Revolutionizing Finance-Unraveling the Evolution from Traditional to Fintech

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***Abstract*—Financial Technology (Fin-Tech) promotes the innovation and change of the traditional financial industry through technological means to improve service efficiency and user experience. This paper analyzes the impact of Fin-Tech on banks, enterprises, households, and governments from multiple perspectives. Fintech helps commercial banks revolutionize their credit business model, improve operational efficiency, and bring new business opportunities. At the same time, it broadens financing channels for Small and Medium-sized Enterprises (SMEs), reduces financing costs, and enhances innovation. For households, fintech simplifies the borrowing and lending process, provides intelligent investment services, and optimizes the credit rating mechanism. The government, on the other hand, leverages fintech to implement accurate regulation and promote the universalization of financial services. However, fintech also brings cost challenges, risk management, and other issues, and needs to balance innovation and regulation. At the policy level, China has continuously adjusted its financial regulatory system in recent years, aiming to promote the healthy development of fintech. By learning from international experience, such as the "regulatory sandbox" mechanism, we are exploring a regulatory model that suits China's national conditions, in order to realize a win-win situation between fintech innovation and financial market stability.**

***Keywords*—Fintech, innovation and regulation, mobile payment, regulatory sandbox, risk management**

I. Introduction

Viewing the evolution of the financial services industry, it has progressed through stages of traditional finance (before 2004), Internet finance (2004–2017), and Fintech (after 2017). The traditional finance stage was primarily driven by financial Information Technology (IT), with core financial institutions including banks, insurance, and securities firms. The Internet finance stage was propelled by network information technology, centered around third-party payment institutions like Alipay. However, the Fintech stage, whether in terms of foundational technology or principal risks, etc., is markedly distinct from both traditional and internet finance stages, embodying a new generation of financial technology that is both "constructive" and "destructive". This redefines the traditional financial world and innovates the development model of the financial services industry.

This paper addresses the debate on whether Fintech should be strictly regulated or encouraged to develop, examining from the perspectives of different stakeholders the benefits and potential risks, challenges, and the scope of impact. It conducts an in-depth analysis of current policies.

II. Benefits

A. Micro Analysis

Fintech reshapes the relationships and interactions among stakeholders in the financial ecosystem, exerting a profound influence on banks, businesses, and households, at large. A micro-level analysis of these effects unveils a deeper understanding of how Fintech influences these stakeholders.

1) To banks

Fintech has brought many transformative changes within the traditional banking system landscape, facilitating its efficiency and accessibility.

With the development of Fintech, banks could now offer many services through user-friendly online platforms which help banks extend their customer base, breaking geographical barriers. Online working platforms, AI customer support, and robotic call centers have reduced the workload in offline banking counters, reducing operational costs while improving efficiency. Moreover, the banks could utilize the Big Data and Matrix Model to position their services and target their customers more precisely (Savchuk *et al.*, 2021). By analyzing customer behavior and social network data, banks can tailor their services to meet the diverse needs of their clients effectively.

In addition, by leveraging Big Data analytics, AI algorithms, and blockchain, banks can accurately assess customer risk profiles, enabling informed decision-making on loan provisions while mitigating risks involved in credit and overdue which were the major problems faced by many traditional banking systems. This would help to reduce adverse selection which is the situation where one party in the transaction has more information about the quality of the product than the other, leading to a more efficient process of screening and monitoring of their clients.

2) To businesses

The rapid development of financial technology has reshaped the financing landscape and innovation capabilities of Small and Medium-sized Enterprises (SMEs) from a micro-level perspective. Fintech has expanded the credit channels and investment avenues for SMEs (Sheng, 2021). Through digital platforms, intelligent risk control systems, and customized financial products, banks and other financial institutions are able to more efficiently assess the credit status of SMEs, thereby relaxing their credit policies and providing more flexible and accessible loan services. Startups also benefit from this, gaining more opportunities for incubation, growth, and breakthrough innovations. Fintech has opened the doors for more external funding sources to SMEs. New financial tools such as crowdfunding platforms, P2P lending, and blockchain technology allow investors to directly connect with potential SME projects, providing these enterprises with more direct investment opportunities, such as in ESG and AI-related firms which are considered to be

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merit goods, accelerating the process of innovation and technological breakthroughs. These innovations within the Fintech industry itself has also created new pathways for economies of scale for businesses. For example, by using Fintech methods to issue micro-stocks, and implement smart contract-based dividend or profit-sharing plans, SMEs can achieve equity financing and profit sharing at low costs. This not only helps businesses expand their scale of operation but also attracts broad social capital participation, further promoting the sustainable growth and innovative development of enterprises.

3) To households

The rapid development of financial technology has profoundly impacted the financial lives of individual users, offering more convenient and personalized financial services to residents. In terms of micro-loans, Fintech enables individual users to more easily access consumer credit products such as auto equity loans. Through online application processes, internet financial platforms, and mobile payment applications such as Alipay, users can quickly obtain loans, make repayments and inquiries without the cumbersome traditional procedures, improving their quality of life by purchasing large-ticket items such as cars, thereby enhancing their standard of living.

The innovative applications of Fintech in collateral evaluation and credit rating can help reduce financing costs for individual users. Through precise assessments of personal credit records, behavioral data, and online asset information, financial institutions can more accurately measure a user's credit rating, thereby offering more reasonable and lower-interest-rate loan products.

In addition, Fintech platforms utilize algorithms and big data analysis to provide detailed investment advice and intelligent advisory services, providing households with more opportunities to participate in the secondary market and obtain financial advice by purchasing shares, stocks, and funds to achieve the diversification of risks.

B. Macro Analysis

In the short run, with more borrowing opportunities, firms could be able to experience more growth while households could achieve a higher living standard, stimulating investment and consumption, which increases the aggregate demand.

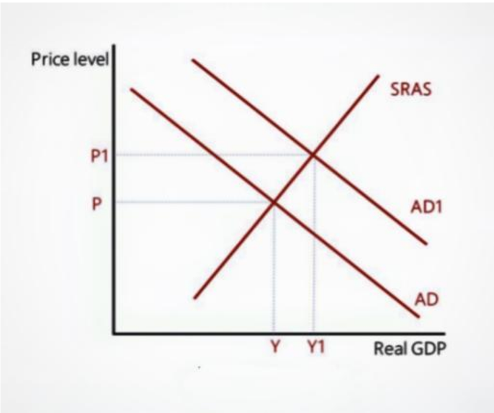

Fig. 1. The changes in the short-term Aggrevate Demand (AD) curve.

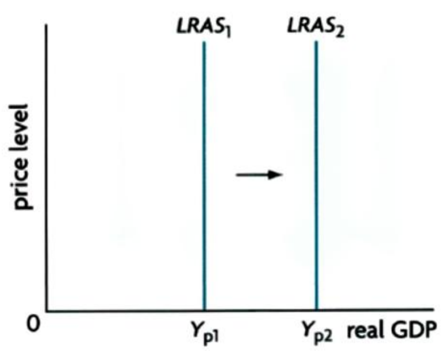

Fig. 2. The changes in the long-term Aggrevate Demand (AD) curve.

As shown in Fig. 1, the AD curve shifts to the right, leading to more output, and encouraging economic growth. In the long run, with more investments, there would be more innovations and new technologies, as well as increasing the amount of available capital stocks, making aggregate supply increase, and shifting the long-term aggregate supply curve to the right (Fig. 2). This would foster a supply-side structural reform, as there are increased investment opportunities in the Technological Innovation Corporation. Such developments would pave the way for China's future financial openness, bolstering and solidifying the competitiveness of the Chinese Fintech industry. Consequently, this would elevate China's international competitiveness on the global stage.

III. Cost

A. Micro Analysis

The popularity of Fintech could, however, bear negative impacts such as more frequent exposure to information and reduced data security. Furthermore, lack of regulation in Fintech could lead to systematic financial risks and enlarging the asymmetry of the income distribution.

1) To banks

Developing Fintech is often aligned with higher risks. Notably, fierce inter-bank competitiveness due to Fintech innovations poses a challenge to maintain the equilibrium market structure and proportions of market share. Meanwhile, research indicates that banks' profitability dropped at a higher rate during the recent crisis, and the buy-and-hold stock returns during the crisis were lower in countries with higher pre-crisis levels of financial innovation (Beck *et al.*, 2016). Primarily this is because depositors tend to save on platforms with higher interest rates such as Alipay, which significantly threatens traditional banks.

Financial innovations such as securitization change the ex-ante incentives of financial intermediaries to carefully screen and monitor the borrowers (Allen *et al.*, 2006). On the other hand, results show that Fintech that reduces asymmetric information can actually increase risk-taking due to agency problems between bank owners and managers, or because of lower costs of fragility.

Moreover, whereas Fintech could promote more innovation to take place, it also influences banks' incentives for risk-taking. First, risk-shifting and regulatory arbitrage using new forms of securities are more likely to be undertaken in financial systems with larger and more liquid securities markets, which suggests a stronger relationship between financial innovation and banks' growth and fragility in countries with larger securities markets like China, which is projected to grow by 12.01% (2024–2028). Additionally, the rise of big data and Fintech provides a competitive advantage to shadow banks in assessing the creditworthiness of their borrowers and offering innovative products (Buchak *et al.*, 2018).

2) To households

Moral hazard in the credit market occurs when the probability of default increases with loan size, while borrowers at high default risk desire large loans, resulting in adverse selection. For example, products and services under Ant Group, while offering loans with high interest rates (reaching 24%), have drawn regulatory attention, especially from younger consumers in need of loans. Using the Framing Effect, such platforms manage to conceal the actual risks accompanied by desirable interest rates, while attracting massive users, in particular low-income groups, to make loans. When such non-traditional financial institutions are required to regulate their development, such as the suspension of Ant Group's IPO, banks may face complex relationships of cooperation and competition. On one hand, traditional banks may secretly seek cooperation with Fintech companies to attract funds through their large customer base and innovative products, known as shadow banking; on the other hand, such cooperation may also place banks in a riskier lending environment, increasing the risk of a higher bad debt ratio.

With the popularity of online banking platforms, households are becoming increasingly reliant on these convenient financial institutions, thereby accumulating a significant debt burden. As part of Fintech, P2P (Peer-to-Peer) lending once attracted a significant amount of investment from household investors. However, due to a lack of effective regulation, inadequate risk control measures, and changes in market conditions, some P2P platforms have collapsed, causing numerous household investors to suffer significant financial losses. This not only exposes the risk management defects within the Fintech industry but also reveals the potential challenges faced by household finance from Fintech: how to fully recognize and avoid hidden risks while enjoying the potential benefits of investment returns.

3) Business

Fintech makes it easier for businesses to obtain loans, which may lead businesses to be overly optimistic in investment decisions, overlooking the uncertainty and potential risks of projects. Rapid and convenient financing channels may cause businesses to be hasty in assessing the feasibility of projects, over-relying on credit funds for expansion. If investment projects fail, businesses will bear a heavy debt burden and may even fall into financial distress.

Additionally, Fintech like Quantitative Trading can be subject to the challenges of sudden market regime changes and crashes. Automated trading systems can quickly detect imbalances in supply and demand and adjust prices accordingly, while they also increase volatility and the potential for sudden price swings. This is particularly impactful on businesses with smaller market shares, which tend to be vulnerable in terms of fluctuations.

B. Macro Analysis

Digital platforms are redesigning relationships between customers, workers, and employers due to the practice of purchasing grocery products online in search of a partner on a dating site. As such, the relationship between Fintech and unemployment should be carefully considered (Romdhane *et al.*, 2024). A systematic financial crisis such as a strike in P2P could bring out disastrous rippling effects on the financial system. Thus, revolutionizing policies should be taken into close consideration.

IV. Policy Analysis

A. Current Regulatory Environment

When considering the recent policies enacted by the Chinese government, according to the Financial Times (2021), China has adopted a prudent and inclusive regulatory environment for the Fintech development. This offers a load of opportunities for the non-bank financial system to grow. In recent years, the mobile payment business such as Alipay and WeChat Pay, witnessed a growth of 75% per year between 2015 and 2019, which accounted for 86% of the mobile payment penetration rate. China is encouraging foreign-owned and private companies that are in the fields of Fintech to set up in China (Pan, 2021).

While the government is taking steps to deal with the regulatory loops. For instance, China inspects the activities of Fintech companies and internet platforms in order to avoid the misappropriation of clients' funds by those Fintech companies who may centralize deposits of these funds at the central bank. Moreover, the Chinese government enacts some restrictions on Fintech companies abroad and requires them to cooperate with domestic firms such as becoming joint ventures to ensure that the government can keep an eye on these companies. This represents that China is focusing on reducing the financial risks caused by Fintech firms with an inclusive attitude.

1) Recent strategies and developments in the financial regulatory system

In recent years, our country has successively adjusted its financial regulatory concepts and reshaped its financial regulatory system. Following a "one bank, one bureau, one commission" structure pattern, it is recommended that China should continue to reform the financial sector focusing on beforehand regulation and upgrading protection rights for financial consumers. In addition, Fintech should be popularized not only common public in urban areas but also by low-income groups and the farming sector, to further promote social welfare brought by technology.

By the end of 2022, Chinese financial technology platforms had nearly 500 billion yuan in outstanding loans, with more than 320 million investors suffering losses from various risks, indicating that the task of dealing with existing risks remains daunting. Against this backdrop, government departments have repeatedly formulated policies and regulations to supervise financial technology platforms. The People's Bank of China released the "Financial Technology (Fintech) Development Plan (2022–2025)" at the end of December 2021, clarifying the specific direction for the development of financial technology in the new era. The plan centers on digital transformation in finance, incorporating the strengthening of prudent supervision of financial technology into the main work line, and prioritizing the strengthening of financial technology governance and the establishment of a collaborative and co-governed financial technology ethics and standards system with the participation of multiple parties (The People's Bank of China, 2022).

2) Benefits of Information security and anti-monopoly regulation

One of the most serious problems that arise from the development of Fintech is the protection of privacy for clients. During the period of pandemics of COVID-19, the overuse of personal information and data has become a vital issue in many countries. However, China implemented a policy to break the data monopoly and inspect the activities of Fintech is commendable for striking a balance between the innovation in Fintech industries and the security of private information of citizens. Therefore, information inspection is conducted by the government or committee to avoid financial risks. If the person who loans abundant without the ability to return to the agencies or companies, the committee and government are capable of pausing the transactions in advance to prevent the possibility of a subprime loan crisis in the long run.

Moreover, the reduction of the market dominance on the monopoly Fintech companies may create a better environment for innovation of Fintech. As the market of Fintech is competitive, the firm will be more willing to come up with innovative ideas and have the confidence to set up. The scenario boosts the development of Fintech industries with services or any other invisible products, which pushes the tertiary sectors in China (Acclime China, 2023).

3) Treats of over-regulation

Despite the rapid momentum and immense potential of financial technology development, its swift expansion also introduces a series of potential risks, such as data security issues, risks of market monopolies, and intensified systemic financial risks. Therefore, implementing rationalized regulation is crucial, aiming to ensure the healthy and orderly development of Fintech while safeguarding consumer rights and public interests.

However, over-regulation can also have negative effects. Adopting a one-size-fits-all approach to force all Fintech institutions out of the market could not only dampen the innovative drive of Fintech but also lead to short-term financial market turmoil, such as panic selling by investors. Even for commercial banks with strong risk resistance, facing massive withdrawals could lead to liquidity crises. Therefore, while encouraging the development of Fintech, policymakers must carefully consider the extent of regulation, avoiding both laissez-faire attitudes that could lead to risk accumulation and excessive intervention that hinders the industry's innovative development. The ultimate goal is to achieve a balance between regulating and encouraging Fintech, creating a win-win situation that promotes technological progress while ensuring financial stability.

V. A Policy Recommendation

A. Drawing on International Experience: The Need to Introduce a Regulatory Sandbox Mechanism

In response to the innovative shock of Fintech, many countries (such as the UK and the USA) adhere to the principle of responsible innovation regulation, that is, to regulate innovation without suppressing it. The "regulatory sandbox" serves as a regulatory tool that can provide a conducive environment for the development of financial technology and has been widely adopted by numerous countries and regions overseas. Its main objectives focus on promoting financial innovation and market competition, implementing reasonable regulation, protecting financial consumers, and preventing financial risks. This mechanism aids in promoting the development of financial technology, especially the disruptive innovation of startups. The "regulatory sandbox" is akin to conducting financial innovation experiments within a relatively limited environment where successes can be widely promoted, and failures can be terminated to prevent risks and protect the rights and interests of financial consumers.

Amid the growing popularity of "regulatory sandboxes," our country needs to learn from foreign experiences, combine the realities of localized innovative regulation and the concept of pilot reforms, to create innovative regulatory tools that fit our national conditions and international trends, and build a Chinese Fintech "regulatory sandbox" mechanism. Firstly, based on pilot reforms and technological reliability, we should gradually introduce the "regulatory sandbox," limiting the risks of Fintech innovation, and promote it nationwide when conditions are ripe. Secondly, establish a management system for the "regulatory sandbox," recommending the newly established Central Financial Work Committee to take charge of overall guidance, and set up a Fintech innovation center specifically responsible for detailed matters. Lastly, construct the process of the "regulatory sandbox," including application, assessment, testing, and exit phases, to ensure orderly market entry and exit. This should be coordinated by the Central Financial Work Committee, with specific regulatory oversight by the National Financial Regulatory Administration and other related institutions, to protect consumer rights and prevent financial risks (Cheng, 2023).

B. Limitations of the Regulatory Sandbox

1. Market access restrictions and fairness: When the regulatory sandbox accepts a limited number of innovative projects into the test, it may form a hidden market access barrier, resulting in the failure of the selected enterprises to lose the first advantage, which may pose a challenge to the fairness of market competition.

2. The difficulty of consumer protection is increased: even with strict application and evaluation processes, financial products and services participating in sandbox trials may still cause unknown harm to consumers, especially for ordinary users who do not understand complex financial products, consumer education and protection measures must be synchronized.

VI. Conclusion

Whether financial technology should be strictly regulated or encouraged to develop is a contentious issue. This article examines the benefits, potential risks, and challenges brought by Fintech from the perspectives of different stakeholders (banks, businesses, households, and governments), comprehensively considering its impact. It also discusses the characteristics and challenges of the current regulatory system in China and argues that policies and business practices encouraging the development of Fintech are reasonable. However, it is equally important to pay attention to the necessity of rational regulation and the warnings against over-regulation. Drawing on international experience, the introduction of a regulatory sandbox mechanism is deemed necessary, effectively balancing innovation with risk. Through this approach, not only can new vitality and efficiency be introduced to the financial markets in China and globally, promoting more inclusive and convenient financial services, but it can also effectively optimize the supply-side structure, serve the real economy, and drive sustainable growth of the global economy. On the foundation of ensuring financial system stability, this approach aids in advancing the global economic order towards higher levels of inclusivity and resilience.

Conflict of Interest

The author has claimed that no conflict of interest exists.

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