

# Risks and countermeasures in the development of internet finance

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**Abstract.** With the development of The Times, Internet finance has emerged, but in the process of operation, there have been many loopholes in technology and management. Internet finance presents certain characteristics and advantages, which bring about influence to society. However, the development of Internet finance has the risk control ability to be improved, information disclosure and security problems. Then, this article excavated the deep reason of the problems in the development of Internet finance in China, and proposed to strengthen the security measures of Internet finance. Establishing the security strategy of Internet financial platform, establishing the security and data security protection strategy of Internet financial transactions, strengthening the construction of system emergency strategy, and improving digital signature technology.

**Key words.** Internet Finance, Risk, Security, Security.

Internet finance is in the level of Internet technology and the social economy and culture after reaching a certain degree, adapt to the needs of the market and consumers and thus appear a kind of new, modern financial model. However, Internet finance has also exposed many loopholes in technology and management. Therefore, objective to strengthen the prevention of Internet financial risk.

## 1. Interpretation, characteristics and types of Internet finance

### 1.1. *Interpretation of Internet finance*

Generally, believes that the Internet financial refers to combine financial business and the Internet effectively, with the increasingly development of modern information technology to complete financing, intermediary and payment and other business, the business content also includes using network computers or mobile phones and other electronic terminal equipment to carry out all kinds of payment and settlement, financial credit and the suggests for financial services to the public. The current

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relatively brisk business varieties, such as balance and treasure and all kinds of baby "army", the network credit institutions, lending to P2P network platform, etc., these businesses have greatly enriched the financial market of our country.

### *1.2. The characteristics of Internet finance*

Internet electronic business has the characteristics of electronic. In Internet finance, almost all businesses, including various services and certificates, often take electronic data as the carrier, and truly realize the goal of paperless and network digitization. The boundary of all kinds of finance business has the characteristic of fuzziness. This has greatly reduced the cost of information sharing and transformation in financial services, thus making traditional finance, such as Banks, insurance and securities, no longer clear. Financial market prices are more transparent, making it easier for customers to choose the cheapest price. The market is more open. China's current emphasis on Internet finance and support. On the one hand, Internet finance has realized that the convenience of communication is no longer limited to geographical boundaries. On the other hand, financial business has become more and more international.

### *1.3. The type of Internet finance*

Generally speaking, the expression is as follows:

#### (1) Payment and settlement business

Such businesses often refer to third-party payments. That is, the bank and the payment class of commercial enterprises set up the payment platform, through payment of the company and the network to complete online payment, for the transaction of the two parties to carry out the funds.<sup>2</sup>Online lending and crowdfunding business

The online financing business in Internet finance mainly refers to online borrowing and crowdfunding, which generally refers to a way of borrowing money through the Internet. The borrowing by means of network credit company to build network platform and financial investors help, through the network media, in turn, to reach an agreement with the borrower, this way of borrowing has the characteristics of high speed quick, borrowing without face-to-face communication between both sides.

#### (2) There are the following modes:

First, information intermediary and creditor's split mode. The former is mainly to build a platform for investors and borrowers to use. The borrower borrows the information and the lender determines whether the loan is calculated or not. In the latter, the operator of the platform sometimes lends the money to the borrower, then transfers the creditor's rights separately to the lender and gets the spread.

Second, guarantee mode. Internet finance companies, through the establishment of Internet financing platforms to expand their influence, sometimes attract investors by virtue of group credibility, so that they attract more investors. The great wealth financing platform is one of the typical cases where individuals or organizations have launched projects through platforms to win heavy support.

Third, the loan crowdfunding, among which, the creative person and the investment artificial loan relation, when the project or the agreed item is completed, the investor asks the creative person to return the loan and interest. Product crowdfunding, which can be funded through project completion or in the form of a project or service, often referred to as a reward or a souvenir. Public welfare crowdfunding is a free donation program.

Fourth, investment banking, which often refers to the use of the Internet for product sales by fund companies, securities firms and third-party finance departments.

## **2. The advantages and influence of Internet finance**

### ***2.1. Advantages of Internet finance***

Generally speaking, it can achieve rapid development, largely because it has the following advantages: the transaction cost is lower. Traditional financial institutions often need to have an entity's business place. Traditional finance generally only targets big customers and ignores customers with small needs. Internet finance has realized the diversification of financial consumption. It is helpful to realize efficient operation with big data. Internet finance can effectively reduce risks and pay more attention to customers. Traditional financial institutions have a monopoly of resources and not enough attention to customers, while Internet finance has more to do with different customer groups.

(1) Internet finance has opened up new paths

Internet finance has moved more from its former payment activities into traditional businesses such as money transfer and microcredit. Internet finance is a new path. The Internet finance has driven the development of various service demands and promoted the improvement of traditional financial model.

(2) Internet finance optimizes the allocation of financial resources

The operation of Internet finance greatly reduces user time and saves more money for users. Unlike traditional finance, which focuses on big customers, Internet finance has also begun to focus on smaller clients, which has brought vitality to Internet finance

(3) The development of Internet finance has promoted the progress of China's financial reform

Under the current financial system of China's monopoly, the low marketization degree and the low efficiency of the financial services, resulting in the increase of the cost of social funds. This big financial situation calls for the emergence of an efficient model of the Internet. The emergence of Internet finance has produced catfish effect, which objectively brings a sense of urgency to financial development. In a way, it has promoted the progress of financial reform, objectively beneficial to China's financial services and international integration, and promoted the internationalization of RMB

## *2.2. The impact of Internet finance on society*

Internet finance provides convenient and efficient services for smes and individuals, reducing the financial cost. The development of Internet finance is more convenient, which also complicates the financing form and further enhances the difficulty of supervision. The virtual nature of Internet financial transactions and the universality of objects make it difficult to ascertain the source and destination of funds. Illegal crime is increasing, leading to some illegal money-laundering crimes. In addition, it is worth mentioning that some people have used the Internet to commit transnational crimes. Internet-connected financial consumption raises the demand for knowledge. Our country's credit system is still not perfect, we need to increase the education to consumers' safety protection awareness, to increase the education of network security awareness

## **3. Information disclosure and security issues**

Internet finance is different from ordinary finance, and its function is mainly through network. Personal information such as id number, mobile phone number and other user id information and account information and fund information need to be uploaded to the network. Therefore, the customer information of the Internet financial transaction process can lead to information leakage due to the risk of stability of the Internet system itself. At the same time, due to the defect of the technology of the trading platform and the lack of management, information has been illegally stolen and tampered with. Once information leaks out, it can cause a public trust crisis, leaving the industry untrustworthy. Therefore, in the management of information disclosure risk, Chinese regulators should pay attention to it.

However, in the real transaction process, the transaction of Internet financial enterprises is based on the backstage support of the big data platform. The trading system selects and matches the information of the big data platform to select the quality customers, so that the financial innovation products are closer to the customers. However, large databases need to be updated continuously, and the security of system data is guaranteed. Once the database is stolen, it will seriously endanger the security of customers' property. For example, the alipay account information disclosure event in March 2013. In September 2013, the "bi ma wen" Trojan virus wreaked havoc on financial markets, and the kidnapping of a bank account, which resulted in the systematic infection of nearly 600,000 Internet users, caused serious consequences. Therefore, the government and relevant regulators should strengthen the construction of information security and network space security, and avoid information security in advance

#### **4. The reasons for the weak risk control of Internet finance**

In our country, no matter from the financial strength and human resources, and risk prevention system are maturing, the mature brings direct effect is stable harvest, safeguard the interests of the existing structure, no innovation progress. Financial innovation and Internet formats, this innovative forms of motivation comes from the demand of the market, with the rapid development of Internet technology combined with the advantage of financial innovation, this characteristic determines the Internet financial of the strong expansion of power. The objective law of the development of things tells us that the emergence of new things can have the bottleneck of development, such as resources and manpower. The rapid expansion of Internet finance enterprises has intensified the demand scale for talents, but the use of talents has not yet formed a full-fledged talent training mechanism. In this case, the market is automatically adjusted

Internet finance is the use of the Internet technology developed on the basis of constantly updated, the development of Internet technology update to financial enterprises breakthrough on the Internet, to provide customers with high quality and fast financial services, but on the other hand, Internet financial enterprises to enjoy the service at the same time also to bear because of the Internet technology upgrading brings a series of technical security risk. In particular, some P2P lending platforms resulted in customer information disclosure, website platforms were attacked, accounts were modified, and customer funds were stolen. Internet financial enterprise, therefore, not only to strengthen the employees' basic professional quality and the cultivation of professional ethics, also has a high qualification of technical team to prevent from the attack on the network. Strengthen the fundamental number of Internet finance innovation

At the same time, Internet financial platforms generally do not set up the IT department, and seldom value the construction of security information system. Through the Internet, financial institutions have continuously improved their products and services, carried out business through the network, realized the cost reduction and ensured the rapid expansion of the business. However, rapid development is accompanied by some difficult problems, such as the crisis of technical confidence. In October 2013, Inner Mongolia yinshi loan platform was paralyzed, causing customer panic at one time. On the eve of Spring Festival in 2014, due to the failure of log-in failure on P2P, such as the system failure of the Internet and good lending network, the security of the Internet platform was once suspected. Once the credibility of the Internet finance industry is missing, it is hard to make up for it. Compared with the customers, the original platform is no longer attractive, and the corporate reputation is lost.

#### **5. The suggestion and countermeasure of improving Internet financial risk prevention in China**

In July ,2015 The ministries and commissions of the state council jointly issued the articles"Guidelines on promoting the healthy development of Internet fi-

finance”,”Guidelines on promoting the healthy development of Internet finance” has established the basic institutional framework of Internet finance industry, pointed out the regulatory scope and regulatory requirements of various departments, and pointed out the direction of supporting the development of Internet finance. The guideline establishes the division of responsibility for the supervision of each business mode, Clear the business boundary of each business state; In terms of the institutional requirements, the industry has been required to strengthen self-discipline and to expand the supervision of other related businesses. Therefore, the idea of Internet financial regulation in China must be centered around the guidance, and it is necessary to carry out supervisory work in multiple departments and in various angles.

### ***5.1. The security strategy of Internet finance platform***

By deploying the relevant network security system to ensure the normal operation of the system and the security of customer data, specific deployment:

#### (1) Set up a security firewall

Set up a security firewall to filter harmful intrusions by setting up a firewall to access your customers. By setting up a security check on the entry path, some beneficial services are allowed to pass through the firewall, preventing some adverse services from passing. The security firewall ACTS as an active defense against harmful intrusion, so as not to be invaded by the server. To supervise each access port, prohibit the software access system, ensure the validity of data flow, and effectively protect the normal operation of the system

#### (2) Building a network of anti-drug anti-virus protection

Prevent viruses and trojans from encroachment. Construction of network virus, for viruses, trojans, worms, botnets for detecting spyware and other malware and killing, and the monitoring program running, with automatic backup important files. The anti-virus system can effectively prevent the entry of viruses and Trojan horses and build a secure trading platform.

#### (3) Equipment safety inspection system, cooperate with network security company

Internet financial enterprises should choose to cooperate with powerful network maintenance system, set up a crisis emergency response mechanism for the company, timely discovery system loopholes to create opportunities for the criminal technology invasion, to form effective security mechanism of active defense. The maximum utilization of the company’s internal defense system and the organic combination of external technology.

### ***5.2. Internet financial data protection and transaction risk prevention***

The transaction security of Internet finance business is first reflected in the security of information login. To ensure the security of network login and payment links, it is necessary to conduct security check before the system login, and load security controls to set up the security control system before login. These techniques

in the development of the traditional financial up early has been the emergence of related products for the Internet financial consumer financial companies need to do is how to strengthen the consciousness of risk prevention education consumers. In the case of Internet financial enterprises, the new technology should be strengthened to strengthen the protection of the system and protect the system from attack and operation.

The Internet data security protection should be done in the following points:

(1) Database security policy

Once the database has a problem, the consequences are unthinkable. Each connected financial enterprise should select the optimal database security protection software, eliminate the leakage of core data resources and invasion by foreign enemies, and avoid the misuse or misappropriation of data. Therefore, it is necessary to timely component the Internet database and establish corresponding database firewall to prevent malicious attacks from outside. Special techniques need to be used to set access permissions, enhance access control, and protect database security.

(2) Encrypt the transport information

Internet financial data transmission is equivalent to our highway transportation, not only to ensure the smooth road to guarantee the safety of the goods, it depends on the good safeguard measures, the transfer of information to implement encryption. Because the HTTPS protocol USES SSL encryption technology, can use HTTPS security data transmission protocol, the principle of HTTPS is encrypted before sending, receiving and then decrypted, equivalent to half way through the information on safe transportation, and special custody, absolutely guarantee the security of information transmission.

(3) Data redundancy backup

Redundant data needs to be backed up, otherwise it will affect security. The loss of Internet data will bring the risk of information leakage to Internet financial enterprises, resulting in the loss of customers. Therefore, redundant backup of Internet financial data is a work that must be strengthened. Therefore, at the beginning of the big data to establish the Internet finance, is about to consider on the design of the storage of data redundancy backup, two alternate storage equipment, storage failure to prevent data loss, data security and integrity.

### ***5.3. System emergency preparedness strategy and digital signature technology***

To deal with the dangers of unpredictable emergencies, Internet finance companies should build emergency backup systems. In order to ensure the failure of the system, it can recover the operation in time and reduce the loss caused by the system failure. This system requires the development of two systems of the same city backup system and the remote disaster preparedness system. The same city backup system to ensure the safe operation of the production system machine room, can also do business communication. The disaster prevention system mainly deals with the damage caused by force majeure, so as to ensure that both systems are damaged, quickly take over the system and restore the system operation. Once the emergency backup system is established, it is necessary to carry out simulation exercises to

ensure the normal operation of the system.

Digital signature ensures the integrity and anti-repudiation of business data in the business system. Digital signature technology is based on asymmetric cryptography, which is not easy to decrypt. The digital signature is encrypted by some kind of calculation, and the same method is used to decrypt it and prevent it from being intercepted en route, resulting in loss of data. Ensure that the complex technology of the series realize the security and stability of the transmission and ensure the authenticity of the signature.

## 6. Conclusion

Internet finance presents many characteristics and has different types. It has many advantages and has a great influence on society. Information leakage and security problems in the development of Internet finance need to be concerned. In this regard, we should take a multi-angle and comprehensive prevention. Only in this way, Internet finance can gain better development in China.

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