Research on Internet Financial Risk Resolution and Supervision Management System under the New Normal

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Abstract: The traditional internet financial risk resolution and supervision management system is difficult to apply to the rapidly developing network technology. The traditional Internet financial risk resolution and supervision management system has a higher risk to deal with Internet financial analysis. To this end, the research on the Internet financial risk resolution and supervision management system under the new normal is proposed. A risk severity classification mechanism is established and a big data risk control model is built. Based on cost control balance risk and financial risk control technology, the solution of Internet financial risk under the new normal is achieved. The main body of Internet financial supervision is analyzed to improve the legal system of Internet financial supervision. The Self-discipline Supervision System of the Internet is strengthened to perfect the Internet Financial Supervision and Cooperation System, therefore, the Research of Internet Financial Supervision and Management System under the New Normal can be achieved.

Keywords: Internet finance; Risk solution; Supervision management; System research

1. Introduction

The traditional internet financial risk resolution and supervision management system is difficult to apply to the rapidly developing network technology due to its own structural constraints. When using the traditional Internet financial risk resolution and supervision management system to analyze and solve Internet finance, the analysis has higher risk[1]. To this end, the research on the Internet financial risk resolution and supervision management system under the new normal is proposed. According to the form of influence, establish a classification mechanism of risk severity, determine different areas of influence, and build a big data risk control model. An analysis algorithm is introduced. Based on cost control balance risk and financial risk control technology, the new normal Internet financial risk solution is achieved; The main body of Internet financial supervision is analyzed to improve the legal system of Internet financial supervision. Strengthening the Internet self-regulatory supervision system and improving the Internet financial supervision and coordination system can achieve the research of the Internet financial supervision and management system under the new normal.

2. Research on Internet Financial Risk Resolution under the New Normal

2.1. Establishment of a risk severity classification mechanism

According to the possibility and degree of risk occurrence, the coordinate method of Figure 1 below is used to classify the severity level of the risk, and the risk control strategy is established according to different levels.
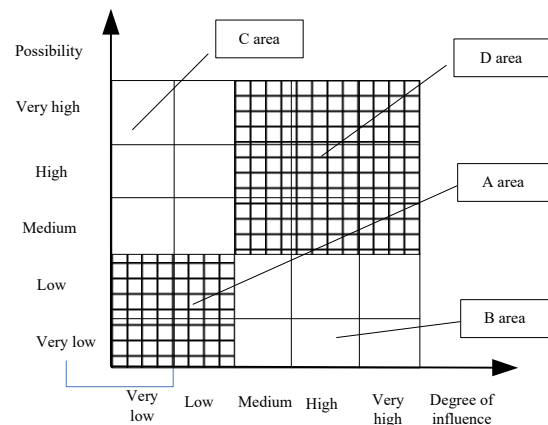

Figure 1. Risk coordinate graph

The areas in the figure represent risk characteristics and risk control strategies as shown in Table 1.

Table 1. Risk Control Strategy

Risk areas	Risk characteristics	Risk control strategy
A area	Low degree of influence and low probability	Periodic review of risk status changes, generally no longer increase risk prevention and control measures.
B area	High degree of influence and low probability	Establish and improve emergency response plans and risk reduction measures.
C area	Low degree of influence and high probability	Adopt different risk control methods to reduce the frequency of risk occurrence.
D area	High degree of influence and high probability	Take the step by step to resolve the risk impact and the probability of occurrence of the risk to minimize the risk. Ensure that risks are removed and transferred, and that various prevention and control measures are prioritized.

2.2. Building a big data risk control model

Big data risk control is data centered, which is implemented in three levels of models through data collection, data analysis and mining, and data application, as shown in Figure 2[2].
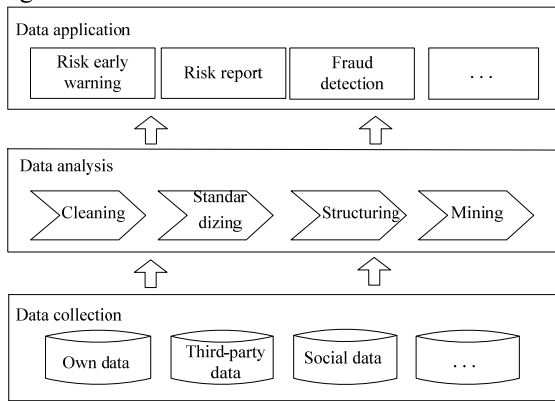

Figure 2. Big data risk control model

Data collection is based on the needs of Internet financial risk control, and data sources that can provide risk identification, assessment and control are planned. Data sources In addition to the Internet financial enterprise's own data, third-party data, social data, media information, etc. should be included in the optional category of data collection according to needs[3]. After the data source is determined, the appropriate technology is used for data mining. Web crawling techniques can be used for information collection from public websites. Data types include structured data, unstructured data, and semi-structured data due to different data sources.

Data analysis generally includes two aspects: data preprocessing and data mining. The first is the data preprocessing part. According to the basic knowledge of computers, data types and structures can be known. In order to facilitate processing, the diverse data must be processed and transformed to obtain a type of structure that is easy to handle[4]. Big data is all-encompassing, not only with risk-related information, but also with a lot of irrelevant information. Therefore, it is necessary to clean the data, eliminate the influence of irrelevant data, and

extract useful data for risk assessment. Next is the data mining part. The machine learning model based on big data technology is a mature analysis method currently, which involves artificial neural network analysis, genetic algorithm, decision tree[5]. This technology can filter out useful information from a large amount of data, find possible rules, and discover hidden unknown facts. So it can not only explain the data, but also predict the unknown things.

2.3. Balancing risk control costs

In internal risk control, the effects, risks and costs of risk control must be analyzed to find the appropriate balance between control and non-control to form an optimal combination state. If the control is insufficient, the potential risk will be too high; if the control is too much, the control cost will be greater than the uncontrolled loss, which will hinder the development of Internet financial enterprises. The efficiency of risk control depends on the comparison between risk control effects and control costs. Management risk is most effective when the control effect is better than the cost and the risk level is within a certain range. The relationship between control effects, risks and costs is shown in Figure 3[6] (where the horizontal axis X is the degree of risk control, Y, σ, and C are the control effects, risk, and cost lines, respectively, and σ' is the risk tolerance for internal control).
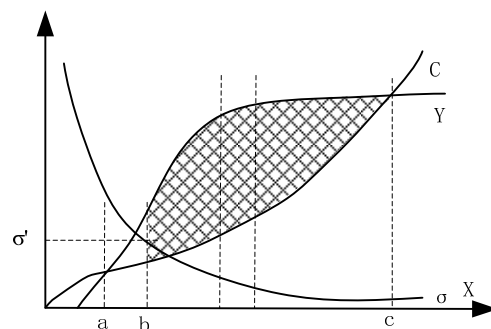

Figure 3. Risk cost balance diagram

Through the comparison between controlling effect and cost, and controlling risk and risk, the risk control can be divided into the following four areas[7]:

Area 1 is an invalid area. In this region, the risk control cost is greater than the control effect, and the actual risk is much higher than the risk tolerance level, so the risk control is weak. Due to the imbalance of input and output of risk control, it is impossible to achieve the dual objectives of controlling costs and risks. Basically, risk control is invalid.

Area 2 is a weaker area. The area is between ab, the risk control effect is better than the risk control cost, but the risk has not fallen below the risk tolerance. The dual requirements for controlling costs and risks only satisfy one, so risk control is in a weaker stage[8]. Risk control still needs to be further improved to meet the eligibility criteria and minimize unnecessary risk losses.

Area 3 is a reasonable area. With the completeness and soundness of risk control, When risk control is in the be phase, both the risk and cost requirements are met, so the area is considered a reasonable area[9]. In a reasonable area, on the one hand, the effect of controlling the risk is greater than the cost, and on the other hand, the risk level is below the risk tolerance. There is an optimal risk control level. When the risk control reaches this level, there is a marginal benefit equal to the marginal cost.

Area 4 is the override area. When the risk control exceeds the reasonable area, the risk control effect is limited. The risk control cost is too high, so that the cost exceeds the control effect and cannot meet the double requirements. After too much risk control, we cannot continue to add additional risk control inputs to avoid affecting control efficiency[10].

2.4. Technical risk control

Based on the balance risk control cost, and at the same time the technical risk control, to achieve the new normal Internet financial risk solution. At present, the Internet financial transaction system can use the related network security technologies such as authentication technology, encryption technology, secure electronic transaction protocol, anti-hacking technology to protect the security of Internet financial transactions. The development and application of these network security technologies play an important role in preventing the network payment risk of Internet finance and ensuring the smooth progress of secure payment. Technology risk is one of the important risks facing Internet finance. With the development of the above related technologies, the impact of technical risks faced by participants in Internet financial activities will be greatly reduced[11].

Encryption technology is a security technology used by Internet finance in the transaction process. This technology can ensure the integrity, availability and security of information in network transactions. Encryption technology is widely used in Internet finance and is adopted in many key links. For example, digital signature encryption, system data storage encryption, etc., encryption technology can protect the security of user accounts and Internet financial systems, thus ensuring the security of online payment[12]. In short, encryption technology is currently the key technology for Internet finance to ensure information security.

The Internet finance system ensures the accurate identification of the true identity of financial products and services by using advanced authentication techniques. It circumvents the entry of illegal customers and limits the trading behavior of customers, thus ensuring the healthy operation of the Internet financial system. Similar to Internet finance companies, customers also need certain authentication technologies to identify legitimate transaction servers and circumvent deceptive servers. In view of this, two-way authentication technology is an important technology required for Internet finance[13].

The two-way authentication technology currently implemented by Internet finance is the main technology used in network payment, which can ensure the accurate identification of the true identity of financial parties. And to ensure the confidentiality and integrity of the transaction data, the transaction party cannot deny, and thus meet the security needs of the current Internet financial network payment[14]. The authentication technology for the operation of the Internet financial system mainly includes identity authentication, digital certificates, etc. The identity authentication refers to identifying the true identity of the parties involved in the transaction of the financial service product, and the digital certificate refers to an authoritative electronic document for encrypting, decrypting and verifying the information.

The Secure Electronic Transaction Agreement is an Internet financial transaction activity that can only be carried out only if the parties to the transaction are provided with secure data transmission services. At present, online payment protocols that provide effective security for Internet finance mainly include two types. One of them is the Secure Electronic Transaction (SET), and the other is the Secure Sockets Layer (SSL) protocol[15].

The Secure Electronic Transaction Protocol is located at the Internet financial application layer, which combines business, integration and coordination. The agreement establishes strict encryption and certification standards while standardizing the entire Internet financial transaction activity process.

The intelligent real-time prevention and control system is the core system of Internet financial risk management, which analyzes and mines the data obtained through real-time monitoring. On this basis, self-learning and constantly updating strategies to deal with Internet financial risks. Intelligent real-time prevention and control system can conduct real-time risk monitoring, risk warning, and

risk warning for various risks in Internet financial trans-actions. Therefore, the past response to the risk is changed to the reaction in the event, and the time for the risk of the payment institution can be significantly advanced. Thereby the risk of money laundering and the prevention of cyber fraud in the current Internet finance can be improved.

The network payment risk faced by Internet finance is a compound type of risk, so it is necessary to adopt multiple risk prevention measures from both the technical and industrial directions. Since online payment can draw on the establishment of industry norms in traditional finance, the risk management of Internet finance generally focuses on technical aspects. With the continuous advancement of security technology, it is increasingly effective to use advanced technology to prevent and control network payment risks.

3. Research on Internet Financial Supervision and Management System under the New Normal

3.1. Analysis of the subject of internet financial supervision

The Internet financial industry is characterized by risks and small scale. China is a big developing country. This national situation determines that a simple unified supervision idea may not be applicable to China's Internet finance development model. Moreover, due to the relatively large number of Internet finance formats in China, the differences between different formats are relatively large. It is less likely to establish a unified regulatory standard and a clear unified regulatory body. At the same time, the separation of supervision framework is impossible to break in the short term. Therefore, China can learn from the practice of the United States and implement the "central + local" coordination and coordination. At the central level, the "One bank and three commissions" is the main supervisory department, and the responsible person formulates the overall regulatory normative documents and systems; The local level is dominated by the local branch of the central regulatory authority and the local financial management department.

At the same time, for the new financial products of cross-border mixed industry, through the role of the inter-ministerial joint meeting system of financial supervision and coordination, the regulatory authorities and corresponding assistance supervision departments are clarified. In order to give full play to the function of the inter-ministerial joint meeting system of financial supervision and coordination, an expert advisory group may be set up to give third-party opinions on the contents of the "One bank and three commissions" coordination that are not well coordinated and inconsistent.

The "Guiding Opinions on Promoting the Healthy Development of Internet Finance" promulgated in July 2015 has divided the regulatory responsibilities from the perspective of specific business varieties. Therefore, it should follow the existing separate supervision system and plan it to the corresponding department according to the main business activities of the Internet financial enterprise and the specific financial functions undertaken. Specifically, as shown in Figure 4.
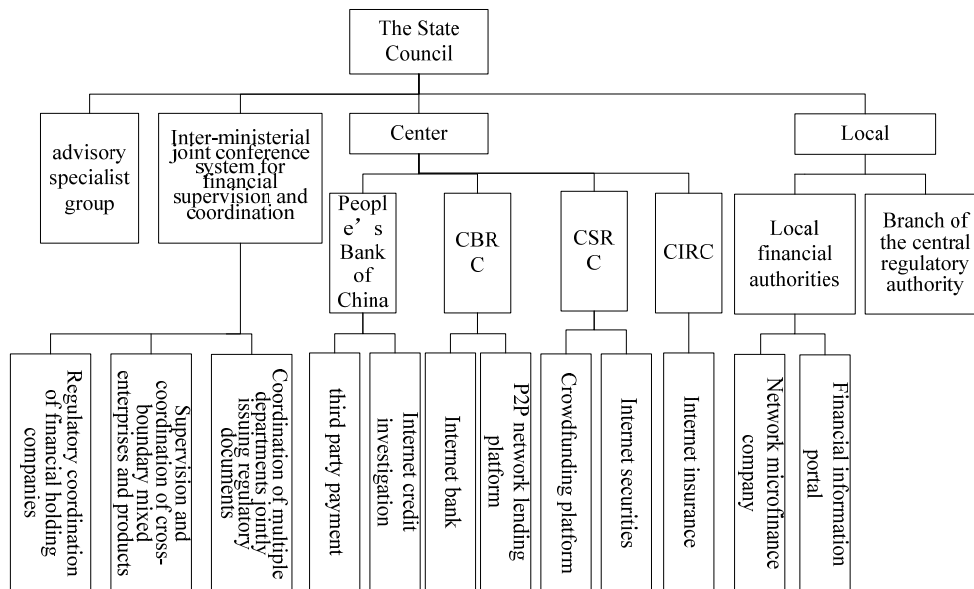

Figure 4. Internet financial regulatory organization system

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3.2. The improvement of the legal system of internet financial supervision

Improving the Internet Financial Supervision Legal System Internet finance has many common characteristics, but many financial businesses have mixed operations and cross-border phenomena, which has led to some formats that cannot be relied upon, and even some Internet finance businesses are prone to violate their own laws.

In July 2015, the State Council issued the "Guiding Opinions on Promoting the Healthy Development of Internet Finance", which clarified the regulatory departments corresponding to different formats of Internet finance. Next, the rules for the supervision of Internet insurance and online payment have been issued one after another, and the P2P network loan supervision rules have also ended. In order to prevent online loan platform loans, self-inflation, and illegal fund-raising, it has been prescribed that funds are deposited by banks, and online lending platforms are positioned in the nature of information mediation. Therefore, to build an Internet financial regulatory system, we must first start with the improvement of relevant laws and regulations. In order to avoid the lack of supervision and overlapping of supervision, the specific regulatory agencies will issue corresponding management measures for specific formats. It can be shown in Figure 5 for details.
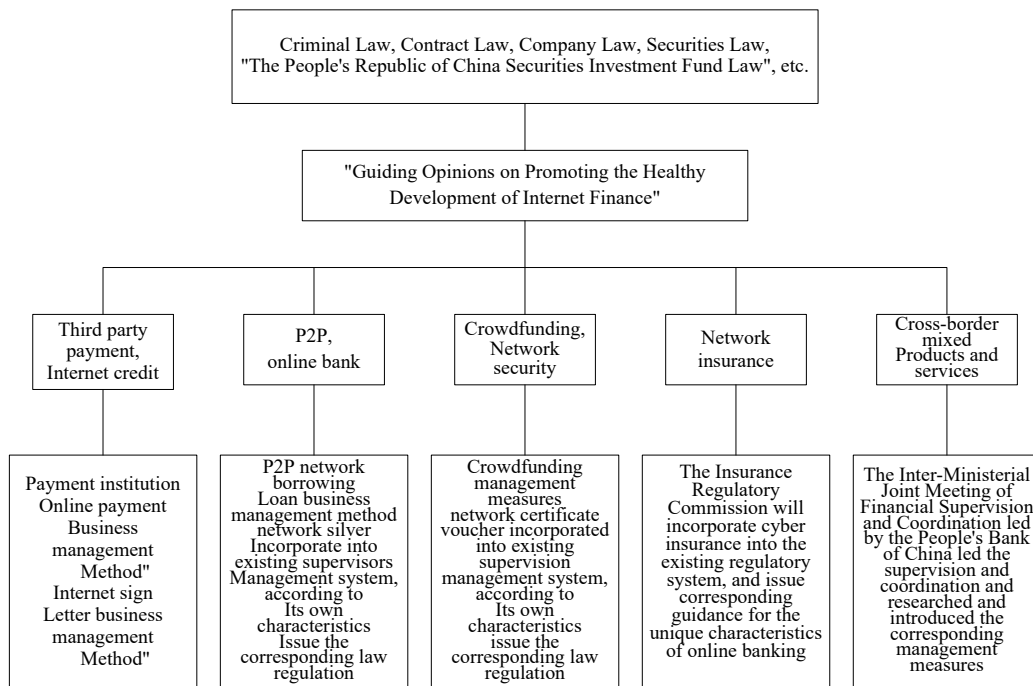

Figure 5. Internet financial supervision legal system

3.3. Strengthening the internet self-regulatory system

From the international experience, industry self-discipline plays an important normative role in the development of Internet finance. At present, China has established the "China Internet Finance Association". However, in view of the large number of Internet formats, it is advisable to set up various non-profit social organizations--industry associations under the China Internet Finance Association to be responsible for the self-discipline management of various formats.

The association serves the industry and is responsible for developing detailed regulations in five areas: system, consumer education, risk management, third-party depository, and self-regulatory registration. On the system side, it is required to establish a unified statistical indicator system and information registration and clearing system for the industry; In the aspect of consumer education, strengthen the publicity and education of Internet financial consumers, establish a civil alternative dispute resolution mechanism and arbitration branches; In the aspect of risk management, we issued guidelines and standards for information security and risk prevention, established a risk information sharing mechanism and accessed the credit information system. At the same time, the information disclosure guidelines will be issued to guide enterprises to disclose relevant information; in the case of third-party depository, the third-party depository system for funds will be promoted; In the area of self-regulation registration, a self-regulatory registration system is established. In addition, the association can also organize

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members of the conference to conduct research on the future development of the industry, specify the direction of industry development, formulate development plans for the industry and early warning of industry risks.

3.4. Improving the internet financial supervision and cooperation system

Under the current framework of separate supervision, China has established a supervisory joint meeting mechanism for connecting different financial regulatory departments-- inter-ministerial joint conference system for financial supervision and coordination. The mechanism stipulates that a joint meeting shall be held quarterly to discuss and negotiate important matters related to financial supervision, market reflection and effect evaluation of existing policies, and other matters requiring consultation, notification and exchange. The inter-ministerial joint conference system for regulatory coordination played a positive role in resolving the intersection of financial services and the supervision of mixed industries and filling the gaps in supervision. In response to the rapid growth of Internet finance in the new normal economy, it is necessary to supplement and improve the inter-ministerial joint meeting system of financial supervision and coordination.

First, an expert advisory group based on the system is established. From the various aspects of market access supervision, and form complementary regulatory requirements and standards from different professional perspectives, which can effectively improve the existing division of supervision system, the division of labor is not clear, the standards are not uniform, the functions are crossed, and so on.

Second, the supervision and coordination of the central and local financial management departments is strengthened. The local regulatory authorities are also the regulators of the Internet financial industry. At the same time, the Internet financial industry has a wide variety and strong regional characteristics. Local financial management departments should strengthen coordination with the prevention and disposal of risks in Internet finance.

Third, under the framework of the inter-ministerial joint committee system of financial supervision and coordination, an Internet financial supervision and coordination system including financial supervision departments, information authorities, and local financial management departments was established.

4. Conclusion

This paper proposes a study on the Internet financial risk resolution and supervision management system under the new normal. Based on the classification of risk severity, using big data technology to manage risks and realize the solution of Internet financial risks under the new normal; Analyze the main body of Internet financial supervision, improve the relevant systems of Internet financial supervision laws, and realize the research in this paper. It is hoped that the research in this paper can provide a theoretical basis for the Internet financial risk resolution and supervision management system under the new normal.

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