

Research on Risk Management in Internet Finance under the Big Data Background

Ying Hu*

School of Economics and Management, East China Jiaotong University, Nanchang, China

*Corresponding author: m13355537809@163.com

Abstract. With the rapid development of Internet technology, Internet finance models have emerged rapidly, becoming an indispensable part of the modern financial system. The widespread application of big data technology provides a new perspective and tools for risk management in Internet finance. Internet finance models cover various aspects such as currency payment, currency issuance, currency raising, and investment and financial management. These models have changed the way financial services are provided, promoting the diversification and popularization of financial markets. However, with the continuous emergence of Internet financial products such as crowdfunding, P2P lending, and third-party payment services, their risks and challenges have gradually surfaced. On one hand, small and medium-sized enterprises face many difficulties in the financing process, such as information asymmetry and imperfect credit systems. On the other hand, financial institutions also face significant challenges in risk control and regulation. To address the difficulties in small and medium-sized enterprise financing, bank risk control, and sector regulation, financial institutions need to continuously increase their technological investment, promote the implementation of robotic process automation, accelerate the use of AI technology in financial business, and reduce the probability of financial business execution errors.

Keywords: Big Data Background, Internet Finance, Risk Management.

1. Introduction

With the wide application of science and technology, frontier technologies such as big data, cloud computing, blockchain, and e-commerce have been widely used in various fields, injecting new vitality into economic development and providing unprecedented technological and informational support^[1-3]. They have also profoundly affected traditional financial models. These emerging technologies have changed the way financial services are provided, driving innovation in the financial industry to make it more efficient, convenient, and personalized. However, technological development has also brought new challenges. Especially in the field of financial regulation, due to the rapid development and increasing complexity of technology, existing regulatory systems often find it difficult to fully adapt. The hazards of financial crises still exist, and it is necessary to pay more attention to financial regulation to ensure the stability and healthy development of financial markets. Therefore, it is necessary to intensify regulatory efforts at this stage, make full use of modern technological means, technologically deal with internal risks in the financial industry, and promote the sustained and healthy development of the financial industry.

2. Connotation of Internet Finance

Internet finance is rich and far-reaching, with traditional financial institutions and Internet companies using Internet technology and information communication technology to realize new financial business models of capital financing, payment, investment, and information intermediary services. Internet finance is not simply a combination of the Internet and the financial industry but a new model and new business generated to meet new demands after being widely accepted by users in terms of security, mobility, and other network technology levels. It relies on big data and cloud computing on an open Internet platform to form a functional financial industry and service system, including financial market systems, financial service systems, financial organizational systems, financial product systems, and Internet finance regulatory systems^[4-5]. With its characteristics of low

cost, high efficiency, and wide coverage, Internet finance promotes the popularization and deepening of financial services and has far-reaching impacts on the financial industry and the entire socioeconomic system.

3. Categories of Internet Finance Models

3.1. Currency Payment Financial Model

Third-party payment in currency transactions is a way of facilitating payment between economic transaction parties connected via the Internet through reputable independent institutions acting as intermediaries. This payment model has developed with the rise of e-commerce and is a product of the integration of modern socioeconomic development and network information technology. Third-party payment, as one of the basic technical means of China's Internet finance institutions, also has great significance for ensuring the healthy development of the national economy and improving the quality of financial services. Its payment methods can be divided into two types, as shown in Figure 1: online and offline. Online payments are made through online platforms for fund payment and settlement, while offline payments mainly rely on POS machines, mobile apps, or NFC technology to complete transactions. These two methods together constitute an important part of the modern payment system, greatly facilitating people's daily lives and economic activities.



Figure 1: Third-party Payment Methods

3.2. Currency Issuance Financial Model

The development of currency issuance financial models initially targets virtual currencies. Virtual currencies, as a unique form of currency, not only have basic functions of pricing and trading but also enable instant circulation of information through the Internet. Today, Internet virtual currencies such as Bitcoin, G-Coin, Tencent Q-Coin, and Amazon Coins are widely used. Meanwhile, the e-commerce sector has also spawned various electronic commerce currencies such as bank cards, electronic wallets, and electronic checks, which together constitute an important part of virtual currencies. Although these virtual currencies do not have physical forms, it is precisely because they lack physical forms that they can break away from the constraints of nature and become a digitized trading medium. This highly digitized trading medium relies entirely on the Internet, and without the Internet, circulation functions cannot be realized.

3.3. Currency Raising Financial Model

There are many similarities between online financial service models and traditional financial service models in terms of financing, and the cornerstone of both is credit, with similar operating mechanisms. The only difference lies in the broader range of financial service objects targeted by the financing and raising in the online financial service model compared to the narrower range in the traditional financial service model^[6]. This reflects the long tail theory in Internet financial services. In simple terms, Internet finance can serve demanders who cannot be reached by traditional finance. Currently, crowdfunding and P2P have become popular capital-raising financial service models. Crowdfunding raises funds from the public to support various industrial developments, equity crowdfunding, and public welfare projects, breaking the limitations of traditional finance and enabling more people to participate in the process of capital raising.

3.4. Investment and Financial Management Financial Model

The investment and financial management financial service model is a major innovation in the financial field. It fully utilizes the connectivity and convenience of the Internet to provide a new investment channel for the general consumers. This financing form effectively aggregates the scattered funds of many consumers and achieves optimal allocation of funds. Compared with traditional investment-oriented financial management models, the investment and financial management financial service model is more flexible in terms of funding amount, and even small amounts of funds can participate, greatly reducing the threshold for investment. In addition, the speed of fund deposit and withdrawal has also been greatly improved. Consumers can deposit funds for investment at any time and withdraw them when needed, without worrying about the inconvenience caused by time restrictions. This efficient and convenient investment and financial management method provide more people with opportunities for wealth appreciation.

4. Development Prospects of Internet Finance Models under the Big Data Background

4.1. Development Prospect of P2P Lending

The P2P lending model originated in the UK but has seen particularly rapid development in China. With the strong support of big data and Internet technology in just a few years, it has risen rapidly. Its uniqueness lies in its focus on serving the long tail groups that have difficulty obtaining loan services in the traditional banking system, such as small and micro enterprises, individual consumers, etc. However, due to the imperfect credit system in China, immature big data risk control technology, and the variety of P2P lending platforms, including information intermediary and compound types, the entire industry faces many risks and hidden dangers. With the rapid development of the P2P lending industry, many platforms have experienced problems such as fund chain breaks and illegal operations, and even frequent occurrences of "blowouts," which have had a huge impact on investors and the entire financial market. China's regulatory authorities have introduced a series of policies to respond, and the risk control capabilities of P2P lending platforms will be improved. The operation of the P2P lending industry will also tend to be standardized.

4.2. Development Prospect of Crowdfunding Business

As an emerging financing model, crowdfunding business has shown strong vitality in various industries in recent years. However, with its rapid development, a series of problems have gradually surfaced. Currently, crowdfunding business mainly relies on spontaneous promotion by private forces and has not yet received comprehensive policy regulation at the government level. This development model without official guidance has promoted innovation in crowdfunding business to a certain extent but has also brought many risks and challenges. The government has realized the importance of the crowdfunding business and has begun to strengthen supervision and regulation in this field. However, due to the complexity and particularity of crowdfunding business, there are currently no formal laws and regulations to clarify its legal status. Nevertheless, the role of crowdfunding business in the financing of small and medium-sized enterprises cannot be ignored. It provides a low-threshold, efficient financing channel for a large number of small and medium-sized enterprises, helping to alleviate the problems of difficult and expensive financing. Therefore, the crowdfunding industry will continue to play a role in the financing of small and medium-sized enterprises in the future and move steadily towards legalization and standardization^[7-8].

4.3. Development Prospect of Third-party Payment Business

Driven by digitization and globalization, the third-party payment industry is ushering in unprecedented development opportunities. First of all, as the market scale continues to expand, the market transaction scale of third-party payments will also expand. The two major mobile payment

giants represented by Alipay and WeChat Pay have become deeply rooted in people's hearts, but there will be more competitors emerging in the future, such as JD Pay, Suning Finance, etc., which will jointly promote the prosperity of the payment market. These mobile payment platforms will not only continuously improve their service quality to meet the growing consumer demand but also actively expand their business areas, covering more scenarios, from consumer shopping to living expenses everywhere. In addition, the profit channels of third-party payment will also become more extensive. When the consumer group becomes very large, third-party payment platforms will obtain considerable profit income.

5. Risks and Countermeasures of Internet Finance under the Big Data Background

5.1. Risks and Countermeasures of P2P Lending

From 2016 to 2018, China introduced regulatory policies concentrated on the P2P industry to deal with its high-risk characteristics. Previously, due to the lack of effective supervision, the P2P industry faced problems such as weak moral constraints and low illegal costs, leading to opportunism. Although the implementation of regulatory policies accelerated the exposure of industry problems, it also provided important protection for preventing and reducing losses to small and medium-sized investors. To address these issues, Figure 2. Firstly, increase software and hardware investment and enhance monitoring requirements for fund custody. Utilize data interaction and fund monitoring methods to ensure fund security. Secondly, to prevent risks caused by information asymmetry, the lending industry should disclose project risk information in detail to ensure investors' right to know. Thirdly, the government should play a leading role and promptly establish P2P lending business management control organizations, formulate clear industry guidelines and fee standards, establish clear norms for Internet financial enterprises, and promote the healthy and orderly development of the P2P lending industry.

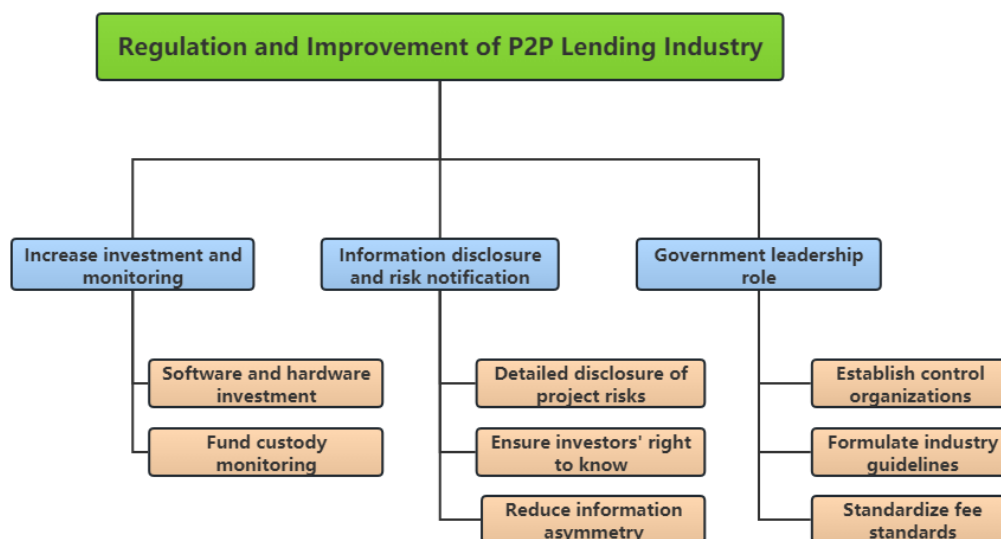


Figure 2: Regulation and Improvement of P2P Lending Industry

5.2. Risks and Countermeasures of Crowdfunding Business

The rise of electronic currency has brought revolutionary changes to the crowdfunding business. Its immediacy and convenience greatly simplify the crowdfunding process, enabling more people to participate easily. However, this low-threshold and efficient operation mode also brings significant risks, and the security of investors' funds has become a key concern. To reduce risks in the crowdfunding business, it is necessary to strengthen the audit mechanism. Strict background checks and qualification reviews should be conducted for investors, financiers, and crowdfunding enterprises

to ensure that all parties have the necessary capabilities and credibility. In addition, the investment period for investors should be appropriately extended to provide them with more time to fully understand the detailed information and potential risks of the project and prevent impulsive investments. At the same time, the financial situation of financiers should also be subject to stricter scrutiny, especially fixed income and total assets. This can accurately assess the financiers' repayment ability and the feasibility of the project. The entire cycle of crowdfunding business should also be strictly regulated to provide a cooling-off period for financiers and investors, allowing them to carefully consider before investing and make wiser decisions.

5.3. Risks and Countermeasures of Third-party Payment Business

In the digital age, the Internet has greatly facilitated third-party payment services, making the payment process faster and more convenient. However, this convenience also comes with a series of risks, with the most prominent being the risk of large capital precipitation and potential illegal activities. The risk of capital precipitation refers to the risk that third-party payment service enterprises may encounter during operation due to unknown factors leading to fund occupation or disappearance. Once this risk occurs, it will directly affect the security of customers' funds, making it impossible for them to use their funds normally, thereby causing a crisis of trust. To effectively address these two risks, it is necessary to increase supervision of network financial institutions conducting third-party payment services, especially strengthen supervision of capital flow. Through strict supervision, the safety and compliance of funds can be ensured, and the risk of capital precipitation can be reduced. In addition, it is imperative to establish a customer personal information verification link for China's third-party payment industry. Through effective interaction with the national public security identity information system, we can verify the authenticity of customers' personal information, prevent identity theft and other illegal acts, and safeguard customers' legitimate rights and interests^[9-10].

6. Conclusion

In the field of Internet finance, emerging business models such as crowdfunding, P2P lending, and third-party payment are rapidly rising, but they also face many challenges and difficulties. In order to solve the problems of difficult loans for small and medium-sized enterprises, high risk control pressure for banks, and high difficulty in supervision by regulatory authorities, financial institutions are actively seeking innovative solutions. Currently, financial institutions are continuously increasing their technological investment, optimizing financial service processes through the introduction of robotic process automation and artificial intelligence technology, improving risk control capabilities, reducing the risk of operational errors, and enhancing the risk management capabilities of financial institutions. In the process of advancing with the times, Internet finance will become more perfect through the combination of practice and theory, exploration, and summarization, promoting the sustained and healthy development of the financial industry.

References

- [1] Wang Liyan, Wang Yanbo. Exploration on the application of big data in comprehensive risk management of commercial banks in FinTech era [J]. Banker, 2018(9):4.
- [2] Song Shouwen, Dai Qian, Chai Ruoyi. Bank of internet plus. New changes in risk management of traditional commercial banks in China [J]. Financial Science, 2015(7):9.
- [3] Wang Yajun. Research on the effect of Internet finance on the development model of commercial banks [J]. Technical Economy and Management Research, 2016(11):5.
- [4] Long Xikan, Xie Ting. Internet financial supervision and risk management of commercial banks [J]. Rural Finance Research, 2017(9):6.

- [5] Peng Diyun, Li Yang. The symbiotic relationship between Internet finance and commercial banks and their interactive development countermeasures [J]. Exploration of economic problems, 2015(3):7.
- [6] Wang Yiting, Wu Chunjie. Research on risk management and control of online credit business of commercial banks under the digital background [J]. Rural Finance Research, 2021(12):7.
- [7] Lin Lifang. Internet finance business model, risk formation mechanism and coping strategies [J]. Technical Economics and Management Research, 2018, 000(008):66-70.
- [8] Song Shouwen, Zheng Tianyou, Chai Ruoqi. Bank of internet plus: a new breakthrough in the traditional commercial banking model [J]. New Finance, 2015(6):6.
- [9] Liu Hai II. Risk and Supervision of Internet Finance [J]. Economics and Management Research, 2015(10):56-63.
- [10] Zhang Yu, Guo Wanshan. Supply chain financial risk management and strategic countermeasures under the background of "internet plus" [J]. Friends of Accounting, 2018(10):5.