

Investigation of the legal framework and innovation path of FinTech supervision

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Abstract: The rapid development of FinTech is reshaping the pattern and operation mode of the traditional financial industry, but at the same time it also brings many challenges, especially in supervision. This paper aims to explore the legal framework and innovation path of FinTech supervision. First of all, this paper analyzes the current situation and characteristics of FinTech supervision system in various countries, and points out the challenges and shortcomings faced by the current supervision system. Secondly, the paper puts forward the key elements of establishing a legal framework that adapts to the development of FinTech, such as data protection, network security, consumer rights protection, etc., and discusses how to balance the relationship between financial innovation and risk management and control in the legal framework, and puts forward specific regulatory policy suggestions. Finally, the article discusses the innovation path of FinTech supervision, including establishing innovative supervision sandbox mechanism, promoting the application of supervision technology, and strengthening international supervision cooperation. Through the exploration and analysis of the legal framework and innovation path of FinTech supervision, this paper aims to provide reference for financial supervision departments and decision makers, promote the healthy development of FinTech industry, and ensure the stability of financial markets and the rights and interests of consumers.

1. Introduction

In today's digital age, the rapid development of FinTech is reshaping the pattern and operation mode of the financial industry. By using advanced technologies, such as artificial intelligence, blockchain, big data, etc., FinTech is promoting innovation and progress in the fields of payment, lending and investment, and providing consumers and enterprises with more convenient and efficient financial services [1]. However, at the same time, the rapid development of FinTech has also brought many challenges, including the impact on traditional financial institutions and regulatory systems, data security and privacy protection. Therefore, how to establish a sound FinTech regulatory framework and balance the relationship between financial innovation and risk management and control has become an important topic in the current financial regulatory field.

The purpose of this paper is to explore the legal framework and innovation path of FinTech supervision. By analyzing the development trend of FinTech, the characteristics and limitations of the current supervision system, and discussing the legal framework of FinTech supervision, it aims to provide reference and suggestions for financial supervision departments and decision makers. Through the research of this paper, we expect to provide some reference for the design and practice of the legal framework of FinTech supervision, promote the healthy development of FinTech industry and ensure the stability and security of financial market.

2. Development and influence of FinTech

The rapid development of FinTech is profoundly affecting the operation mode and ecosystem of the traditional financial industry. With the continuous innovation and application of information technology, FinTech is providing new models and tools for financial services, thus promoting the development of the financial industry in a more intelligent, efficient and convenient direction.

First of all, the development of FinTech has accelerated the digital transformation of financial

services [2]. Traditional financial services mainly rely on physical channels and paper procedures, which are cumbersome and inefficient. The appearance of FinTech enables financial services to be carried out through digital channels such as the Internet and mobile devices, which greatly improves the convenience and efficiency of financial services and reduces the cost of financial services.

Secondly, the development of FinTech promotes financial innovation and product diversification. By using advanced technical means, such as artificial intelligence, blockchain, big data, etc., FinTech enterprises are constantly introducing new financial products and services, covering payment, lending, investment, insurance and other fields [3]. The emergence of these new products and services provides consumers with more choices and promotes competition and innovation in the financial market.

In addition, the development of FinTech has also brought some challenges and influences. The first is the impact on traditional financial institutions and regulatory system [4]. Traditional banks and other financial institutions are facing the competitive pressure from new FinTech enterprises such as Internet banks and payment institutions, and the traditional supervision system is also facing the challenge of how to effectively supervise new financial formats. In addition, the development of FinTech has also brought problems such as data security and privacy protection, and it is necessary to strengthen relevant supervision and regulation.

The development of FinTech has had a profound impact on the financial industry, bringing convenience and innovation, as well as challenges and risks. Therefore, the development of FinTech needs the joint efforts of the government, regulators, enterprises and consumers to achieve steady and sustainable development.

3. Current FinTech supervision system

With the rapid development of FinTech, countries have established corresponding regulatory systems to deal with the challenges and risks brought by FinTech. However, there are some differences in legislation, institutional setup and regulatory principles among countries (Table 1).

Table 1 Comparison of FinTech supervision systems in different countries

country	Major regulatory agencies	Supervision principle	laws and regulations
United States of America	Federal Reserve System, US Treasury Department, SEC, CFTC	Hierarchical supervision, free market competition and consumer protection	Gramm-Leach-Bliley Act, Dodd-Frank Act
Britain	FCA	Market behavior supervision, behavior supervision	Payment service law, etc
China	People's Bank of China, CBIRC, CSRC, etc.	Central bank takes the lead, multi-sectoral cooperation and standardized development.	Interim Measures for the Administration of Information Intermediaries in peer-to-peer lending, Measures for the Administration of Payment Services, etc.

As one of the leading countries in the world of FinTech, the regulatory system in the United States mainly consists of two parts: federal level and state level. At the federal level, US financial regulatory agencies include the Federal Reserve System, Department of the Treasury, SEC (Securities and Exchange Commission), CFTC (Commodity Futures Trading Commission), and others. These institutions are responsible for regulating financial institutions and markets in different fields such as banks, securities, and futures. At the state level, financial regulatory agencies have been established in each state to oversee its financial operations and institutions. In addition, the United States also regulates FinTech by enacting laws and regulations such as the Gramm Reach Bliley Act and Dodd Frank Act.

FinTech supervision system in Britain is under the responsibility of FCA (Financial Conduct

Authority). As an independent financial regulator, FCA is responsible for supervising the financial market and financial service providers in the UK. FCA adopts the supervision mode of combining market behavior supervision with behavior supervision, emphasizing market self-discipline and consumer protection. In addition, the UK also regulates FinTech through "Payment Services Regulations" and other laws and regulations.

The FinTech supervision system in China is under the responsibility of PBOC(People's Bank of China), CBIRC (China Banking and Insurance Regulatory Commission) and CSRC (China Securities Regulatory Commission). China's financial supervision system emphasizes the central bank's leading and multi-sector cooperation mode, and strengthens the supervision and regulation of FinTech innovation. In recent years, China has also promulgated the Interim Measures for the Management of Business Activities of Information Intermediaries in peer-to-peer lending, the Measures for the Management of Payment Business and other laws and regulations to strengthen the supervision of FinTech.

Although there are some differences in FinTech regulatory systems in different countries, they all face common challenges such as imperfect regulatory legal framework, unclear responsibilities of regulatory agencies, and lagging regulatory technical means. Therefore, the establishment of a sound FinTech regulatory system has become an important issue for financial regulatory authorities and policy makers in various countries.

4. Discussion on legal framework of FinTech supervision

4.1. Design principles of legal framework for FinTech supervision

The legal framework design of FinTech supervision should follow a series of principles to ensure the effectiveness, adaptability and fairness of supervision. Here are some important principles:

Technology neutrality. The legal framework should be formulated on the basis of not favoring or discriminating against specific technologies or business models. Regulatory policies should be based on the essence of risks and impacts, rather than specific technical characteristics.

Flexibility. The regulatory framework should be flexible and adaptable to respond to the development and changes of FinTech industry in a timely manner. Regulatory policies and regulations should be adjustable and renewable to adapt to emerging technologies and rapid changes in business models.

Inclusiveness. The regulatory framework should encourage innovation and competition and promote the healthy development of FinTech industry [5]. Laws and regulations should provide fair market access opportunities for new entrants, while protecting consumers' interests and market stability.

Risk orientation. Regulatory policies should be risk-oriented and emphasize effective supervision and control of potential risks in FinTech. Regulators should take forward-looking and preventive regulatory measures to identify and respond to systemic risks in a timely manner.

Data protection and privacy protection. The regulatory framework should emphasize the protection of personal data and privacy, ensure that FinTech enterprises collect, use and process user data legally and fairly, and strengthen the supervision and punishment of data leakage and abuse [6].

International cooperation. Due to the cross-border nature of FinTech, the design of regulatory framework should pay attention to international cooperation and standard setting. Regulators in various countries should strengthen information sharing and experience exchange, and establish cross-border cooperation mechanisms to jointly cope with the challenges and risks brought about by cross-border FinTech innovation [7].

4.2. Key elements of establishing a legal framework adapted to the development of FinTech

In the face of the rapid development and innovation of FinTech, it is very important to establish a legal framework that is adaptable and can effectively supervise FinTech industry. The development of FinTech is inseparable from the collection, storage and processing of a large number of personal

and corporate data. Therefore, it is very important to establish a sound legal framework for data protection and privacy protection. The law should stipulate the purpose and scope of data collection and use, and require FinTech enterprises to strengthen data security measures to ensure the safety and privacy of user data. The development of FinTech also brings the challenge of network security [8]. Establish a sound legal framework for network security, clarify the responsibilities and obligations of FinTech enterprises for network security, stipulate network security standards and measures, strengthen supervision and crackdown on network attacks and data leakage, and ensure the stability and security of the financial system.

FinTech provides consumers with more convenient and efficient financial services, but it also brings some problems of consumer rights protection. The regulatory authorities should establish a sound legal framework for the protection of consumers' rights and interests. They should stipulate that FinTech enterprises provide true, accurate, and clear product information to protect consumers' right to know and choose. Additionally, they should strengthen supervision and crack down on improper sales and fraud to safeguard consumers' legitimate rights and interests. FinTech enterprises should abide by the requirements of financial supervision laws and regulations and strengthen compliance management and self-discipline construction. Regulatory authorities should establish a sound legal framework for compliance supervision, clarify the compliance responsibilities and obligations of FinTech enterprises, standardize the design, promotion, and operation of FinTech products and services, strengthen the supervision and punishment of violations, and maintain the order and stability of the financial market.

5. Innovative path of FinTech supervision

With the rapid development of FinTech, the traditional supervision mode and means can not fully meet the development needs of FinTech industry, so it is necessary to explore innovative supervision paths. This paper puts forward the following innovation paths:

Supervise the application of technology. Regulatory authorities can actively promote the application of regulatory technology and strengthen supervision and monitoring of financial markets and financial institutions by using big data, artificial intelligence, blockchain and other technical means. Regulatory technology can help the regulatory authorities to find and deal with risks in time, and improve the efficiency and accuracy of supervision.

Establish an innovative supervision sandbox mechanism. The regulatory authorities can establish a sandbox mechanism for innovation supervision, provide a controlled experimental environment for FinTech enterprises, allow them to conduct innovation experiments in a certain range, and monitor and evaluate their risks [9]. Regulatory sandbox can help regulators better understand the characteristics and potential risks of new technologies and business models, and provide reference for formulating more accurate regulatory policies.

Strengthen international regulatory cooperation. FinTech has cross-border characteristics, so it is necessary to strengthen international regulatory cooperation and formulate unified international regulatory standards and rules. Regulatory authorities can strengthen information sharing and experience exchange, and establish a cross-border regulatory cooperation mechanism to jointly cope with the challenges and risks brought by cross-border FinTech innovation.

Establish an innovative supervision mechanism. Regulatory authorities can establish innovative regulatory mechanisms and set up special regulatory agencies or departments to be responsible for the supervision of FinTech industry [10]. These institutions can formulate targeted regulatory policies and rules, strengthen the supervision and guidance of FinTech enterprises, and promote the organic combination of financial innovation and risk management and control.

6. Conclusion

There are some differences in the current FinTech regulatory system, and there are differences in legislation, regulatory institutions and regulatory principles among countries. Although each country's regulatory system has its own characteristics, they all face common challenges such as

imperfect regulatory legal framework, unclear responsibilities of regulatory agencies, and lagging regulatory technical means. Establishing a legal framework that adapts to the development of FinTech needs to consider many key elements, including data protection, network security and consumer rights protection. In the design of legal framework, it is necessary to balance the relationship between financial innovation and risk management and control, and put forward specific regulatory policy suggestions, such as establishing innovative regulatory sandbox mechanism, promoting the application of regulatory technology, and strengthening information disclosure and transparency. The innovation path of FinTech supervision is the key to solve the current FinTech supervision problems. Through the exploration and practice of innovative approaches such as innovating regulatory sandbox mechanism, promoting the application of regulatory technology, strengthening international regulatory cooperation, and establishing innovative regulatory mechanism, we can better adapt to the development of FinTech industry, promote the healthy development of FinTech industry, and ensure the stability of financial markets and the rights and interests of consumers. The exploration of the legal framework and innovation path of FinTech supervision is of great significance for promoting the healthy development of FinTech industry and the stability of financial market. In the future, the regulatory authorities should constantly improve the regulatory policy and legal framework, strengthen international cooperation, promote the application of regulatory technology, jointly meet the challenges brought by the development of FinTech, and realize the sustainable development of FinTech industry and financial market.

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