

A Review of Research on FinTech Regulatory Theory and Regulatory System

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Abstract

To systematically understand the current state and development trends of financial technology (fintech) regulation and to achieve scientific and effective regulation, a literature review method was employed to analyze research literature and findings on fintech regulatory theories and systems from both domestic and international perspectives. The study found that both Chinese and international scholars show a diverse and interdisciplinary approach to fintech regulatory theory, covering fields such as law, finance, economics, and information science. International scholars began their research on fintech regulatory theories earlier, forming a comprehensive research system ranging from macro to micro, and from concepts to practices. Chinese scholars, on the other hand, have focused on the particularities and complexities of the Chinese financial market, conducting in-depth research on fintech regulatory theories that suit China's national conditions. In terms of fintech regulatory systems, both Chinese and international scholars primarily focus on fintech regulatory rules, models, mechanisms, and systems, including the legal norms of fintech regulatory systems to ensure comprehensive and effective regulation. The results of this research may provide certain references for the study and development of fintech innovation regulation.

Keywords

Fintech; Fintech Regulation; Regulatory Theory; Literature Review.

1. Theoretical Studies on the Regulation of Financial Technology

Chinese and extra-territorial scholars have conducted extensive and in-depth research around fintech regulation, forming a series of important regulatory theories. Extraterritorial scholars, especially researchers from the United States and Europe, have made an early start in the study of FinTech regulatory theory, forming an all-round research system from macroscopic to microcosmic and from conceptual to operational. Chinese scholars, on the other hand, based on the specificity and complexity of China's financial market, have conducted in-depth research on theories of fintech regulation adapted to China's national conditions. Chinese scholars have proposed the principle of "inclusive and prudent" regulation and the theory of algorithmic fairness regulation in the application of big data and artificial intelligence, which have enriched the theoretical system of global fintech regulation and provided important theoretical support for the development of fintech in China.

1.1. Theoretical Research on the Regulation of Financial Technology in China

1.1.1. Game Analysis of Fintech Innovation and Financial Regulation

Regarding the game analysis research on fintech innovation and financial regulation, Chinese scholars mainly take the regulators and fintech enterprises as the objects, establish a dynamic game research model, and analyze the steady state conditions between them based on this.

Zhang Rugen (2020) et al. systematically elaborated the dynamic connection between financial innovation and financial regulation from the game perspective. The empirical analysis shows that financial regulation should be flexibly adjusted according to the actual situation, and it is not appropriate to adopt strong regulatory measures. Regulators need to be flexible and moderate when adjusting rules to keep pace with the times and provide rule guidelines for the innovative development of financial technology enterprises. Xu Wenbin (2019) et al. used evolutionary economics and dynamics methods to explore the co-evolutionary path of financial innovation and financial regulation. The study points out that regulators' accurate grasp of market dynamics and predictable regulatory strategies are key to maintaining market stability. Chenghu Zhang (2023) et al. used evolutionary game theory to construct a three-way evolutionary game model of Internet financial enterprises, financial regulators and consumers, and explored the key variables affecting the formation of the long-term mechanism of Internet financial regulation. The study shows that corporate compliance, consumer participation in regulation and active regulation by regulators are optimal evolutionary stabilization strategies. Based on the assumption of "limited rationality", Bai Changyi (2024) et al. constructed an evolutionary game model for the regulation of fintech platforms, explored the key factors that put the regulation of fintech platforms in a difficult situation, and put forward a precise regulatory strategy and its evolutionary path to solve the risks of fintech platforms.

1.1.2. Basic principles for the Regulation of Financial Technology Innovation

Regarding the basic principles of fintech innovation regulation, Zhang Yongliang (2020) argues that the principles of financial regulation are historical in nature, and in the era of fintech, regulators should adjust the regulatory principles according to the nature of fintech and adhere to the principles of adaptability, inclusiveness, experimentation and coordinated regulation in order to effectively deal with the uncertainty and volatility in the field of fintech. Li Ying (2022) pointed out that in the current rapid development of FinTech, the regulatory principles should be transformed to adaptability, inclusiveness, experimentation and coordination as a way to enhance the inclusive effect of financial development. Yuan Kang (2021) et al. point out from the perspective of risk prevention that the rapid development of fintech has brought great impact to the traditional financial regulatory system, and it is necessary to establish reasonable regulatory principles in a targeted manner, including but not limited to the regulatory principles of inclusive regulation, principle-based regulation, and risk bottom line. Qin Yong (2021) et al. believe that China should integrate principle-based regulation into rule-based regulation and jointly construct a regulatory normative system. In addition, Xu Xiang (2023) points out that regulatory principles should be adapted to the changes in the digital financial market. In the regulatory legislation for the arbitrage gap, the principle of good faith, the principle of sharing, and the principle of legal reservation need to be set up to fill the arbitrage gap in financial data asymmetry.

1.1.3. Reform Concepts for Fintech Innovation Regulation

With the continuous innovation and development of financial technology, the concept of financial regulation is also evolving. Before the financial crisis in 2008, Chinese scholars mainly explored financial regulation from the financial vulnerability and microprudential perspectives. Zhiyuan Nian (2017), Ba Shusong (2020) and others pointed out that traditional financial regulation arose to a large extent due to the need to regulate financial fragility, i.e., the financial system has a natural inherent instability. The financial crisis exposed the drawback that microprudential regulation cannot effectively prevent financial risks, i.e., not maintaining the stability of each financial institution can ensure the overall stability of the financial system. After the financial crisis in 2008, a large number of academic studies have taken financial stability as the regulatory objective and studied financial regulation from a macro-prudential perspective. Chen Daofu (2024) pointed out in the context of the "two big picture" that micro-prudential

regulation would inevitably lead to the "synthetic fallacy", which needs to be supplemented by macro-prudential regulation. Many Qi (2024) further pointed out that macro-prudential regulation usually focused on higher-value tasks than micro-prudential regulation. Other theories of regulatory practice derived from different regulatory concepts include institutional regulation, functional regulation, behavioral regulation, bimodal regulation, and penetrative regulation, among others. Xu Donggen (2023) et al. in their study of digital governance change innovation in financial regulation pointed out that functional regulation, which is divided according to the nature of financial business, and behavioral regulation, which is a compliance review of financial institutions' daily business, are the theoretical origins of the current study of penetrative regulation. Gong Qiang (2022) et al. argued that technology-driven fintech innovation puts higher requirements on regulation. There is an urgent need for fintech regulation to shift to all-round and three-dimensional regulation, i.e., regulators need to take stability, fairness, inclusiveness and consumer protection as the regulatory concepts to promote the sustained, healthy and steady development of the fintech industry.

Regarding the concept of institutional restructuring for the regulation of fintech innovation, Fan Lianying (2019) and others point out in their study of financial regulation in the United States that the regulatory system should be designed to maximize the avoidance of economic losses and protect industry participants. Scholars suggest that regulators can adopt a "sub-regulation" model to encourage fintech companies to proactively provide regulators with data and information related to their business. Jin Hubin (2023) and others, based on their in-depth study of the generation mechanism and transmission path of fintech risks, point out that the regulatory game between the central and local governments is a systemic flaw that leads to fintech risks and government regulatory failure. They advocate a "horizontal and vertical" reform of the regulatory system to help build a coordinated regulatory system for fintech risks. Wang Lan (2023) starts from the new governance theory model and points out that the governance movement of promoting regulatory decentralization and devolution to improve the power allocation of financial mixed industry regulation is the optimization direction of regulating fintech. Zhang Xiaoyan (2023) et al. believe that dynamic regulation is one of the effective new regulatory strategies, and that "dynamic regulation" should be taken as the focus to innovate the regulatory concepts and coordinate the regulation of all parties based on the top-level design, so as to construct a regulatory system for fintech innovation. Cheng Xuejun (2024) suggests that the regulation of fintech innovation can learn from Qian Xuesen's concept of system engineering, and rise from one-dimensional government regulation to multi-dimensional system governance, so as to deepen the reform of the financial regulatory system and reconfigure the regulatory system of fintech innovation.

1.2. Theoretical Studies on Extra-territorial Fintech Regulation

1.2.1. Game Analysis of Fintech Innovation and Financial Regulation

Using game theory for analysis is also one of the key directions for foreign scholars to study financial regulation issues. Jun (2016) et al. study the impact of fintech firms' entry on competition in the retail payment market by means of a vertically constrained bilateral market game model, pointing out that the relevant institutions regulating the entry of the retail payment market should adopt moderate regulatory strategies. You (2021) et al. based on the stakeholder theory, analyzed the interactive role mechanism among regulatory authorities, lending platforms and borrowers using a three-party evolutionary game model. The findings show that strict regulation of P2P online lending platforms is necessary to ensure their continuous operation. Xu (2023) et al. demonstrate the regulatory authorities and financial institutions by constructing four evolutionary game models, namely static designation and static punishment game model, dynamic designation and static punishment game model, static designation and dynamic punishment game model, and dynamic designation and dynamic

punishment game model. behavioral strategies and game outcomes. Gunarso (2022) , on the other hand, investigates the possible rational payoffs of cooperation and non-cooperation between financial regulators and fintech firms based on the game-theoretic prisoner's dilemma payoff framework. The experiment shows that mutual cooperation between financial regulators and fintech firms can maximize benefits. Song (2018) et al. study the relationship between regulation and innovation from a game-theoretic perspective. It argues that when the regulatory intensity of innovation is greater than a given threshold, both innovation and regulation can achieve a win-win situation. If regulation and innovation maintain dynamic equilibrium, compliance innovation and effective regulation will develop simultaneously.

1.2.2. Fintech Innovation Regulatory Concept Change

In terms of balancing the objectives of fintech innovation and regulation, Taylor (2020) et al. argue that countries differ in this area. Some countries view fintech as a means to achieve multiple policy objectives, prioritizing the achievement of traditional prudential and behavioral objectives; others are more focused on promoting competition and efficiency in financial services, supporting innovation, and emphasizing the enhancement of financial inclusion. In terms of regulatory practices, Abubakar (2019) et al. note that financial inclusion became the focus of international forums after the 2008 global financial crisis. They argue that financial inclusion is key to achieving the Sustainable Development Goals (SDGs), especially playing an important role in overcoming poverty and promoting economic growth. Rendón (2022) et al. in assessing the impact of monetary policy using the SNP technique, find that prudential regulation, which aims to promote the solvency and liquidity of financial institutions, is playing an increasingly important role in protecting the interests of investors and maintaining the stability of the financial system. Kapsis (2020) et al. critically review EU legislation and proposals for fintech regulation from the perspective of the regulatory body, emphasizing that regulation should be more guided, i.e., applying the principle-based regulatory concept. They suggest that the legislature promulgate a series of guidelines and policies on FinTech regulation, while industry associations develop industry self-regulation regulations to address the lack of professionalism of the existing financial regulatory body.

1.2.3. Adjustment and Response of Financial Regulation to Fintech Innovation

Allen (2024) argues that regulation should be guided by the statutory mandate of the financial regulator, yet financial regulators are rarely given a statutory mandate to promote innovation. Their assessment of some of the existing fintech regulatory strategies by using the "accommodate, tame, or respond" framework suggests that the choice of stance of the regulator should ultimately be determined by its statutory mandate. Brummer (2018) et al. point out that outdated financial regulations and conservative regulatory philosophies make it difficult to adapt traditional regulation, which is dominated by financial regulators, to the current situation, by examining the innovation triad paradox. traditional regulation dominated by financial regulators difficult to adapt to the current situation. The innovation triad paradox implies that in providing clear rules, maintaining market integrity and encouraging financial innovation, regulators have long been able to achieve only two of these three goals. Cornelli (2020) et al. in their study of tools to stimulate financial innovation point out that regulatory uncertainty discourages investors from investing and makes it difficult for fintech startups to access capital. The emergence of regulatory sandboxes can help to reduce information asymmetry and reduce regulatory costs or uncertainty, thus facilitating access to capital.

In terms of institutional restructuring, Elodie (2012) et al. pointed out as early as 2012 that the traditional regulatory model that relies solely on regulators to carry out regulation is no longer sufficient to effectively regulate FinTech, and that stakeholders such as government and non-government entities should be allowed to participate in the supervision and management of the society to realize group governance. Farinas (2023) et al. argued that the efficiencies and

innovations are likely to bring new risks such as automation bias and conflict with human ethics. They argue that appropriate levels of technological neutrality and regulatory proportionality should be ensured in the design of future regulatory frameworks or regimes in order to mitigate the wide range of potential risks inherent in the use of FinTech. Azzutti (2023) takes the example of the application of FinTech in the EU and argues that the way in which FinTech is utilized to enhance regulatory decision-making may impact on the fundamental rights of the EU, in particular the right to good administration. It argues that regulatory frameworks should be designed with transparency, auditability and accountability requirements in mind first to ensure that future AI-driven banking regulation is in line with good administration principles. Bolton (2023) et al. show through their research that there is a huge potential for regulators to improve regulatory compliance, reduce the cost of compliance, and increase the speed and accuracy with which they can deal with known hazards and identify new risks. It argues that regulatory bodies such as governments must focus on the potential of regulatory technology to support public value creation in pursuit of more effective targeting and regulatory monitoring and enforcement.

2. Study on the Regulatory Regime for Financial Technology

2.1. Research on China's Financial Technology Regulatory System

The financial technology regulatory system is an important part of the financial regulatory system. Research for this area includes not only an in-depth exploration of the rules, models, mechanisms and systems of fintech regulation, but also covers research on the jurisprudential norms of the fintech regulatory system, so as to ensure the comprehensiveness and effectiveness of regulation.

2.1.1. Fintech Regulatory Rules

The research on the regulatory rules of fintech mainly focuses on the following four aspects: first, preventive regulation and building a full-cycle risk prevention system. Han Xingguo (2021), Wang Shuai (2022) and others have put forward institutional measures for fintech risk prevention. That is, to establish a "fintech license issuance system" beforehand to strengthen the access regulation of fintech market; to build a "fintech enterprise information disclosure system" during the process to implement "penetrating" regulation; to improve the risk prevention system after the fact; and to improve the risk prevention system after the fact. "Afterwards, improve the risk fund and liability insurance system to protect the rights and interests of relevant parties and reduce the losses caused by fintech risks. Secondly, the regulatory authority should be divided to strengthen the regulatory system led by market mechanism and supplemented by industry self-regulation and information disclosure. Yang Dong (2017), Cui Zhiwei (2019) and others have proposed that, according to the principle of "substance over form", to deal with the risk challenges posed by fintech, it is necessary to focus on breaking down the segregation of financial businesses, emphasizing the division of regulatory authority according to the attributes of the business function, and strengthening the regulatory system that is led by the market mechanism and supplemented by industry self-regulation and information disclosure. Thirdly, through "empowerment", it is necessary to strengthen the regulatory system. Third, through the dual path of "empowerment" and "regulation", the regulatory standards of fintech should be clarified. Yuan Kang (2020) starts from the concept of social regulation, pointing out that the opacity of algorithms of AI, big data and other underlying technologies may easily lead to the risk of fraud in the application of fintech, and that there is an urgent need to establish algorithmic filing system, questioning and reporting system, and regulatory standards through the dual paths of "empowerment" and "standardization". Through the dual path of "empowerment" and "standardization", it is urgent to establish an algorithmic filing system, questioning and reporting system, and improve the

legal liability mechanism to achieve effective social supervision of the algorithmic black box. Fourth, incorporate technological factors to build a dual-law regulatory framework. Wei Jie (2024) et al. believe that fintech regulation should incorporate technological factors and take financial law as the basic law to govern the risks of fintech, and establish a more complete and clear rules for the driving regulatory approach. In addition, Yue Caixin (2024) points out that the fundamental reason for the fragmentation of fintech regulation lies in the lack of a unified financial regulatory legislation, and that a dual-law parallel regulatory framework of the "Financial Stability Law" and the "Financial Regulation Law" should be constructed. In addition, Yue Caixin (2024) points out that the fundamental reason for the fragmentation of fintech regulation is the lack of unified financial regulation legislation, and that a parallel regulatory framework of the Financial Stability Law and the Financial Supervision Law should be constructed to ensure that all financial activities are included in regulation.

2.1.2. Fintech Regulatory Models

The research on the regulatory model of financial technology is mainly reflected in the following four aspects: first, the construction of a "governance" regulatory model that is both rigid and flexible and coordinated in multiple ways. Zhu Junda (2024) believes that the continuous innovation of the financial industry and the rigidity of the regulatory behavior is the main source of financial regulatory dilemmas, and it is necessary to achieve good law and good governance by clarifying the framework and bottom line of the "governance" regulation; optimize the multifaceted regulatory pattern through the synergistic co-regulation of the government and the society; and empower financial institutions to innovate the regulatory model through technological innovation. Through technological innovation, the regulatory model of financial institutions can be revolutionized. Second, to build a "driven" fintech regulatory model that incorporates technological factors. Wei Jie (2024) et al. pointed out that the financial technology regulatory model needs to adapt to the development trend of financial technology, incorporate technological factors, and build a "driven" regulatory model. In terms of the regulatory body, it should rely on the big data financial regulatory platform, shift from "single-head" regulation to "multi-head" regulation, and strengthen the up-and-down linkage between the regulatory bodies; in terms of the regulatory object, it should introduce the first experimental regulatory methods such as sandbox regulation; in terms of the regulatory tools, it should integrate the technology factors into the regulation, and establish a sound regulatory model. In terms of regulatory tools, technology factors should be integrated into regulation, and clear rules should be established to improve technology-driven regulation. Third, build a "progressive" financial regulatory model that is appropriate to the level of risk of fintech. Li Min (2017) classifies the regulatory models of fintech in various countries into five types according to the degree of regulatory severity: laissez-faire, case analysis, experimentalism, tailor-made and cut-and-run, and argues that regulators should prudently balance the relationship between financial efficiency and stability, utilize regulatory tools, and construct a progressive fintech regulatory model that is compatible with the stage of development of fintech innovations and the degree of risk. Fourth, to build a "decentralized, collaborative and interactive" financial regulatory model with multiple subjects and multiple norms. Li Youxing (2019) et al. believe that the "administrative power"-led control and order confrontation-oriented financial regulatory model will lead to the absence of differentiated regulation, and fintech regulation urgently needs adaptive change. They suggest that fintech regulation should shift to a decentralized, collaborative and interactive model that clarifies the regulatory responsibilities between the central and local governments, establishes an effective central and local regulatory coordination mechanism, and strengthens the positive interaction between administrative regulation and self-regulation.

2.1.3. Fintech Regulatory Mechanisms

Research on the regulatory mechanism of fintech focuses on five aspects: first, the combination of soft and hard laws, legislation and law enforcement in parallel. Luo Shijie (2023), Chen Binbin (2022) and others believe that fintech regulation requires a combination of soft and hard laws, on the one hand, we should actively promote the legislature to amend the relevant financial laws and regulations, and through the addition and deletion of modifications to the hard law to provide a strong legal basis for the regulation of fintech; on the other hand, we should direct the Association of Fintech Innovative Products to formulate the industry guidelines and opinions on the soft law, and to give play to the function of self-governance, in order to provide timely regulatory guidelines to cope with the changes in the market. On the other hand, it guides fintech innovation product associations to formulate soft law industry guidelines and opinions to fulfill their self-governance function and provide timely regulatory guidelines to respond to market changes. Second, build a central-local synergy mechanism for fintech regulation. Jin Hubin (2023), Yue Caixin (2024) and others point out that a central-local coordination mechanism, including a central-local financial supervision coordination mechanism, must be established by clarifying the boundaries of the regulatory powers and responsibilities between the central and local governments, in order to resolve the various functional conflicts brought about by the conflicting objectives, so as to take into account both macro-prudential and micro-behavioral regulatory objectives. Third, explore the mechanism of "experimental regulation" of financial supervision. Wang Frequency (2023), Lu Li (2021) and others believe that by exploring "financial pilots", "regulatory experiments" and other "experimental regulation" mechanisms of financial regulation, and allowing fintech enterprises to actively make trial and error, it can be an effective means to achieve the goals of macro-prudential regulation and micro-behavioral regulation. By exploring "financial pilot", "regulatory trial" and other financial regulatory "experimental regulation" mechanisms, and allowing fintech enterprises to actively make trial and error, the tension between fintech innovation and regulation can be effectively mitigated, and financial regulatory rules can be reshaped to promote fintech innovation. Fourth, to build a financial regulatory mechanism that distinguishes between fintech business subjects and their scope. Wei Jie (2024) et al. emphasize that it is necessary to strictly define various types of fintech risks, and based on this, make clear the actual derivation subjects and transmission mechanisms of various types of fintech risks, and formulate differentiated programs for different fintech risks, so as to prevent financial institutions and fintech enterprises from covering up the real form of their products through improper means. Fifth, deepen the reform of the "multi-headed and multi-industry" regulatory system, and build a unified multi-level financial regulatory mechanism. Cheng Xuejun (2024) pointed out from the perspective of legal finance that it is difficult for the existing regulation to adapt to the rapid innovation of fintech, and suggested the establishment of a "one line, one bureau" regulatory mechanism under the coordination of the Central Financial Commission, forming a bimodal regulatory pattern to adapt to the innovation of fintech and reinforcing the People's Bank of China's macro-prudential responsibilities to comprehensively prevent systemic financial risks and lead the financial regulatory system.

2.1.4. Fintech Regulatory Mechanisms

Regarding the fintech regulatory system, the research results of Chinese scholars focus on four aspects: first, the implementation of effective regulation of the increasingly complex and frequent fintech risks. Jin Hubin (2023) et al. pointed out that the regulatory game between the central and local governments can easily lead to the occurrence of fintech risks and the failure of government supervision, and suggested to build a "four-in-one" fintech risk cooperative supervision system "based on information sharing, the concept of target supervision, the regulatory model, and the regulatory method of complementary technology and system". It is recommended to build a "four-in-one" coordinated supervision system of fintech risks. Second,

the research on the impact of multiple regulatory bodies on the regulation of financial technology. Zhang Yongliang (2019) argues that the fragmentation of regulation due to multiple regulatory bodies, the difficulty for regulators to provide clear regulatory guidance for fintech, and the fact that regulators have not yet established a smooth communication and coordination mechanism are the main reasons for the current inadequacy of fintech regulation in China. It believes that China's fintech regulatory legal system should be restructured by changing the regulatory concept, clarifying the regulatory legal rules, refining the technical standards of regulatory technology, and creating an experimental regulatory model. Third, research on the impact of technological innovation on financial regulation. Li Wanqiang (2023) et al. believe that the key to the rule of law of financial technology regulation lies in promoting financial regulatory technology innovation in accordance with the law, emphasizing the healthy and steady development of financial technology through legislation, innovative regulatory ideas and optimized regulatory models. Fourth, how to promote the realization of the dynamic balance between the innovative development and regulation of financial technology. Cheng Xuejun (2023) and others pointed out that the contradiction between the innovative development of financial technology and financial regulation has brought challenges to the financial regulatory system of China's unified large market, and there is an urgent need to gradually build up a "new" financial regulatory system adapted to the development of China's national conditions through the change of regulatory concepts, innovation of regulatory tools, and the promotion of the construction of the "regulatory sandbox". There is an urgent need to gradually build a "new" financial technology regulatory system that adapts to the development of China's national conditions by changing regulatory concepts, innovating regulatory tools, and promoting the construction of a "regulatory sandbox", so as to achieve a dynamic balance between the innovative development of the financial technology market and regulation. In addition, from the macro perspective of financial governance, Yue Caixin (2024) argues that differentiated regulation should be adopted for all types of financial activities to be included in the regulation, and that a parallel regulatory framework of Financial Stability Law and Financial Supervision Law should be constructed, so as to form a comprehensive regulatory system with multilevel legislative synergy.

2.2. Research on Extra-territorial Fintech Regulatory Regimes

2.2.1. Innovative Rules for Fintech Regulation

Research on fintech regulatory rules focuses on the following two aspects: on the one hand, the general trends and regulatory principles in constructing fintech regulatory regimes. Okoye (2024) et al. point out that the regulation of fintech innovations varies greatly across countries and regions, reflecting their different regulatory philosophies and priorities, but there are still some common trends and principles. For example, many jurisdictions have adopted principles-based regulatory frameworks that prioritize flexibility, innovation, and risk-based regulation, enabling regulators to adapt to rapidly evolving technology and market dynamics while promoting responsible innovation and consumer protection. On the other hand, refine the specific operational paths for the implementation of the fintech regulatory regime. Omarova (2020) et al. argue that the current technology-driven fintech regulatory model has inherent limitations in addressing the systemic challenges of fintech, and suggest that the implementation of mandatory pre-approval systems should be carried out from regulatory sandboxes to product licensing; and that the fintech licensing should be improved from fintech chartering to structural reforms system, carry out antitrust legislation, and introduce a public-private partnership (PPP) model for FMIs to more effectively help regulators deal with the systemic challenges posed by fintech.

2.2.2. Fintech Regulatory Models

Regarding the research on fintech regulatory models, from the perspective of the regulatory body, Arner (2015) et al. classify the fintech regulatory models into four types according to the differences of the regulators and the intensity of the regulation: laissez-faire model, hierarchical licensing model, regulatory sandbox model, and principle-based regulatory model. In terms of the specific steps for the construction of regulatory models, Minto (2017) et al. constructed a theoretical framework suitable for the development of the regulation of fintech services, which contains four steps: reviewing fintech services and their economic functions, considering the disruptive potential of financial innovations, identifying the process of disintermediation, and identifying the process of decentralization, in order to safeguard the security and stability of financial transactions. In terms of smart regulation, Kurum (2023) et al. found through a Delphi survey that AI technology will become a key technology in the fight against financial crime and that advanced compliance procedures will be associated with more sophisticated methods of money laundering. They argue that fintech regulatory frameworks must cover anti-money laundering (AML), know-your-customer requirements (KYC), and data protection. Kazachenok (2023) et al. identify the causal relationships that humanize fintech in the AI economy by using a structural equation modeling (SEM) methodology, and propose a novel application solution for the integration of blockchain and ESG finance in order to improve the transparency and predictability of fintech, and proposes legal ways to humanize fintech in the AI economy to improve the fintech regulatory regime and improve the fintech regulatory system. Bukola (2024) et al. By examining the relationship between fintech, taxation, and regulatory compliance, they point out that actively embracing the digital transformation and adopting a more flexible regulatory model can help the governments and businesses to unleash the full potential of fintech while maintaining financial stability and integrity, and emphasize the importance of technological solutions such as proactive risk management, regulatory engagement, and RegTech.

2.2.3. Fintech Regulatory Mechanisms

Regarding the research on the regulatory mechanism of fintech, Elodie (2012) et al. point out that the integration of finance and technology is very likely to make a single risk evolve into a systemic risk, and the traditional regulatory model that relies solely on the supervision of regulatory agencies is not enough to effectively deal with it, and the government should be allowed to participate in the supervision and management of the society together with non-government subjects and other stakeholders to realize the group co-rule. Kapsis (2020) et al. argued that to build an effective fintech regulatory mechanism, it is necessary to incorporate fintech into the regulatory framework of traditional banks, formulate a new regulatory program specifically for fintech, and require the structural separation of banks' fintech activities from traditional fintech activities in the market. In terms of synergistic soft and hard law governance, Abbott (2000) and others see soft law as a deviation from "hard law". They argue that soft law offers more flexible and acceptable solutions for states to reach compromises between states and domestic pressure groups. Shrivs (2015) et al. argue that the principle of "comply or explain" is commonly used in soft law governance of fintech. However, this approach may be circumvented by "non-compliance with interpretation" by member states. They argue that it is necessary to use the normative force of hard law to ensure that the interests of multiple actors are safeguarded and that differences in governance claims between different levels of actors are bridged as much as possible. In addition, Yaroslava (2024) et al. categorize the views of foreign scholars on the regulatory mechanism of fintech into two groups: one focuses on the local changes in national laws to support the innovation and development of the national fintech market; the other aims to integrate the fintech market into the new financial legal system and may be achieved at the level of international legal norms, or at least within the framework of international "soft law". soft law" framework. Based on this, Yaroslava (2024)

has developed a mapping of the legal regulation of FinTech that includes both the legal regulatory regime and the legal regime of financial supervision.

3. Conclusion

Theoretical research on fintech regulation in China and abroad is diversified and interdisciplinary, covering a wide range of fields such as law, finance, economics and information science. The theoretical results have provided important guidance for regulatory practice and promoted the paradigm shift of fintech regulation from traditional "entity regulation" to "functional regulation" and "behavioral regulation", and from ex post regulation to ex ante prevention and real-time monitoring. It has also changed the paradigm of fintech regulation from traditional "entity regulation" to "functional regulation" and "behavioral regulation", and from after-the-fact regulation to ex ante prevention and real-time monitoring. Despite the significant progress in theoretical research, there are still some shortcomings. Existing research focuses on the short-term regulatory issues of fintech, and there is a relative lack of in-depth research on its long-term impacts (e.g. on the financial structure, the pattern of economic growth, social equity, etc.), which may lead to short-sightedness in regulatory policies. The research on the regulatory system of financial technology in China and extra-territorial countries is still in the initial stage, obviously lagging behind the rapid development and application of financial technology, and at the same time, it has not yet constructed a systematic and comprehensive evaluation system for the regulation of financial technology. On the one hand, most of the research results are mainly normative jurisprudence research on the regulatory system of fintech, and there is a relative lack of empirical observation and theoretical sublimation of regulatory behaviors in practice, while the empirical research mainly focuses on individual countries or regions, and the level of the research is not comprehensive enough, and there is relatively little overall review of the global regulatory behaviors of fintech; on the other hand, most of the research is based on theoretical exploration or logical deduction, and based on On the other hand, most studies start from theoretical discussion or logical deduction, and empirical studies based on multiple cases or multiple data sources are relatively rare.

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