

Research on the Application of Financial Engineering in The Risk Management and Control of Internet Financial Innovation

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Abstract: The article introduces the application advantages of financial engineering in Internet financial risk management and control in detail. Through investigation and research, it finds out the main risks in Internet financial innovation, and proposes effective measures to optimize risk control, such as building a risk management and control system, enhancing Internet finance. Taking an Internet financial enterprise as an example to explore the practical application of financial engineering in its risk management and control, so as to improve the risk control level of Internet finance.

Keywords: Internet finance, Financial innovation, Risk management and control, Financial engineering.

1. Introduction

The rapid development of Internet finance has brought a subversive impact on people's life and work. Since the actual operation of Internet finance has the characteristics of innovation, high yield and high risk, it is necessary to effectively control the risks generated by it. Through the application of financial engineering, it solves the problems of Internet financial innovation and risks, and conducts efficient supervision of relevant platforms to continuously improve service quality.

2. The Application Value of Financial Engineering in Internet Financial Risk Management and Control

In Internet financial risk management and control, the application effect of financial engineering can be accurately improved. Generally speaking, in view of the current financial engineering, the derivative instruments in the engineering can be used to reduce financial risks, the reason is that the price fluctuations within financial derivatives are consistent with the fluctuation characteristics within the financial system, for example, the price between futures and spot. Although there will be certain changes in a certain period of time, the essence of the changes is the same, and it will also have a greater impact on the other party[1]. At the same time, for derivatives under financial instruments, their development process is also in line with market laws, and their price changes can accurately reflect market changes, that is, to successfully break the previous limitations of traditional finance and improve the use of financial engineering. The application of financial engineering can timely reduce the transaction cost of Internet financial risk management and control[2]. Compared with general financial instruments, financial derivatives have higher financial leverage. In the development of Internet finance, risk control departments can obtain richer transaction information data at a lower cost. In the process of trading products, the cost of obtaining information and data will be timely reduced, and to some extent, the number of transactions will be increased, and the

overall cost will be reduced, thereby reducing the cost of hedging risks. In addition, the use of financial engineering technology can also strengthen the internal risk control of Internet financial enterprises in a timely manner[3]. Usually, if they want to better achieve proper operation and management in the Internet financial market, most enterprises will improve their financial operation methods, and the use of financial engineering technology can smoothly realize various production and operation activities of enterprises, and then effectively control their internal economic risks[4]. When managing the internal risks of Internet financial enterprises, appropriate financial engineering technology can play an effective guiding role. With the enhancement of the irreplaceability of this technology, enterprise management needs to combine financial engineering technology with its overall strategic goals, effectively manage a variety of risks within the enterprise.

3. Risks of Internet Financial Innovation

3.1. Regulatory Risk

During the development and innovation of Internet finance, in order to cope with the rapidly changing market environment, the state usually issues relevant restrictive policies, which are likely to bring different forms of policy risks[5]. At present, China's Internet finance is developing rapidly, but the overall development time is short, and the corresponding laws and regulations have not been perfected. At present, due to the imperfect supervision system, some Internet financial enterprises lack normative certificate information, and it is difficult to scientifically prevent illegal acts such as money laundering, and the probability of information theft is high. The Internet financial service system and after-sales service content also need to be improved[6].

3.2. Technical Risk

The innovation and development of Internet finance mostly stems from the advancement of network information technology. If such information technology has risks, it will

penetrate into the Internet finance industry to varying degrees. For example, when network information technology security is not well ensured, criminals may attack the network security loophole, causing serious economic losses to Internet finance-related enterprises. At the same time, based on the open nature of Internet finance, there are different degrees of information abuse or misappropriation. If the relevant information or real identities of the two parties to the transaction cannot be accurately verified, it may cause different degrees of economic losses[7]. When using the Internet financial system, if the operation of the practitioners is not standardized, it will also bring certain risks to the financial system, thereby reducing the security of customer funds, bringing economic losses and other potential risks to customers.

3.3. Transaction Risk

With the innovation and development of Internet finance, there will be certain system risks under the influence of the trading system, such as system failures and time delays. When this type of failure occurs, it will not only easily lead to transaction failure, but also bring opportunities for criminals to invade. The transaction risks in Internet finance mostly stem from the addition of third-party platforms. Due to the different timeliness and degrees of information obtained by both parties to the transaction, if the transaction amount and the corresponding time cannot be effectively matched, both parties will have bad debts, which will easily bring liquidity risks to the enterprise and cause them to suffer different degrees of economic losses.

4. Effective Measures to Optimize the Risk of Internet Financial Innovation by Applying Financial Engineering

4.1. Build A Risk Management and Control System

In order to carry out scientific and effective management and control of risks in the process of innovative development of Internet finance, it is recommended to use financial engineering to build and optimize the risk management and control system. Financial engineering involves the intersection of multiple disciplines, and at the same time, the methods and methods of applying information technology in Internet finance are flexible, and the advantages of the two can be combined to select coordinating means to deal with different problems[8]. The role of credit evaluation in the current financial market is large and indispensable. When building a risk management and control system, it is necessary to complete the post-credit management in a timely manner, innovate credit evaluation methods, and build a credit system. Through scientific and reasonable evaluation of corporate credit and value, financial institutions evaluate the rationality of their own loan issuance, so as to accurately control the amount of loan issuance and reduce risks. Current financial engineering technology can reduce unsystematic risks. For example, internal risk control personnel and technical personnel of financial enterprises can carry out information communication and coordination between the two parties before the formal transaction, so as to reduce the risks of both parties during the transaction process and maintain the economic interests of both parties.

4.2. Improve the Supervision and Management System

In the process of managing and controlling Internet financial risks, the management of the enterprise should complete the supervision and management system in a timely manner according to the actual situation of its operation. Internet financial enterprises can set up risk monitoring agencies in a timely manner[9], and use financial engineering tools to accurately handle and identify various financial risks, so as to prevent such risks from causing economic losses to investors and enterprises. At the same time, enterprises can build an early warning system in combination with financial engineering technology, and through detailed analysis of internal risks, corresponding management and control measures can be given in a targeted manner to reduce risks. For practitioners of Internet finance enterprises, they need to continuously strengthen risk awareness and risk awareness when performing daily business, clarify the division of labor in various departments, and improve the level of enterprise risk management and control on the premise of ensuring that each department performs its duties. Internet financial industry regulators also need to pay attention to the continuous improvement of the regulatory system, and reduce the overall risk of the Internet financial market through comprehensive supervision. For example, according to the application effect of financial engineering technology, the entry threshold is set up, the qualification of enterprise entry is improved, and the risk is reduced through the optimization of the internal operation of the enterprise. At the same time, since mobile payment has become a popular financial payment method in China, relevant departments need to improve laws and regulations in a timely manner, and gradually improve the fairness and effectiveness of the mobile payment system and the electronic evidence it generates[10].

4.3. Enhance the Decision-making Ability of Internet Financial Enterprises

The effective application of financial engineering technology is conducive to strengthening the decision-making ability of Internet financial enterprises. Financial engineering technology and its tools are the key products of modern finance, and they have a special status in the financial system. Usually, the application of related technologies in the Internet financial system can effectively promote the modernization of the financial market. In specific applications, enterprise management personnel need to understand and master the market operating conditions, laws and regulations related to financial engineering technology in a timely manner[11]. During the period of using financial engineering technology, Internet financial enterprises should improve the assistance of this technology to their management of financial risks, which will help improve the enterprise's judgment on financial risks, promote more scientific decision-making in the financial field within the enterprise, and improve the level of decision-making. In addition, when using technical tools related to financial engineering, relevant personnel need to adjust various models in a timely manner according to the actual application feedback, pay attention to the change rules of the model caused by changes in internal parameters, and prevent the changes in models or parameters from increasing the difficulty of financial risk management.

4.4. Derivatives for Scientific Applications

Compared with basic financial instruments, financial derivatives have stronger timeliness and flexibility characteristics, and the rational and flexible application of financial derivatives can transfer market risks and structural risks of basic financial products in a timely manner. The Internet finance industry applies technologies such as big data and intelligent portraits to match the risk level of financial products with the risk acceptance ability of investors[12]. Usually, the specific performance is that before applying financial derivatives, the internal technical personnel of Internet financial enterprises evaluate the risk of such derivatives. Potential risks, comprehensively analyze the tolerance of different investors through the Internet platform, reduce some risks with the help of financial engineering technology transformation, reduce the impact on investors' trading behavior, promote the safe operation of the platform, and protect the economic interests of all parties.

4.5. Improve the Level of Credit Evaluation

When Internet financial enterprises carry out financial risk management and control, they will carry out different forms of credit evaluation work, that is, the results and conclusions of credit evaluation will have a great impact on the transaction between the two parties. If the credit system is poor, it will affect Internet financial enterprises. sustainable development, but also easily lead to various forms of breach of contract. In the process of using financial engineering, the internal technical personnel of the enterprise should also evaluate the use of different financial engineering technologies in a timely manner, improve the internal credit evaluation level of the enterprise, and comprehensively improve the overall quality of financial engineering risk management and control. Relevant personnel use appropriate financial engineering technology to innovate financial products, improve the applicability of products, and at the same time improve the overall quality of financial products. The application in the evaluation process can effectively meet the development requirements of risk management and control in the Internet financial market.

5. Practical Application of Financial Engineering in Internet Financial Risk Management and Control

In order to better understand and grasp the actual application effect of financial engineering in Internet

financial risk management and control, this article takes an Internet financial enterprise as an example to describe the process of using financial engineering to control risks.

5.1. Improve the Level of Credit Evaluation

To manage and control Internet financial risks, financial engineering technology should be optimized in a timely manner. Financial engineering technology is widely used, and it can play an important role in multiple transactions of Internet finance. In practice, it mostly participates in the management and control of Internet financial risks in terms of speculation and arbitrage. In view of the speculative risk in Internet financial risk, due to its strong uncertainty, it is difficult to quantify the risk factor. Timely optimization of financial engineering technology and tools can enhance the activity of the financial market and allow investors and speculators at the same time. Obtain higher income and transfer certain risks. For arbitrage in the financial market, based on the difference in the pricing of various commodities, arbitrage will occur when there is a price difference for the same commodity, which may be amplified in the Internet financial industry. Continuous optimization of financial engineering technology is conducive to precise control. The internal risks of Internet finance will comprehensively improve the scientific development of Internet finance.

5.2. Build A Credit Risk Model

When exploring the internal credit risk of Internet financial enterprises, technicians can use the development status of Internet finance and financial engineering technology to build a suitable credit risk model. Before carrying out traditional credit services, lending companies should inspect the operating conditions, operating scale, asset strength and collateral guarantees of the loan companies, understand and grasp their development prospects by evaluating them, and set corresponding credit ratings for them. When managing and controlling risks in the financial market, during the establishment of a credit risk model mainly based on Internet finance, relevant personnel need to clarify four information and data indicators within the enterprise, namely Internet operation status, asset status after financing, potential of transaction members and loans. The corresponding qualifications of the applicant. For example, from the perspective of the potential of the counterparty, this paper takes the three types of enterprises A, B, and C as examples to carefully explore their business potential. The specific content is shown in Table 1.

Table 1. Corresponding qualifications of counterparties

project	credit rating	Industry characteristics	Profitability	solveney
A	higher	monopoly	higher	strong
B	medium	monopoly	generally	generally
C	poor	monopoly	lower	poor

After understanding the transaction potential of different companies, relevant personnel can This type of data is integrated into the credit risk assessment system, and the risk control effect of Internet finance can be improved with the help of this systematic classification analysis.

5.3. Scientific Management and Control of Financial Engineering Technical Risks

Relevant personnel need to do a good job in the management and control of financial engineering technology risks, and clarify the risk indicators of the technology itself,

such as the degree of market price volatility or the complexity of investment portfolios. In response to market price fluctuations, it is necessary to observe the business volume in the relevant market in a timely manner, and adjust the risk exposure by controlling the business volume; for investment portfolios, in order to reduce the unsystematic risk of investment, it is necessary to increase the number of investment portfolios to reduce the risk of different financial instruments. The impact of the risk of the engineering tool itself will improve the overall risk management and control effect of Internet financial enterprises.

5.4. Reasonably Guard Against the Internal Risks of Financial Engineering

Generally speaking, the types of financial risks include market risk and credit risk. In the financial market, due to the strong changes in the market, it will cause internal price fluctuations in many aspects. The reason for the fluctuations is that the force of financial instruments is weak. Some financial instruments require a certain risk assessment before use. To reduce the uncertainty of the financial market, rational control of various tools in financial engineering can also reduce the risks within the financial market in due course. In terms of financial credit, because some risks in the market are difficult to identify, such risks may be caused by default or a chain reaction caused by default, and the cause of default is closely related to the credit status of relevant members. Therefore, relevant personnel should carry out necessary market assessments. When conducting risk assessments, it is necessary to comprehensively consider the development status of the market and its actual value. Through the assessment of its internal risks, they can timely understand the various factors that affect the development of the financial market, and timely prevent and control possible occurrences. to ensure the scientific nature of market risk management and control. In addition, an assessment of credit risk should be carried out. Credit evaluation mostly occurs in the transaction process. For credit evaluation methods, it is necessary to pay more attention to evaluation venues and guarantee methods, learn about possible transaction credit risks in detail, and set corresponding credit risk levels. Generally, people with higher credit ratings have less transaction risk.

6. Summary

To sum up, the rapid development of Internet finance has brought vitality to the financial market. When trying to improve the internal risks of Internet finance, relevant

personnel need to borrow financial engineering methods and tools to effectively grasp the development characteristics of Internet finance platforms. Promote innovation while ensuring the healthy and orderly development of the market.

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