

## **Construction of Risk Prevention and Control and Early Warning System for P2P Network Lending Platform**

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**Abstract:** In recent years, the risk of P2P network lending platform has been exposed, and the number of stock platforms has been shrinking. The phenomenon of “closing down” and “running the road” is not uncommon. While affecting the security of personal funds, the liquidity of the entire industry has also been greatly affected. . Based on the background, development history and current situation of P2P network lending platform, this paper deeply analyzes the possible risks of P2P network lending. And from the three aspects of risk measurement, risk identification and risk control, it puts forward suggestions on the risk prevention and control and early warning system construction of P2P network lending platform.

### **1. The background and development history and current status of the P2P network lending platform**

#### **1.1 Background generated by the P2P network lending platform**

Since the 21st century, the main loan channels of Chinese residents or small and medium-sized enterprises have been concentrated in various commercial banks. However, it is necessary to submit more asset credit certificates to bank loans. Borrowing loans have become the main driving force for the development of private lending, and the generation of P2P network lending A large amount of private lending needs are inseparable. With the advantage of the Internet, it has opened up the communication channels of private lending demand and individual investors' pursuit of high-yield idle funds, making P2P network lending rapidly hot, and the transaction volume is also rising rapidly, from 250 billion yuan in 2014 to the end of 2015. From 1 trillion yuan to 7.94 trillion yuan in 2018, it can be seen that there is a wide demand for private lending and the urgent need for individual investors for high-yield wealth management products. Since then, P2P network lending platforms have sprung up. Because they belong to emerging industries, industry regulation and supervision are still insufficient, and there is a lot of room for development before 2018.

#### **1.2 History and current status of P2P network lending platform development**

The development of China's P2P network lending platform has been controversial. On the one hand, its unsatisfactory credit review has led to a large number of people with no income ability to participate in lending, and on the other hand, its unscrupulous pursuit of lending behavior has also been controversial. During the rapid development of the P2P network lending platform, the youngest people who accepted the fastest things, especially the students in school, suffered. Because the students have no credit certificate and no source of income, but there are borrowing and consumer demand, some non-standard P2P platforms use bare loans and other means to issue loans, but in the end students can not repay the loans, which eventually leads to various tragedies. After the regulators noticed this problem, the act of lending to students was quickly regulated. At this time, P2P network lending has become a small name, and it has spread among private lending groups. It has attracted a large number of individual investors and people with loan needs to settle in at a rate far lower than the usury interest rate. However, with the expansion of the industry, the demand for personal loans has gradually shrunk. In order to expand the loan commission income, the P2P network lending platform has begun to open up individual loans to SME business owners. SMEs have higher capital needs than individual investors, but There are not enough assets to

guarantee the repayment of funds, which has laid a hidden danger for the subsequent development of the P2P network lending platform. Since the online lending platform did not have strict credit review on the lenders, the entire P2P online lending market was mixed, and the proportion of deferred defaults of various loan projects gradually increased. In the end, under the pressure of investors' consensus and the pressure of P2P network lending platform, P2P network lending platforms have faced a tight-selling crisis, and a large number of P2P platforms went bankrupt. From the first quarter of 2018 to the first quarter of 2019, the trend of borrowing money in the P2P network lending industry can also be seen. The trend is shown in Figure 1. In 2018, a large number of P2P network lending platforms went bankrupt, and the entire industry faced a crisis of survival. According to the statistics of zero data, there are only 1027 P2P network lending platforms that can operate normally in the first quarter of 2019, down 52.5% year-on-year.

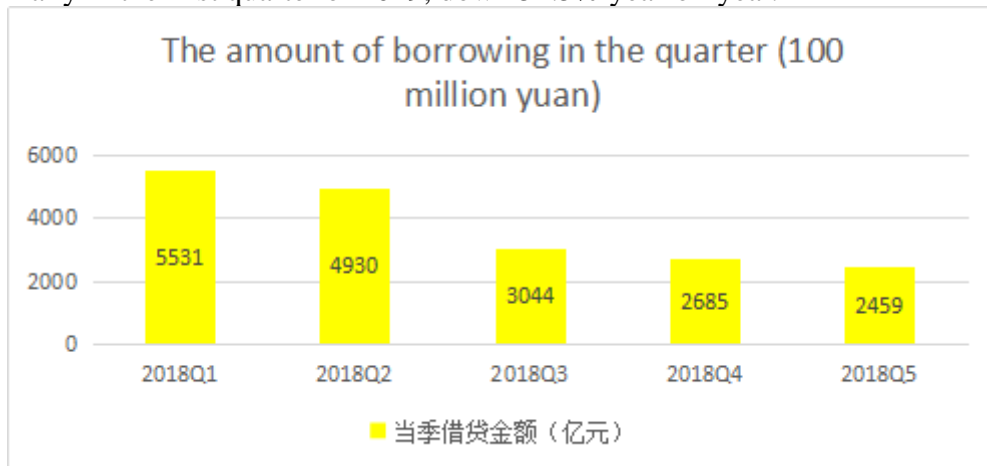


Figure 1 P2P network lending industry borrowing amount trend(2018Q1-2019Q1)

### 1.3 The risk of P2P network loans

Overall, P2P network loans face credit default risk, liquidity risk, legal and commercial risks, information disclosure and technical risks, reputation and moral hazard. Since the P2P platform is oriented to lenders or individuals who cannot borrow from existing financial systems, lenders need to provide higher interest rates due to insufficient mortgage or guarantee, but high interest rates also mean higher credit default risks. When the borrower or the company defaults, the investor will not be able to find the corresponding borrower and will directly seek the investment platform to defend the rights. When the news of the redemption is widely spread, other products that can be repaid on time will be sought to be redeemed in advance to cause the platform to run. Directly caused the platform to go bankrupt due to insufficient liquidity. The legal risks of P2P network loans mainly lie in unlicensed operations, intimidation of borrowers and running of real controllers. These risks are often difficult to control and prevent, and are also very likely to cause harm to the entire industry.

## 2. Risk prevention and control of P2P network lending platform

### 2.1 Establish a sound risk measurement system

P2P platforms often do not have a complete risk measurement system and do not have a good grasp of the known risks. Therefore, the risk measurement mechanism of platform investment can be built by using the risk measurement tool Var. The VaR approach can help the P2P platform calculate the maximum loss that its portfolio may suffer in the future, usually expressed in the quantile of alpha, as shown in Equation 1.

$$\Pr[\Delta p \Delta t \leq -\text{VaR}] = \alpha$$

In the formula,  $\Delta p \Delta t$  represents the change in market value of a certain investment plan P under a finite time  $\Delta t$  built-in reliability  $(1-\alpha)$ , and the probability that the loss is greater than or equal to VaR is  $\alpha$ . In this way, various risk factors can be reasonably measured, so that the platform can

properly control various risks when designing investment projects, instead of letting a single investor bear a single risk.

## **2.2 Improve the risk identification system**

Unlike the risk measurement system, which assesses the maximum possible risk of risk, the risk identification system is designed to identify possible risks as much as possible, without the risk of being too small or the probability of this risk being too small to be ignored. . Since risk factors are multi-faceted, they can be strengthened from the following aspects: First, environmental risk identification, which focuses on the survival environment of enterprises such as political environment, capital environment, legal supervision environment, technological progress, competitors and other similar competition. The environment, clarifying the environmental risks faced by the P2P platform not only helps the platform to reasonably measure the risk to avoid losses, but also helps the platform to find a suitable development path, so that the P2P platform can adjust its strategy rationally in response to the general trend of the risk environment. For example, when the industry supervision is obviously strict or the industry risk is obviously increased, the contraction strategy should be adopted appropriately. After the industry competition is stable and the industry is rectified, the expansion strategy can be adopted reasonably.

Secondly, process risk identification, process risk identification should be based on three aspects: business risk, financial risk and authorization risk. The business risk lies in the development of wealth management products, product cycle and business interruption. The authorization risk is mainly concentrated on leadership ability, infrastructure security and The reputation of the platform, etc., and the financial risks are related to the liquidity of the platform and the guarantee of liquidation of default. After the phase-out and rectification of the P2P industry in 2018, the operational risks of the still surviving P2P platform are greatly reduced, the authorization risk is also controlled, and only the liquidity risk still needs time to resolve.

Finally, decision information risk identification, decision information analysis and identification should be considered from three aspects of business decision-making, financial decision-making and strategic decision-making. Business decision-making is related to the platform's assessment mechanism and product pricing. Financial decision-making is related to the platform in terms of taxation, accounting information and investment evaluation. Strategic decision-making is related to platform organization structure, resource allocation and operating product portfolio.

## **2.3 Improve the risk control mechanism**

Even if most of the risks are concerned and dealt with by the company, there are still risks that cannot be discovered or can not be dealt with in a timely manner. Therefore, it is not important to improve the risk control mechanism. In order to gain market share in the early stage of development, the P2P platform is very weak in pre-risk control, especially for the necessary assets audit of borrowers. Therefore, the P2P platform should access the credit information system and jointly establish a lending blacklist mechanism with other platforms, so that “Lai Lai” has no living space in the P2P industry. Moreover, the P2P platform should make reasonable expectations for the liquidity in the next three years, in order to reserve a certain space for future product redemption. In the control of the matter, the risk position of the platform can be appropriately adjusted in combination with market liquidity and industry investment bias. In-process control also requires supervision of the behavior of the borrower to prevent the borrower from spending money or misappropriating the investor's funds. For the P2P platform, post-event control after the risk exposure is the most difficult. Since the risk of exposure, the borrower's disappearance is very common, so it can be analyzed by category. For borrowing projects with higher interest rates, you can consider cooperating with insurance companies to insure them in a certain proportion, so that investors can get certain compensation in the face of losses, and the platform should also prepare certain default reserves to help borrowers to advance. Timely funds are available to avoid the impact of the individual case on the overall word of mouth and liquidity.

### 3. Construction of early warning control system for P2P network lending platform

The risk early warning system of the P2P network lending platform mainly divides the early warning information collection into three parts: environmental risk, process risk and decision risk through risk identification tools, and then calculates the corresponding maximum risk loss value and probability through the risk measurement tool. These risk values are subject to reasonable risk control. The entire risk warning control system process is shown in Figure 2.

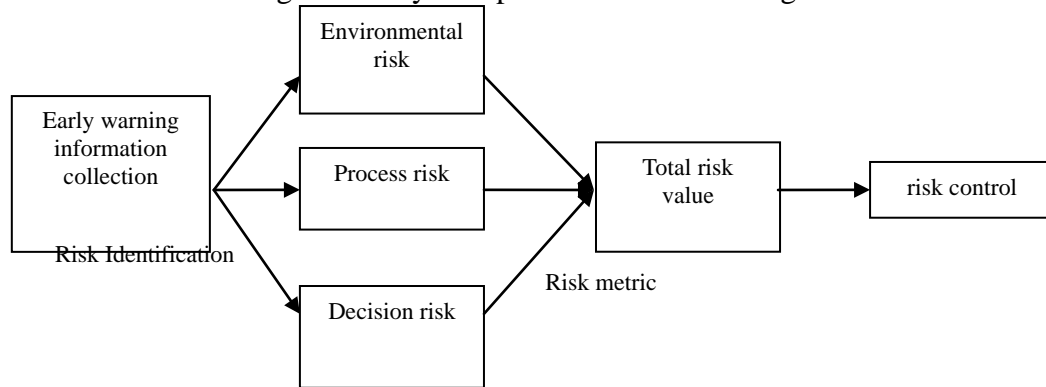


Figure 2 P2P platform risk control early warning control flow chart

#### 3.1 Construction of environmental risk early warning system

The environmental risk early warning system should be controlled by the environmental public opinion system. Generally, the liquidity of the P2P platform can be reasonably controlled during the reasonable operation. However, in 2018, due to the surge in the default rate of the end platform in the whole industry, the liquidity of the whole industry is due to the run. Constantly tightening, and finally ended up with a large number of platforms running down. Therefore, such environmental risks can be identified and controlled in advance by the public opinion monitoring system. Keywords such as P2P, default, liquidity, running, financial innovation, financial industry supervision, etc. can be used as core public opinion monitoring indicators. When the proportion of these keywords on the network increases sharply, the risk measurement tool is triggered, and the platform is liquidity to itself. Risk indicators such as compliance, technology accumulation, etc. are re-calculated by means of risk measurement tools, and business contraction is adopted to reserve a certain risk preparation method to prepare for the upcoming liquidity risk.

#### 3.2 Process Risk Early Warning System Construction

The construction of the process risk early warning system should be based on performance KPI assessment, platform liquidity and business authorization core. The identification system should be quantified according to the KPI assessment of the proportion of the qualified personnel, platform performance, platform assets and cash flow ratio, and the number of authorizations. A summary is made to identify whether there is a risk by comparing it with a predetermined indicator. In particular, the compliance rate of KPI assessment is often highly correlated with the process risk of the platform. When the KPI assessment compliance rate is less than 60%, the platform may face operational risks. Of course, there are also unreasonable KPI designs. Specifically, it can be compared with the platform liquidity index. If the platform liquidity index is better and the KPI index is worse, the KPI indicator can be adjusted reasonably; but if the platform liquidity indicator is correspondingly worse, the platform should re-evaluate the relevant risk. Reserve risk reserves and strictly control business risks to deal with possible risks on the platform.

#### 3.3 Decision Risk Early Warning System Construction

Since the impact of decision-making is difficult to quantify and its action time lies in the future, the construction of the decision-making risk early warning system is the most difficult. The construction of the decision risk early warning system should be comprehensively evaluated from the performance according to the action cycle of the decision. For example, the adjustment of

business decision-making for the grassroots organizational structure can reflect the effectiveness of decision-making from the KPI assessment indicators of grassroots personnel. When the KPI indicator fluctuates greatly, it indicates that the decision has taken effect. At this point, it is possible to decide whether or not to continue execution based on changes in specific indicators. For financial decision-making, it is often expressed in budget and tax information. When the budget is reduced and the tax expenditure is increased, it often means that the platform revenue is increasing, indicating that the financial decision is reasonably controllable, and vice versa, it represents the decision-making mistake and needs to be adjusted. Strategic decision-making is related to the development direction of the platform, and the implementation of a strategy is likely to directly affect the survival of the platform. Therefore, strategic risk warning must be properly prevented beforehand. Strategic risk warning should be considered comprehensively from the equity structure, regulatory improvement and internal and external resource allocation. Every strategy of the platform should consider whether there are multiple backup solutions and risk management solutions. Before these solutions are perfect or have no ideas, they should not be too aggressive to implement strategic decisions.

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