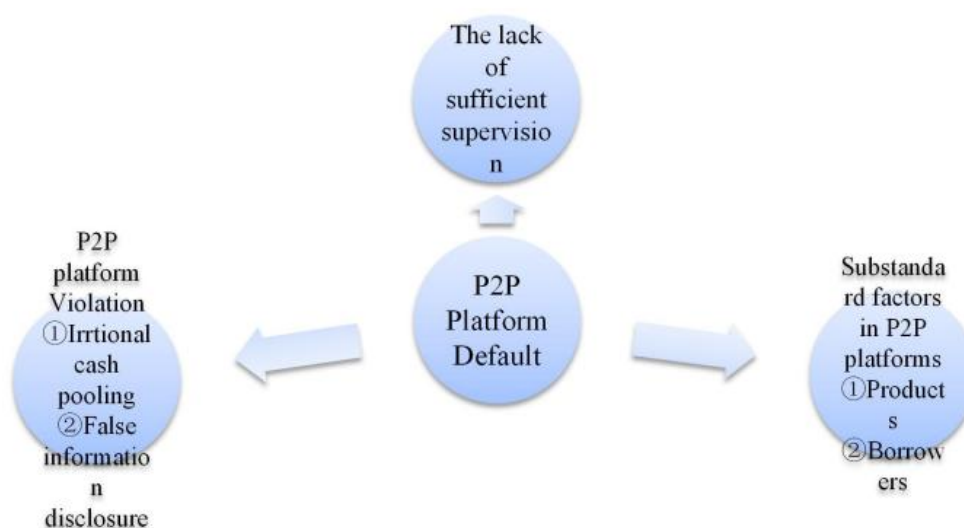
This article will look for the factors that may lead to P2P platform default and determine whether such default risk can be judged in advance from the given information. Additionally, assuming risks are known, how should investors avoid them? These will all be covered in the article, with its structure organized as the following way. The first section is introduction and the second is literature review. Research design and model development are presented in the third section, followed by two case studies. And the last section is conclusion.

2. Literature review

By far, there are many researches focusing on P2P risk while studies on P2P platform risk are not enough. Since some of the causes leading to the issue are similar, the research on P2P default risk can be regarded as certain reference for P2P platform risk.

It is widely recognized that the development of online lending industry has alleviated the financing difficulties of individuals, as well as led to the rise of platform default rate. Gorodetsky et al. pointed out that the main reasons are irrational cash pooling and illegal self-finance [10]. Because of the low entry requirements, the quality of existing P2P platforms and their products cannot be guaranteed. For instance, there are some platforms aiming at making a lot of money that putting investors' fund into risky borrowers at high interest rates. Since the default cost of borrowers is relatively low, it is extremely easy for them to fail to repay the loan [11]. As a result, the platform will face the liquidity risk of withdrawal difficulty and capital chain rupture. Similarly, Rivera and Lee illustrated that it is because of the lack of sufficient supervision that resulting in issues of P2P platforms [12, 13]. In the whole process of some online lending, there have not any third-party payment platforms playing a role in regulation, so these funds, dominated by P2P platforms, are likely to have a high risk of being used erroneously and sometimes, illegally.

According to Feng et al. and Jeong et al., borrowers who are often not accepted as customers by the formal financial institutions, and sometimes be regarded as subprime customer, may also lead to a crisis in the platforms due to their high probability of default [14, 15]. Since most of the loans on P2P platforms are unsecured, it is likely to cause the default risk of the borrowers who cannot repay the principal and interest at the maturity date. Once borrowers' default, it may cause problems like overdue payments [16, 17]. This would further exacerbate the risk of bank run on the platforms and eventually turn into problematic platforms. Furthermore, in order to attract more investors, some online lending platforms provide relatively higher interest rate, many of which are higher than four times the interest rate of bank loans in the same period, and constitute usury, to some extent [18]. It is likely to result in the situation of using loans from new investors to repay past debts that have matured. If failing in finding new investors, the debts can only be assumed by P2P platforms themselves. And the possible liquidity risk of capital chain rupture would occur if platforms are short of funds, which is another reason for platform default.



(Source: compiled by the author)

Figure 2: Main causes of P2P Platform Default.

In conclusion, the main reasons for the frequent default crisis of online lending platforms can be divided into three parts, the lack of sufficient supervision, P2P platform violation and substandard factors in P2P platforms. Among these three causes, the illegal operation of P2P platforms consists of irrational cash pooling and false information disclosure while substandard factors such as products listed on the platform and borrowers who participate in online lending can also result in default risk of P2P platforms. Although there is not enough research literature for P2P platform default to the present, the Chinese government attaches great importance to them and has issued large numbers of management measures in accordance with the existing problems at the present stage, which can be used as a reference for this research as well.

3. Research Design and Model Development

In order to help individuals or SMEs who participate in P2P reduce their potential losses caused by the default risk of P2P platforms, there will be a model that includes main variables affecting the default risk in this part. The model is established on the basis of those theoretical influencing factors mentioned above and some other key elements observed through information disclosed online. The main source of data mentioned in the following part of this article comes from Wangdaizhijia, an Internet portal dedicated to providing equal and transparent information about online lending, and promoting the development of P2P industry as well. This website has become the largest and most authoritative third-party information platform in the online lending industry, and has provided consulting reference for Shanghai Municipal Peoples Government in the industry research [19]. In addition, it should be noticed that this article focuses on P2P platform default risk, rather than P2P risk, in which the former affects all investors in the platform while the latter has relatively small effects. The online lending platform default risk is determined by whether it is operating normally or with problems.

There is a monthly ranking list of online lending platforms on Wangdaizhijia, which can serve as reference basis for the model because the rating is a research result obtained by quantitative calculation based on publicly available information and a set of open and transparent patterns. The primary judgment criteria used by the website consists of the degree of transparency in information disclosure, degree of capital flow, degree of dispersion, degree of compliance, platform's brand and whether the business scale of the platform is growing so fast that exceeds the appropriate increasing rate [20]. The platform development index can be calculated afterwards and act as the basis for the final ranking. However, it only represents the comprehensive situation of a P2P platform, which accounts for the integrated influence of the platform instead of explaining its security. For instance, one of the rating evidences is based on the number of transactions the platform has made in the past month. It is useful as a tool to estimate the potential development of the platform, but becomes less persuasive when judging whether the platform will have problems or not in the future. Therefore, the relevant rating basis listed on Wangdaizhijia cannot be fully used as the variables in the model to judge whether P2P platforms have default risk.

In spite of the fact that there are many elements causing platforms to default, some of them are difficult to be qualified and are not suitable as variables in the model. For this reason, the model will focus on those variables that can be qualified instead of theoretical factors. It is assumed that all variables range from 0 to 1 because of the nature of probability. The first variable is sufficient supervision (SS). In terms of all platforms, there are only two patterns, being supervised or not, referring to that SS equals 0 or 1. If the platform is monitored by a third party authority such as an external regulatory association, the possibility that it has default risk is relatively low or even does not exist, so this variable is zero under this circumstance. By contrast, SS will have a value of one in the absence of regulation. The transparency of information disclosure on the platform (TID) is the

second variable. The public will learn more about the platform and play a role of supervision, to a certain extent, when the information presented online is more open and transparent, thus reducing the probability of platform default. Consequently, TID will be infinitely close to 0 as the platform becomes more transparent. The next factor is the speed at which the scale of the platform business is increasing (SOI). For all platforms, it is reasonable if their business scale grows at normal speed, so the default risk is few and basically nonexistent, indicating that SOI equals zero. But once the growth rate is too fast and exceeds the logical upper limit, the platform may be suspected of illegal operation, thus increasing the probability of default. In this case, the larger the difference between the actual growing speed of the platform and the normal one, the larger the SOI is. The degree of compliance (DOC) can also affect platforms' default risk. The variable will be closer to 0 if the platform becomes more amenable and is less likely to have problems, and vice versa. The fifth variable is degree of liquidity (DOL). When there is less money flowing on the platform, it may fall into the risk of failing to repay the investors' funds on time. This will result in a bank run on the platform, and more seriously, the platform will lead to a severe default and a further collapse is likely to happen as well. So DOL will be infinitely close to 1 on this occasion. The expected rate of return of P2P products (ERR) provided on the platform is also taken as a variable. When the rate is in the normal range, ERR will be equal to 0, otherwise it is going to be greater than zero. Since risk and return are positively correlated, when the rate of return is higher than the normal level, the platform will bear more default risk correspondingly, so the value of ERR is close to 1 from 0 at this time. The last variable in the model is the historical reference value of platform (HRV) based on its previous data and rankings. In general, P2P platforms that have performed well in the past month will continue having a favorable performance in the following month. Despite that there might be ups and downs to a certain extent, the fluctuation range is small and platforms are basically in a stable state and keeping performing well. Therefore, for platforms that have had a good history performance, HRV is relatively close to or even equal to 0, and vice versa.

The seven variables involved in the model are SS, TID, SOI, DOC, DOL, ERR and HRV, and there is a summary of them in Table 1 below. Although the final probability of platform default risk is determined by these seven variables, each has a different degree of influence. As a consequence, there will be a corresponding number of constants in front of each variable ($\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7$ respectively), and the amount of the constant depends on how much the variable affects the occurrence of platform default risk. In this article, the exact value of the constant is not available, however, the general range of the quantity can be judged through data analysis. For example, α_2 is relatively small while α_7 could be a larger number.

The model can be roughly written as follows:

$$\text{Prob(Platform Default Risk } i) = \alpha_0 + \alpha_1 \times SS_i + \alpha_2 \times TID_i + \alpha_3 \times SOI_i + \alpha_4 \times DOC_i + \alpha_5 \times DOL_i + \alpha_6 \times ERR_i + \alpha_7 \times HRV_i \quad (1)$$

In which i refers to which platform default risk is qualified, $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7$ are corresponding constants of each variable, and α_0 is a constant used to control errors.

Table 1: Definition of key variables.

Key variables	Definition
SS (Sufficient Supervision)	whether the platform is supervised by an external third-party regulatory organization
TID (Transparency of Information Disclosure)	the extent that the platform discloses relevant information (e.g. shareholder structure, platform operation data) to the public
SOI (Speed of Increasing)	whether the increasing speed of platform business scale is

	within the normal range
DOC (Degree of Compliance)	whether the operation of platforms is complying with the industry standards and regulations of the authority
DOL (Degree of Liquidity)	to what extent the fund flow on the platform
ERR (Expected Rate of Return)	whether the expected yield of P2P products provided on the platform is in the normal range, or much higher than the upper limit
HRV (Historical Reference Value)	historical ranking, performance and background of the platform over the past month

(Source: compiled by the author)

4. Case Study

In this part, ten platforms will be chosen as samples of the case study, five are platforms that operated normally in December 2018 while the other five are newly recognized platforms with problems in January 2019. The purpose is to verify the feasibility of the model mentioned before from two distinctive aspects.

As shown in Table 2, the first case study includes five platforms, Lujinsuo, Renrendai, Yirendai, Paipaidai and Weidaiwang. All of them were among the top five platforms that have performed well in December 2018 [21]. There are three main reasons for finding the data of these five platforms. First, platforms with good performance always receive more attention from the public, so it is much easier to get access to their relevant information. In addition, through the research and analysis of such well-performed platforms, others can learn more about their key to efficient operation, and thus promoting the positive development of the entire P2P industry. Thirdly, since the model will be tested from two completely opposite aspects, it is better to have more differences between the two case studies, thus choosing the top five platforms and preparing to contrast them with the five problematic platforms in the following part.

Seven variables in Table 2 are valued based on data in December 2018 on Wangdaizhijia. In the first step, the above model is used to estimate the probability of platform default risk and then judge whether these platforms will have problems in the next month. After that, the actual performance of them in January 2019 is compared so as to test whether the actual situation is consistent with the prediction by the model. In the table, ↑ means that the value of the variable is close to 1 while ↓ is close to 0. Obviously, the actual results are in line with the model.

Table 2: Data for platforms that operate normally.

Platform	SS	TID	SOI	DOC	DOL	ERR	HRV	Probability of platform default risk	Actual performance in Jan 2019 [22]	Is the result in line with the model?
Lujinfu	0	↑	0	↓	↓	0	↓	↓	Perform well	Yes
Renrendai	0	↑	0	↓	↓	↑	↓	↓	Perform well	Yes
Yirendai	1	↑	0	↓	↑	0	↓	↓	Perform well	Yes
Paipaidai	0	↑	0	↓	↓	↑	↓	↓	Perform well	Yes

Weidaiwang	0	↓	0	↓	↑	↑	↓	↓	Perform well	Yes
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(Source: modified from WDZJ, 2019, <https://www.wdzt.com/news/yc/3870420.html>)

In the second case study, Toubei, Shudai99, Hucunjinrong, Minmindai and Chebangp2p are chosen as samples and the summary is in Table 3. These five platforms all have experienced problems in January 2019 for the first time [23]. So the first step is to find out them and list their circumstances of the problems. Next, we will go back to the relevant data and detailed performance of these platforms in December 2018 [24]. Seven variables will still be used to forecast the probability of default though the results are known. The final step is to use the predicted result to serve as a basis for comparison. Again, the actual performance of these five platforms in January 2019 is consistent with the results estimated by the model based on the data of December 2018.

Table 3: Data for platforms with problems.

Platform	Actual performance in Jan 2019 [23]	SS	TID	SOI	DOC	DOL	ERR	HRV	Probability of platform default risk	Is the result in line with the model?
Toubei	Economic intervention	1	↑	0	↑	↓	0	↑	↑	Yes
Shudai99	Off site	1	↑	0	↑	↑	↑	↑	↑	Yes
Hucunjinrong	Off site	1	↑	0	↑	↑	↑	↑	↑	Yes
Minmindai	Deferred payment	1	↑	0	↑	↓	↑	↑	↑	Yes
Chebangp2p	Deferred payment	1	↑	0	↑	↑	↑	↑	↑	Yes

(Source: modified from WDZJ, 2019, <https://shuju.wdzt.com/problem-1.html>)

After conducting and summarizing these two case studies, it can be concluded that the model's prediction of the possibility of platform default risk is feasible. In addition, through the contrast between normal operating platforms and platforms with problem, the characteristics of P2P platforms in different status and the value range of corresponding variables in the model can be obtained. For those outstanding platforms that operate normally, their HRV are all close to 0. Although some variables of each platform tend to 1 during the test, such as TID for Lujinsuo, Renrendai, Yirendai and Paipaidai, most of them are close to zero or even equal to zero. As a result, if a platform aims at becoming less likely to default and having a good development prospect, it should not only maintain its good historical performance, but also exert the positive role of the seven variables as much as possible. In terms of the five problematic platforms, their historical performance is all predictably poor. There is no doubt that some platforms have performed well in specific aspects, sometimes even better than the top5 mentioned before. However, the situation that variables tend to 1 in each platform is far more than that of 0, and the deficiency in overall performance is one of the main reasons for their default.

5. Conclusion

It is inevitable that P2P and P2P platforms will continue developing at a more rapid speed in the future due to the promotion of Internet technology. In order to advance the process of the development, current issues related to online lending platforms should be paid attention to. At present, P2P platforms have such problems that include lacking effective supervision, illegal

operation and substandard P2P products and related borrowers. They will not only harm the interests of investors, but also have a negative impact on the entire online lending industry, so solutions ought to be worked out.

On the basis of these theories, a model has been set up in this article to determine how likely the platform is to default. According to the relevant information disclosed, the possibility of platform default risk is predicted by adjusting seven variables which act as main factors causing platforms' problems. They are SS, TID, SOI, DOC, DOL, ERR and HRV, respectively. It can be concluded that the potential risk of P2P platform to default can be estimated, to a certain extent, after two opposite case study inspection.

Since the potential default risk of P2P platforms can be predicted in advance, individual investors should make full use of such information. In order to reduce avoidable losses, investors should choose a more reliable platform and rationally view the expected rate of return and growing rate provided by the platform [25, 26]. It is not sensible to pursue excessive interest rates at the risk of suffering platform default. Moreover, investors can refer to third-party information platforms such as Wangdaizhijia before choosing their target platform, and make a reasonable choice after recognizing the historical situation and possible future growth of each one. This can reduce the risks investors may face, as well as motivate and urge all platforms to operate in accordance with regulations.

In addition to investors' own efforts to avoid exposure to the platform, other relevant sectors such as the government should also take action. The current solution for those exiting problematic platforms is to intervene in economic investigation and minimize the economic loss to the public. As for others, the related institutions have strengthened the supervision, made frequent interviews and requested rectification of those with potential problems [27]. Among all laws and requirements for restraint formulated by the government and relevant departments, some are effective while others need to be improved. There are some platforms that violate regulations due to poor supervision, so it is necessary for regulators to further put theory into practice on the basis of original policies. Also, they can flexibly adjust the treatment of platforms in different status so as to achieve the role of encouragement, supervision and warning.

Although the probability of P2P platform default risk can be determined ahead of time based on seven main factors discussed before, this model may have certain limitation and deviation because it simply combines influential factors and corresponding constants together and lacks accurate values. All of these should to be improved and adjusted. In order to have a more precise judgement of the P2P platform default rate, future studies will not only explore other variables that may also result in the existence of risk such as external factors, but also work out the influence degree of each variable on the default rate, that is, the value of $\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7$ in model (1).

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