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Changes of Market Structure under the Shock of Financial Technology: Comparative Analysis Based on Traditional Financial Agents

Yao Xiao

Wuhan Jingkai Foreign Language School, Wuhan, China
Y.Xiao.Icey@outlook.com

Abstract. With the development of financial technology, the competition pattern of the global financial market is changing rapidly. This article critically overview of the passive reform of traditional banks due to its human- based operation mode and limitations in efficiency-risk management.At the same time, Fintech has accelerated the reform of the financial industry by de-intermediation, information transparency and efficiency optimization, and spawned the business model of automated institutions.This paper also discusses the subsequent regulatory risks and challenges, and discusses the follow-up research direction in the field of financial technology. Emerging financial technology companies take advantage of their agility and technological superiority to enter the market of traditional financial intermediaries and provide more convenient and personalized financial services, intensifying market competition. Through a systematic literature review and comparative analysis with traditional intermediaries, this paper discusses the impact and reconstruction of financial technology on the traditional market. This paper believes that while today 's financial technology has brought about innovative structural changes and positive economic development, it is also accompanied by the pressure of lagging risk monitoring and supervision.

Keywords: Financial technology, market structure, financial intermediaries, artificial investment, risk management

1. Introduction

The traditional financial market is based on a model dominated by financial institutions, and its main functions are to provide financial intermediary services and serve as a social stabilizer. The former is mainly reflected in functions such as deposit custody, credit delivery and payment and settlement services; the latter is achieved through the implementation of macroeconomic policies such as monetary policy transmission, as well as through interest rate adjustments to achieve economic stability. Traditional financial institutions include commercial banks, investment banks, insurance companies, etc. Fintech refers to the technology-driven industry that uses modern technology to innovate financial products and services, improve financial efficiency, reduce costs, and promote the transformation of the financial industry. Through a variety of technological

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innovations, represented by robo-advisors, mobile payment, blockchain and alternative financing, it has made debt instruments more tradable, reduced risk and investment necessity, weakened the role of financial intermediaries and led to structural changes in the financial system. This process not only promotes economic growth to a certain extent, especially for less developed countries, but also highly improves the efficiency of resource allocation [1].

However, because customers in the digital age need more efficient, more convenient and personalized services, the traditional banking system services are lacking in many aspects compared with digital products. This disadvantage makes the market based on traditional banks undergo forced changes in such a torrent [2].This evolution not only changes the supply of financial services but also has a profound impact on the structure of financial markets. In this context, the content of this article focuses on how fintech changes the market structure by comparing it with traditional banks and how the differences brought about by this change have an impact on the stability and efficiency of the financial system.

This paper believes that the development of financial technology has brought structural changes to the traditional financial market. While overcoming the high cost, high threshold and low efficiency of the traditional intermediary market, it has promoted industry innovation and national economic development in the form of inclusive finance. The marginal contribution of this paper is to reveal how fintech affects the change of the market and the subsequent problems that may be caused by this change by integrating the structural changes of the fintech market and comparing it with the traditional market, thus pointing out the government's regulatory policy.

2. Operation mode and theoretical analysis of the traditional financial market

2.1. The theoretical basis of the dominant mode of financial institutions

According to Diamond & Dybvig 's liquidity transformation theory, the main function of the early commercial centralization of banks was to provide liquidity through demand deposits [3]. Current deposits are a tool for banks to convert illiquid assets into liquid assets. In this process, banks can be seen as providing an insurance that allows depositors to consume when they need it most. This not only resolves the structural contradiction between savers ' preference for short-term liquidity and borrowers ' demand for long-term capital, but also smooths the investment paths of different investors to achieve risk diversification. Holmström & Tirole, by extending Diamond & Dybvig 's theory of liquidity insurance requirements to the corporate sector, proposed that companies need liquidity reserves such as credit lines due to the randomness of investment opportunities, while banks provide such insurance by holding illiquid assets, which confirms and extends this function [4]. The efficiency advantage of a centralized trading market also lays the foundation for the traditional market structure. According to Hasbrouck, J., by comparing the market's price adjustment speed, centralized exchanges such as the New York Stock Exchange have shown significantly faster response speed than over-the-counter markets such as Nasdaq, while centralized trading saves about 40 % of costs and reduces information asymmetry by 22 % compared to decentralized markets [5]. In summary, the traditional centralized trading structure brought liquidity and high efficiency to the financial industry at that time, crossed the time and space constraints, and formed a complete financial market infrastructure.

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2.2. Limitations of the traditional model

Diamond & Dybvig 's liquidity conversion model also extends the market run problem that may occur with high liquidity, which is manifested in the panic run of all depositors and the requirement to withdraw deposits in advance, leading banks to liquidate assets in advance and interrupt production [3]. The typical example is one of the largest bank rescue cases. 1980, Pennsylvania's first bank run. This reflects the lethality of traditional bank maturity mismatch: traditional banks have short-term deposits to support long-term loans, thus forming a fragile structure of borrowing short and lending long. When facing the impact of events, traditional banks cannot often react quickly, which leads to a liquidity crisis.

Similarly, the traditional centralized intermediary indeed has faster efficiency than the over-the-counter market, and it still has the disadvantage of high cost, high threshold and low efficiency for customers. Because the traditional wealth management business is usually based on the human consultant business model, each consultant is responsible for an average of about 50 to 100 customers per day, which leads to inefficiency due to information delay caused by physical factors in time and space. At the same time, customers who enjoy asset management services require a large accumulation of assets (usually net assets of not less than $ 100 million), which virtually creates an insurmountable high threshold for financial services. The high cost of this feature is not only due to reduced after-tax income, but also due to the potentially high service fees of this service, such as financial consulting, management and commissions.

Moreover, the subjectivity of financial intermediaries, as a structural defect, caused a kind of information exploitation of its customers. As Akerlof put forward the ' lemon market ' theory, when the seller has more product quality information than the buyer, the market will exhibit the ' bad money drives out good money ' phenomenon [6]. The specific performance is that the commission of financial advisers is mainly based on transaction income, and most customers are older. Therefore, financial advisers may use asymmetric information to encourage customers to make excessive transactions to charge additional fees due to conflicts of interest. This measure will lead customers to bear excessive risks and damage the real interests of customers.

3. The operation mode and research progress of the financial technology market

3.1. Disintermediation and automation

3.1.1. Application of a robo-advisor

Technology Finance has introduced a robo-advisor, which is different from traditional intermediary consultants. It is a digital platform-led tool that minimizes manual supervision and intervention, and provides automated, algorithm-driven, low-cost, transparent, personalized and systematic investment advice.

According to Brenner & Meyll 's research, robot consultants can provide a more reliable source of advice and alternatives for investments, especially for investors worried about potential conflicts of interest among human consultants [7]. At the same time, the robot investment advisory platform realizes the scale service of investment management through algorithm automation, which reduces the industry threshold. According to Jung et al. s research, services for robo advisors are increasing, while many young investors lack investment knowledge, and the cognitive ability of older investors is declining [8,9]. This intelligent investment model can help consumers cross the entry threshold described above, thus providing an automated platform for a wider range of investors [10].

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In terms of service efficiency, according to Beketov et al., robo advisors can not only provide services at a lower cost than traditional manual consultants, but also provide roughly the same return on investment as traditional investments through advanced portfolio management and optimized quantitative methods [11]. According to Noya's research survey on Open bank, Open Bank is a bank owned by Santander Bank, and its customers can use a robo advisor to invest at a price of as low as 500 euros. Although the service fee, including value-added tax, is still based on the total investment, it is still as low as 1.03 % to 0.42%, and the higher the investment, the lower the applicable tax, which is difficult to achieve by traditional manual investment [12].

3.1.2. Algorithm-driven portfolio theory

According to Noya's research on robo advisor, the application of machine algorithms to the construction of passive management fund investment strategy portfolios has brought lower risks and higher long-term returns than active investment in individual stocks [12]. This is mainly due to the contribution of Markowitz & Sharpe's portfolio theory. Through the measurable factors such as historical returns and volatility, as well as the correlation between the assets contained in the portfolio, the basic order of portfolio optimization is formed to maximize the expected return. In addition, it is worth mentioning that a robo advisor can also carry out personalized risk assessment according to customer needs, through the customer's personal risk aversion degree and environmental, social and other factors, considering different customer social goals, time range, risk aversion, to identify the most suitable portfolio. In Noya's view, robot consultants have greatly helped retail investors who do not have the time or expertise to actively select stocks or funds to introduce passive investments without having to allocate a lot of effort, because they are given an automated tool, which means that there is still a large proportion of people who can benefit from robot consultants to start their investment journey [12].

3.2. Academic discussion on the new trading model

3.2.1. The inclusive effect of mobile payment and the improvement of financial inclusion

The rapid development of mobile payment technology is profoundly changing the structure of traditional financial markets. According to Pan, Yang et al.'s survey on the impact of mobile payments on inclusive finance, insufficient scale efficiency of the financial system will inhibit the scale and diversity of finance and distort the positive effect of finance on the economy [13]. Mobile payment provides a feasible solution to this problem, which is realized by the following points. First of all, through capital integration, investors can flexibly set the threshold of financial results investment. Secondly, mobile payment reduces the ' shoeshine cost ', and high financial flexibility can help investment save time, cost, and operation difficulty, cross geographical restrictions, and promote the diversification of financial products. However, the rapid development of mobile payment also poses a serious challenge to traditional payment intermediaries. In Yao, Di et al. ' s report, it is pointed out that the main reason why traditional bank payment methods are at a disadvantage is that their operation methods cannot meet the demand for diversified development and exponential growth of payment methods [14]. According to He Mingfang 's empirical analysis of the impact of digital payment on ordinary commercial banks, there is a significant negative correlation between the development scale of third-party payment and the intermediate business income of Industrial and Commercial Bank of China, which indicates that the rapid growth of third-party payment has exerted downward pressure on the intermediate business of Industrial and

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Commercial Bank of China and intensified market competition [15]. This structural competitive change is reshaping the competitive landscape and profit distribution model of financial markets.

3.2.2. Disputes over digital currency and evolution of market structure

The rise of digital currency has triggered a profound discussion on monetary attributes and financial architecture. Dow pointed out that the impact of central bank digital currency as a substitute for traditional currency on the evolution of financial market structure mainly comes from the following potential advantages : curbing the potential of illegal transactions, protecting cryptocurrencies, expanding the scope of effective monetary policy and improving efficiency [16].

At the same time, cryptocurrencies represented by Bitcoin have caused more fundamental disputes. Bitcoin is a currency that can be traded anonymously internationally because it is a decentralized digital currency, so there are no fees, government regulation, and supervision of banks and government-backed securities [17]. So five years after its launch, Bitcoin is one of the most researched and traded financial products. According to Kim Wales's research on the impact of digital currencies on the market, although Bitcoin has a series of characteristics of ' reducing transaction costs, faster transaction speed and financial inclusion ', there is controversy over the high volatility of Bitcoin prices [18].

4. Financial technology risk analysis

The rapid development of financial technology has promoted profound industrial transformation, but it has also brought many regulatory challenges, among which the problem of regulatory lag is particularly prominent. According to Ahern's research, this phenomenon can be explained by the ' Collingery Dilemma ': in the early stage of technological development, its social impact is difficult to predict, and the cost of intervention is low at this time; after the negative effects appear, the cost of regulatory intervention will rise sharply [19]. Regulatory lag mainly includes identification lag and execution lag. The identification lag is reflected in the fact that it takes a long time for regulators to accurately recognize the risk characteristics of new technologies. For example, Bartlett and other scholars reflect the delay of supervision in the judgment of algorithm fairness through the post-hoc analysis of algorithm price discrimination. The implementation lag is due to the lengthy process of legislation and rule-making, which usually takes 9-18 months, far exceeding the iteration speed of financial products, resulting in the inability to effectively deal with practical problems when regulatory measures are introduced, and even causing waste of resources and weakening of expected effects.

In addition to lagging supervision, financial technology also exacerbated the contagion of systemic risks. According to Li and Tan's research, large-scale fintech risks can spread rapidly through non-linear mechanisms and chain reactions, and have a profound and lasting impact on the financial system. This vulnerability has been reflected in the 2008 global financial crisis, and the interconnection and technical complexity of financial technology have further improved the transmission efficiency of systemic risks.

In response to these challenges, regulatory technology (RegTech) has gradually become the direction of exploration. For example, the ' regulatory sandbox ' mechanism provides a controlled testing environment for fintech companies to help regulators understand new technologies and related risks while ensuring innovation [19]. Although such tools have achieved certain results, they still face problems such as insufficient cross-border regulatory coordination and data islands. In the future, it is necessary to further promote the integration of regulatory technology and traditional

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systems, strengthen international coordination, and build a more adaptable and forward-looking transnational regulatory cooperation framework.

5. Conclusion

The development of financial technology has brought structural changes to the traditional financial market. While overcoming the high cost, high threshold and low efficiency of the traditional intermediary market, it has promoted industry innovation and national economic development in the form of inclusive finance. However, the development is accompanied by controversy, such as the regulation of digital currency transactions. With the development of artificial intelligence and its application in the financial technology industry, its development drawbacks, such as risk monitoring and supervision lag, are gradually exposed. In the future, with the development of artificial intelligence and the popularization of blockchain, traditional financial institutions are about to face greater industry pressure. At the same time, the algorithm-driven robo-advisor will be applied to a wider range of investment groups. At the regulatory level, a more mature monetary system and a more strictly monitored trading regulatory framework will also be implemented. It is worth mentioning that the monopoly of financial technology by large companies may aggravate the gap between the rich and the poor in the future, so the inclusiveness of financial technology may become an important strategy for the country to develop financial technology.

Because the existing articles are limited by data, methods, and perspectives, the follow-up research suggestions are based on the following aspects: Deepen the research on the impact of fintech on micro-market structure. By exploring the market pattern after adding variables such as algorithm and high-frequency trading, the evolution of market price mechanism, liquidity, and other factors in high-speed competition is discussed. Combined with behavioral finance, this paper discusses the impact of financial technology on the behavior of market participants. Based on the reduction of market threshold brought by financial technology and the incentive for excessive trading implied in the algorithm, this paper explores the impact of democratic finance on investors ' decision-making and behavior. The existing research mainly focuses on large-scale developing or developed countries, and there is insufficient evidence for financial development in emerging market countries such as Africa and Southeast Asia. Therefore, there is a clear gap in the application mode and risk performance of science and technology against the background of imperfect financial facilities and an immature financial supervision system in backward developing countries. In addition, the impact of financial technology development on the gap between the rich and the poor in society needs to be further explored.

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