

<http://ansinet.com/itj>

ITJ

ISSN 1812-5638

INFORMATION TECHNOLOGY JOURNAL

ANSI*net*

Asian Network for Scientific Information
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

Risk Types and Risk Amplification of Online Finance

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Abstract: Online finance not only has the same risks as the traditional financial sector, but also brings new types of risks and the amplification effect of the financial risks. In the circumstances of online finance, risk correlation between countries is increasing due to worldwide mutual penetration of financial businesses and customers. Facing the risk test of the Internet finance, risk control and management must be strengthened in order to achieve its sustainable developments.

Key words: Online finance, risks, risk amplification, virtual financial services

INTRODUCTION

Since the 1990s, one of the major technological changes in international financial sector is the growing popularity of online finance. Online finance is financial intermediary activities carried out on the Internet and it is a kind of financial industry reconstruction and innovation based on the Internet, computers and modern communication technologies (VanHoose, 2003; Chang, 2002). For financial institutions, online finance provides them with advanced business processing and reduced costs of financial services and helps them to attract more customers and trading opportunities through service conveniences. From the financial consumers' perspective, Internet banking technologies allow them easier access to financial services, cheaper bill-paying and time saving in managing their finances. Owing to the advantages for both financial institutions and consumers, more and more financial transactions are being conducted in an electronic-only format (Anguelov *et al.*, 2004; Kim *et al.*, 2005). Despite the financial service efficiency improvement effects brought about by the network finance, it also creates new types of risks and adds new contents to financial risk management. To achieve the sustainable development of online finance, great importance should be attached to the risk control.

RISK TYPES OF ONLINE FINANCE

The characteristics of network finance determine that risk-causing factors and the impact of risks are not exactly the same with traditional financial sector. Aside from various risks that exist in traditional finance, online finance, due to its particularity, may also face business risks originated from virtual financial services and technical risks based on information technology.

Basic risks of online finance: Traditional financial risks, such as credit risk, currency risk and interest rate risk, still exist in the operation of network finance, but the shape and extent of these risks are different. For example, in the virtual world of networks, because both parties of transaction do not meet directly, there exist greater difficulties in identity confirmation and investigation over breach liability. If online banks have not established perfect programs to review the creditworthiness of customers, when remote clients apply for loans through networks, these banks' credit risks are bound to increase. Similarly, the no-boundary and all-weather operation of the Internet finance, makes bankers more likely to engage in cross-border transactions and international financial businesses. So, exchange rate changes might bring greater loss in online banks' balance sheet items and such banks would certainly face greater currency risks.

Technical risks of online finance: Technical risks refer to the possibility of loss of network financial institutions due to the use of computers and networks in the process of their operations.

External technical support risk: Due to the high professionalism of network technology, financial institutions tend to rely on external service supports to address internal technical problems and to lower operating costs. This approach adapts to the requirements of the development of network finance, but also makes financial institutions exposed to possible risks. External technology supporters may not have sufficient capacity to meet the requirements of financial institutions and may terminate the technical services because of their own financial difficulties, which may pose a threat to financial institutions' delivery of high-quality virtual services.

Technology selection risk: To support the launching of online business, financial institutions must select a technology solution and thus there is the risk that the selected solution may have defects. When all kinds of network finance solutions come on stage in succession, financial institutions need to decide which IT company to cooperate and which solution to choose. Once some financial institutions make the wrong choices, they will fall into competitive disadvantages of old-fashioned technology in the operating of network financial businesses, resulting in a huge loss of technological opportunities, even a huge loss of business opportunities. In developing countries, this kind of risk is obviously more significant because these countries don't have the leading strength of the development of information industry.

System safety risk: Network finance is a financial service form based on global electronic information system, so hardware and software failures or accidents will lead to relevant risks. Software and hardware fault will not only interrupt the normal delivery of financial services, threaten the safety of funds and cause direct financial losses to financial institutions, but also affect the image and the level of customer trust of these institutions. In general, system safety risk is mainly caused by the extensive use of computer network technology in financial industry and such technology itself lacks enough completeness (Yang, 2012).

Risk of computer virus damage: Computer viruses are man-made programs which can copy themselves to other programs and then make the computer system paralyzed or breakdown. They have the characteristics of infectiousness, concealment, stimulating and replicability. Nowadays, more and more kinds of computer virus are emerging and they are becoming more and more destructive. The intrusion of viruses tends to cause network crashes, data losses and other serious consequences. If we cannot effectively prevent these viruses, then they are likely to destroy all the data and pose deadly threats to network finance.

Online hackers' attack risk: Online financial transaction data are stored in computers and on-line information transfer may very likely become the attack target of many network hackers. For this reason, many customers at present dare not to transmit their credit card account and other key information via the internet, which have seriously restricted the development of online financial services (Danwa *et al.*, 2009). Especially in developing countries, because computers, routers, operating systems,

databases and other hardware and software systems are often imported from abroad, thus financial institutions in these countries may not fully grasp the properties of the above-mentioned devices and systems and will face more difficulties in the prevention of hacker attacks.

Risk of technical operations: This risk is caused by financial practitioners' lack of knowledge on computer networks. As technology advances, financial institution staff's knowledge and management skills may not adapt to the introduction of new technologies and operational errors may frequently occur. Financial practitioners who lack of computer knowledge are easy to make low-level errors, which brings a lot of trouble to the normal operation and maintenance of computer systems.

Business risks associated with virtual financial services: For online finance, business risks associated with virtual financial services mainly include practical applicability risk, reputation risk, legal risk and so on.

Practical applicability risk: Practical applicability refers to the characteristic of whether online financial services can meet different needs of customers and online financial institutions' practical applicability risk is mainly refers to the risk triggered by the requirements of providing varied services because of customers' different conditions and demands. Business philosophy and cultural backgrounds of individual financial institutions are often different. Sound operation-type financial institutions emphasize the security of the transaction and customer funds and online financial services provided by these institutions often contain complex procedures and long certification processes; Quick-type online financial institutions have faster transaction speed and the authentication and decryption time is short, but the security level of transaction is usually relatively lower; A few online financial institutions stress the particularities of their business on the Internet and turn them into stand-alone systems divorced from tangible institutions. So, when doing online transactions, customers will make careful comparisons of the characteristics of various types of online financial institutions and choose online services that can fully meet their needs. Thus, practical applicability has its unique role in online finance. If it is not taken seriously, there will be a risk of customer losing.

Link service risk: Link service risk is mainly refers to the possibility of loss resulted from online banks' inability to get links to plenty of other e-commerce sites. If an online bank cannot link ample e-Malls and thus cannot provide payment services for customers in online spending,

customers will inevitably transfer registration to other banks. Therefore, an online bank, on the one hand, needs to pay attention to marketing and improve its brand visibility; on the other hand, an online bank needs to attach importance to establishing web links with other famous business websites and let them prompt customers to link to the bank's web site and use its online payment instruments.

Reputation risk: To financial institutions that provide online financial services, a reliable network is critical. If financial institutions can't continue to provide safe, accurate and timely online financial services, their credibility would be damaged. For example, if some clients cannot log on to the system of certain financial institution, then they may stop using the products and services of that institution and other customers may also leave after the bad news have been made public. And once a problem arises in an institution, customers will think this problem may also occur in other financial institutions that employ the same or identical systems, which can result in customer losses to many institutions. Major security incidents, whether it is caused by external or internal attacks, will reduce the public's confidence in certain financial institution and even make the public to throw doubt upon the security and viability of the network financial system as a whole.

Risk of distraction: Risk of distraction is mainly refers to the possibility of online financial institutions' decreased gains caused by their inability to attract enough hits and form a certain number of fixed browse groups. Due to networks' universality and fairness, individual consumer enjoys full freedom of choice in front of numerous financial websites (Zhang, 2006). At the same time, online finance loses opportunities for face-to-face interaction with customers because of its characteristic of virtuality, thus resulting in the decline of the affinity between customers and financial institutions.

Legal risk: Legal risk comes from the possibility of violation of laws and regulations, or from the uncertainty of the legal rights and obligations of the related transaction parties. Because network finance belongs to new things and most countries have not yet developed perfect corresponding legal regulations, there is sometimes no law for financial institutions to follow when they do online businesses. Financial institutions' inadvertent deviations from relevant law may incur legal and regulatory penalties; Legal risk is more severe to financial institutions which do business in other countries via the Internet, for these institutions may not know much

about host country's laws. For example, an online bank may release electronic money and this kind of money may also circulate in other countries. If the bank fails to comply with the relevant countries' regulations, unexpected legal disputes will inevitably arise.

RISK AMPLIFICATION EFFECT UNDER THE ENVIRONMENT OF NETWORK FINANCE

The risks in online finance and in traditional finance are of no difference in nature. However, based on the use of network technologies, online finance brings the amplification effect of financial risks.

Network finance has the feature of fast remote processing. This feature makes financial services more convenient, but it also makes the payment and settlement risk spread more quickly and widely on the world. Under this scenario, the accumulation and the outbreak of risks may occur at the same time, which makes risk prevention more difficult. In the paper-based settlement mode, there is a certain amount of time for correction when accidental errors or mistakes appear. But in network finance, room for manoeuvre is considerably reduced and remediation costs are much higher when risk happens.

The entire transaction process of online finance is completed on the Internet, thus the time and regional restrictions of the service are broken, the transaction object becomes unclear and the transaction process becomes opaque. Therefore, the Central Bank cannot accurately understand the actual situation of the assets and liabilities of financial institutions, which may give rise to the information asymmetry and risk concentration.

Under the environment of network finance, all financial transactions appear to be the transfer of electronic information of money. In other words, things that are circulated in network system are no longer visible money and capital, but just electronic signals representing money and funds. The amount of money represented by these electronic signals is often considerably more than the actual amount of money that exists, thus causing risks being magnified.

At the same time, the abruptness and destructiveness of financial crises will increase under the conditions of online financing. While providing conveniences to investors, network trading systems which are continuously operated 24 h a day, will unavoidably trigger worldwide financial markets risk with greater and deeper impacts. In recent years, global risk events of derivative financial products occur frequently and the transaction of these financial products is mainly conducted through the network. In the Internet age, funds can reach any corner of the Earth simply by knocking a few keystrokes, hence

sudden and severe market fluctuations are palpable. To achieve maximum benefits, some super financial groups may use network financial transaction platforms for a wide range of international investment and speculation actions, but these groups can partly avoid financial authorities' regulation and supervision. So, the outbreak of financial crisis may become more unpredictable and once the crisis forms, it will spread rapidly to the relevant countries.

Finally, in online finance, possibility of cross contagion of financial risks increases. In the past, risks can be isolated in a relatively limited area by way of divided operation, setting market barriers or franchise, but now the effectiveness of physical isolation is greatly reduced. In network finance, risk correlation between countries is growing due to the mutual infiltration of financial businesses and customers among various countries.

CONCLUSION

Because risks in network finance are more diversified and there is an effect of risk amplification, it could be argued that online finance would face greater risk than traditional finance. On the one hand, risks in network finance are more difficult to avoid. The scalability and complexity of network systems make the boundary of the network uncertain and the malicious and uncontrolled users will undoubtedly pose a serious threat to network finance's security. On the other hand, every kind of risks brings more challenges to online finance than to traditional finance. For example, mistakes in technology choice just cause a reduction in business process speed and a rise in dealing cost for traditional financial institutions, but for online financial institutions, failure to maintain technology leadership could result in a complete loss of market. Again, for traditional financial institutions, reputation risk may mean part of the loss of customers. For online financial institutions, however, the variety and randomness of the selection on the Internet may make them face even greater challenges.

Given the risks of network finance, the risk control and management procedures must be strengthened. Otherwise, the existence and the further development of the network finance will come under serious threats.

ACKNOWLEDGMENT

This study is financially supported by Zhejiang Province Social Science Foundation of 2011 under Grant No. 11JCYJ13YB.

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