Research on Internet Financial Risk under the Background of Big Data

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Abstract. With China's Internet Financial explosive growth, the risk of internet finance is also increasing. Therefore, the research on the internet financial risk requires more comprehensive, more detailed and more operational. Due to unlimited Internet financial information hidden in massive data, this paper discusses how to reasonably exploit the potential risks and assess the risk level depending on big data technology, in order to help financial companies to perform real-time risk management and to ensure the normal operation of the Internet financial activities.

Introduction

Internet banking, taking the Internet as a resource and database big data and cloud computing technology provides customers with innovative financial services and financial services model relying on search engines. With the rapid development of Internet technology, Internet banking has been rapid development. Only the number of online payment services reached 36 billion 371 million in 2015 and the transaction amount reached 2018 trillion and 200 billion yuan. Year on year growth is 27.29% and 46.67%, respectively. Electronic payment transactions and transaction amount between 2013 and 2015 are shown in Fig.1. You can see that the Internet banking and traditional financial ratio have the fast development. However, the Internet financial is an innovation and financial integration of the Internet and the traditional one. There are the Internet itself security issues. On the other hand, the financial industry also has the risk of specific problems. Two high risk industry "superposition" will undoubtedly make the financial development of the Internet greater danger and limitations. Therefore, the problem of risk assessment of Internet Banking under the background of big data is a great theoretical value and practical significance of the research topic. It can enrich and deepen the research on risk of Internet banking, in order to improve and perfect the financial system of the Internet to provide theoretical guidance. Meanwhile, it is an important way to differentiate and analyze the practice of development for the increasing internet financial risks.

Figure 1. Trading Times and Trading Amount between 2013 and 2015.
Domestic Research Status and Trends

Xie and Chuanwei [1] for the first time creatively put forward the concept of Internet financial model, that the third financial model of Internet banking has a significant impact on human financial model. This view of defining the concept has a profound influence in the field of Internet banking. Xin and Weishen think the finance based on the big data can only be called Internet banking from the point of view of the development of information technology and this view has been accepted by most researchers. Weiwei [2] put forward the existing problems in the development of Internet banking from the contrast with traditional finance. Huanyan discussed the Internet financial risk and risk prevention from the aspects of technical risk, operational risk, legal risk and other aspects. Yang and Danhui put forward the principles of Internet financial risk warning system design from the characteristics of the Internet financial data. Fengping discussed the risk characteristics of online banking from the business level and technical level through the use of bank risk management theory and put forward the corresponding risk prevention measures. Xinfeng [3] explored the establishment of a credit system from the Internet financial credit system perspective and thought the key was to strengthen Internet privacy protection and carry out the finance credit score based on Internet financial credit business. Yun in the 2012 Conference on network operators clearly pointed out that the future of the Internet financial strategy would focus on the platform, financial and big data. The platform aggregates big data big data derivatives finance and finance feeds the platform in turn. Zhaohua analyzed the Internet financial development environment in the era of big data and proposed the development of Internet banking strategy through strengths, weaknesses, threats and opportunities. Kuisheng [4] put forward the importance of risk prevention from the perspective of legal supervision and suggested supervision department to draw the bottom line to control the risk as soon as possible. Lei [5] et al. used logit model to analyze the credit risk factors of P2P net loan platform. Conggang et al. [6] used BP neural network to evaluate the credit risk index of P2P net loan platform.

The above data show that the research on the Internet Financial academia is still in the initial stage and in less of systematic research. Current research mainly discusses the concept, comparisons of Internet banking features on Internet banking and traditional banking, Internet financial potential risks, the Internet financial credit system and big data in the Internet financial activities etc. All these provide a good theoretical guidance for promoting the development of Internet banking and how to carry out the Internet financial risk prevention. But the overall research situations are still some problems: the macro guiding policies and suggestions are more and suggestions for practical problems are less. Research measures are more in a certain mode of Internet financial development while the overall developments are less. Qualitative analysis on Internet financial risk research is more, but the quantitative analysis on how to prevent is less.

Grey clustering developed on Grey System in China which is put forward by Professor Julong, is based on the whitening function of grey correlation matrix or grey number. The method can be defined by some observation index or observed objects gathered into categories. At present, the application of grey clustering method to evaluate widely in water quality analysis, atmospheric pollution, especially widely used in geological hazard assessment field. Zhijian (1997) evaluated the water environment quality by grey clustering method in Leshan area of the Minjiang River and Dadu River. Beifang and Xiaoyu (2002) discussed the application of grey clustering decision in water quality evaluation. Grey clustering is not a new method itself, but it is a new research on Internet financial risk assessment.

With China's explosive growth of Internet banking, Internet financial risk is also growing. The research of the financial risks of the Internet needs to be more comprehensive, more detailed and more operational, which requires more scholars engaged in this study. Unlimited Internet financial information is hidden in massive data and potential risks can be mined reasonably and assessed. It is helpful for financial companies to perform real-time risk management through big data technology and to ensure the normal operation of the Internet financial activities. In this paper, the Internet financial risk assessment model based on grey theory is put forward under the background of big data.
Internet Financial Risk Assessment Framework Based on Grey Theory in the Context of Big Data

This paper mined the influence factors of Internet financial risk from the Internet financial data based on big data. On the basis of qualitative analysis, the evaluation index system of Internet financial risk is further constructed for a comprehensive analysis of the impact of various factors. Then the grey correlation algorithm is used to mine key indicators of deep impact and the Internet financial risk evaluation model is constructed by using the grey clustering algorithm based on triangle whitenization weight function. All these provide a better theoretical basis for the enrichment and development of the Internet financial risk assessment. Specific model is shown in Figure 2.

Figure 2. Internet Financial Risk Assessment Model.

Based on big data technology, we can research the massive historical data and real-time data on the Internet Financial, qualitative analysis from the Internet's own risk and traditional risk and new mode of Internet financial risks, to determine the influence factors of Internet financial risks, such as business risk, legal and institutional risk, network security risk, credit risk, technology risk and the development model of risk.

Based on big data Influence factors Internet financial risks can be analyzed and these factors as an index can be further refined into some two indicators, such that business risk can be further characterized from illegal business risk, operational risk, liquidity risk and market risk perspectives. Correlation between the two level index system can be analyzed through the expert investigation method and grey clustering so that Internet financial risk index of three layer structure are reconstructed.

According to three layer risk index system revision, expert investigation is done and then the weight of each level index is obtained. Grey algorithm of triangular whitenization weight function based on the evaluation model of Internet financial risk is used for classification of risk. Then this model is made up to conduct empirical research on the financial risks of the Internet.

Research Meaning

It is helpful to deepen the theoretical study of the financial risks of the Internet and to provide theoretical guidance for the establishment and improvement of the Internet financial system. In recent years, with the rapid development of Internet banking, Internet banking risks are also increasingly prominent. But at home and abroad on the Internet financial research, more studies are
carried out from the aspects of the mode of development, such as the third party payment, P2P credit platform and public financing, which takes it as a whole to carry out risk assessment research is not many. To carry out the risk assessment of Internet Banking under the background of big data can make up for the deficiencies of the current theoretical research and provide theoretical guidance for the comprehensive promotion of Internet financial risk management.

It is contributive to reduce the loss of capital, property and reputation in the Internet financial business due to the failure of decision making or objective changes or other reasons. Internet banking practitioners generally cross industry operations and most of them transfer from the traditional financial sector into the financial sector in the lack of understanding and control of financial risk. In the face of unexpected risks, many Internet companies loans almost defenseless. It is often seen that gold loan, excellent and easy network, Aetna outstanding loans and other P2P network platform are lost or run away on the choice of problem. This study attempts to investigate carefully the potential risks of Internet banking from a macro point of view so that the Internet financial enterprises will have a comprehensive understanding of risk. It is helpful for enterprises to prepare good measures to reduce the risk of sudden brings asset and credit loss.

It is good to deepen the understanding of the importance of Internet financial risks, and actively promote the healthy development of Internet banking. The development of Internet banking in China is in the explosive growth period and there exist the credit default risk and maturity mismatch risk, legal risk, information asymmetry risk, business risk and technology risk and other aspects of risk. Scientific and reasonable risk management has been imminent. Judgment and evaluation of various potential risks of the Internet financial from the mass data, and grasping clearly the current risk status are conducive to further improve and perfect the financial system of the Internet and conducive to promoting the healthy and orderly development of the Internet banking industry.

Conclusions

Based on the research of the status of the domestic Internet financial risk, this paper puts forward to establish the internet financial risk evaluation index system, which is under the background of big data using gray level analysis method. Then, the extraction framework of key factors is formed which lays the foundation for further quantitative analysis. At the same time, this paper expounds the theoretical significance and research value of the framework.

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References