

The Impact and Integration of Fintech on Traditional Financial Institutions

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ABSTRACT

With the rise of financial technology, traditional financial institutions are facing unprecedented impact and opportunities. This paper provides an in-depth analysis of the impact of fintech on traditional financial institutions and the integration and development of the two. Firstly, the research background and purpose of the integration of fintech and traditional financial institutions are described. Then it analyses the development status of fintech and traditional financial institutions, including the development history and characteristics of fintech and the status quo and challenges of traditional financial institutions. Then it discusses the impact of fintech on traditional financial institutions at the business level and profit model. After that, the integration mode of fintech and traditional financial institutions is elaborated, including technology application integration and cooperation case study. Then it looks forward to the future trend of the integration of FinTech and traditional financial institutions, including the development direction outlook and the future pattern and competitive situation. Finally, the research conclusions are summarised and the future research direction is outlooked. The integration of fintech and traditional financial institutions is an unstoppable trend, and traditional financial institutions should actively respond to the challenges and seize the opportunities to achieve higher quality development.

KEYWORDS

Fintech; Traditional financial institutions; Impact; Integration

1. INTRODUCTION

In recent years, fintech has risen rapidly, with technologies such as big data, artificial intelligence and blockchain being widely used in the financial sector. Its rise is a product of the fusion of scientific and technological progress and financial innovation, with the popularity of the mobile Internet making financial services more convenient, and big data and artificial intelligence improving service quality and efficiency. Against this backdrop, traditional financial institutions are facing challenges, and fintech companies are seizing market share, threatening their business models and profitability, but also bringing opportunities. This study aims to explore the integration path between fintech and traditional financial institutions to provide reference for the development of the financial industry. Fintech has the advantages of reducing costs and improving efficiency, etc. Traditional financial institutions can explore the integration path from strengthening technological innovation, cooperating with fintech companies, and strengthening supervision and risk management, such as introducing artificial intelligence technology and launching intelligent financial management services, etc., in order to realise transformation and upgrading, and to promote the financial industry to achieve a higher-quality development with the help of science and technology.

2. DEVELOPMENT STATUS OF FINTECH AND TRADITIONAL FINANCIAL INSTITUTIONS

2.1. History and Characteristics of Fintech Development

2.1.1. Stages of FinTech development

The history of fintech dates back to 1866, when the transatlantic telegraph cable linking Western Europe and North America marked the beginning of the marriage of finance and technology. FinTech in the modern sense is generally considered to have begun in the 1980s and is divided into three main phases. In FinTech 1.0 (1980-1989), banks began using mainframe computers to capture, record and store data, and in October 1989 First Direct, the world's first direct bank, was established. FinTech 2.0 (1990 - 2010), the emergence of Internet finance, landmarks include the emergence of mobile payments in 1990, the establishment of Etrade, the first Internet brokerage in the United States, in 1992, the world's first Internet bank, SFNB, was established in 1995, the Internet equity crowdfunding in 2003, the first Internet lending platform, Zopa, went online in 2005. The first online lending platform, Zopa, was launched in 2005. In Fintech 3.0 stage (2011 to present), new information technology represented by big data, cloud computing, artificial intelligence, and blockchain replaced the Internet as the most important driving force to promote Fintech, and in October 2015, Ling, the world's first blockchain platform, was released on the NASDAQ stock exchange in the U.S. In September 2016, Barclays Bank of the U.K. completed its first transaction based on blockchain technology. transaction based on blockchain technology.



Figure 1. Stages of FinTech developments

2.1.2. Characteristics of FinTech

Fintech is characterised by high efficiency, convenience and low cost. Efficiency is reflected in improved business processing efficiency through automated processes and big data analysis. For example, fintech companies can reduce labour and operating costs by about 30 per cent and increase business processing efficiency by more than 50 per cent. Convenience is demonstrated by the fact that FinTech makes financial services more convenient, and users can access financial services anytime and anywhere through mobile devices. Fintech services such as online banking and mobile payments speed up transactions and settlements [1]. In terms of low cost, the cost of providing financial services has been reduced through automated and digitised processes. In addition, FinTech is innovative, personalised, secure, inclusive and transparent. Fintech has fuelled the emergence of new business models and services, such as crowdfunding platforms and digital wallets. Using big data and artificial intelligence, fintech can provide more personalised financial products and services. While FinTech also brings new security challenges, it also facilitates the development of more advanced security technologies and solutions. Fintech can help expand the reach of financial services to more people, especially those in areas that are difficult to reach with traditional banking services. Through technologies such as blockchain, fintech has improved the transparency and traceability of transactions.

2.2. Status and Challenges of Traditional Financial Institutions

2.2.1. Business models of traditional financial institutions

Traditional financial institutions mainly focus on offline business models, including banks, insurance companies, securities companies and other financial institutions providing financial services to customers through physical outlets. For example, banks handle deposits, loans, remittances and other businesses through offline outlets; insurance companies sell insurance products through offline channels such as agents and brokers; and securities companies provide investors with services such as securities trading and investment counselling through their business offices. While this business model can provide face-to-face services and enhance customer trust to a certain extent, it also has some drawbacks [2]. For example, the operating costs of offline outlets are high, including the costs of rent, staff salaries and equipment maintenance. At the same time, the offline business model has a limited service scope, making it difficult to reach customers in remote and rural areas.

2.2.2. Challenges faced by traditional financial institutions

Traditional financial institutions face the challenge of inadequate service coverage. Because of the high cost of the offline business model of traditional financial institutions, it is difficult for them to set up extensive outlets in remote and rural areas, making it difficult for customers in those areas to enjoy convenient financial services. According to statistics, there are still some rural areas in China where the coverage rate of financial services is less than 50 per cent. Traditional financial institutions face the challenge of insufficient innovation capacity. In the context of the rapid development of financial technology, the business model and product services of traditional financial institutions are relatively single, and the speed of innovation is slow. In contrast, fintech companies are able to quickly launch innovative financial products and services to meet the diversified needs of customers, and the mobile payment and Internet wealth management products launched by fintech companies have gained the favour of a large number of users in a short period of time. Traditional financial institutions also face competitive pressure from fintech companies. With their technological advantages and innovation capabilities, fintech companies have rapidly seized market share, posing a serious threat to the business model and profitability of traditional financial institutions.

3. IMPACT OF FINTECH ON TRADITIONAL FINANCIAL INSTITUTIONS

3.1. Impact at the operational level

3.1.1. Demand for service upgrades

The rapid development of financial technology has put forward higher requirements for the services of traditional financial institutions. Taking the banking industry as an example, fintech has promoted the upgrading of banking business, requiring banks to provide more convenient, efficient and personalised services. The popularity of mobile payment has made customers put forward higher requirements for banks' payment services, hoping to realise real-time arrival, no handling fee and other functions. At the same time, the emergence of intelligent customer service also makes customers have new expectations for the bank's customer service, hoping to get faster and more accurate answers. According to relevant data, more than 70% of customers hope that banks can provide 24-hour uninterrupted service, and more than 50% of customers hope that banks can provide personalised financial products and services. This requires traditional banks to increase their investment in fintech and improve their services to meet the changing needs of their customers.

3.1.2. Volume shifts

With the development of financial technology, the trend of shifting the volume of traditional banking business to online has become more and more obvious, which has caused a huge impact on physical branches. On the one hand, the emergence of online banking, mobile banking and other fintech

services has made it possible for customers to carry out financial transactions anytime, anywhere, without the need to travel to physical branches. On the other hand, the introduction of various innovative financial products and services by fintech companies has attracted a large number of customers, leading to a decline in the business volume of traditional banks.

The market share of mobile payment has been expanding in recent years, and according to statistics, the market scale of China's mobile payment reached 500 trillion yuan in 2023, with a year-on-year growth of 20%. On the other hand, the cash transaction volume of traditional banks has been declining, and the cash transaction volume of some banks has even dropped by more than 50%[3]. In addition, fintech products such as Internet wealth management and P2P lending have also attracted a large amount of customer funds, which has impacted the deposit business of traditional banks.

The shift in business volume has not only led to pressure to close and restructure the physical branches of traditional banks, but has also had an impact on their profitability. Traditional banks need to accelerate the pace of digital transformation and enhance the competitiveness of their online business to meet the challenges posed by fintech.

3.2. Impact of the Profit Model

3.2.1. Shift in income structure

The development of financial technology has led to significant changes in the revenue structure of traditional financial institutions. Traditional financial institutions rely mainly on interest income, such as the deposit spread that banks earn by taking deposits and issuing loans. However, with the rise of fintech, traditional financial institutions have had to expand their non-interest income sources.

Fintech has driven changes in the payment and settlement business. The popularity of mobile payment has made the fee income of traditional banks face challenges, but at the same time, it has also prompted banks to speed up the innovation of payment services, such as the introduction of two-dimensional code payment and near-field payment, in order to obtain more fee income. According to statistics, the proportion of fee income from payment and settlement business has been on the rise in recent years, with the proportion of fee income from payment and settlement accounting for more than 30 per cent of non-interest income for some banks.

Fintech helps traditional financial institutions expand their intermediate business, and the emergence of smart investment advisors has brought new business growth points for traditional financial institutions. Through big data analysis and artificial intelligence algorithms, it provides customers with personalised investment advice and asset allocation solutions, charging a certain management fee [4]. In addition, fintech has also promoted the innovation of traditional insurance organisations, for example, the development of internet insurance has led to an increase in the fee and commission income of insurance organisations.

3.2.2. Innovative profit models

Fintech has brought new profit models to traditional financial institutions. Big data risk pricing is a typical representative of this. While traditional financial institutions mainly rely on historical data and empirical judgement in risk assessment and pricing, fintech can make use of big data analysis and machine learning algorithms to more accurately assess and price customers' credit risks.

By collecting and analysing multi-dimensional information such as customers' social network data and consumer behaviour data, some fintech companies provide traditional financial institutions with more accurate risk assessment reports and help them to set more reasonable loan interest rates and insurance premium rates. According to relevant data, financial institutions adopting big data risk pricing can reduce their non-performing loan ratio by about 20 per cent and significantly improve their profitability.

The application of blockchain technology has also brought innovative profit models to traditional financial institutions, enabling decentralised transactions and settlements, reducing transaction costs and improving transaction efficiency. Traditional financial institutions can use blockchain technology to carry out cross-border payment, supply chain finance and other businesses to obtain new sources of income. Some banks have used blockchain technology to carry out cross-border payment business, shortening the transaction time from several days to a few hours, and significantly reducing the handling fee, as well as improving customer satisfaction.

4. INTEGRATION MODEL OF FINTECH AND TRADITIONAL FINANCIAL INSTITUTIONS

4.1. Integration of Technology Applications

4.1.1. Big data analysis

Big data analytics plays a crucial role in traditional financial institutions, providing them with accurate customer profiling and risk assessment. By collecting data on users' basic information, consumption behaviour, asset status and other aspects, financial institutions are able to more accurately understand users' needs and preferences, and thus provide more personalised and customised financial services.

According to relevant data, in the financial industry, the marketing effect of financial institutions can be increased by more than 30% after using big data technology to build accurate user profiles. When building customer profiles, basic user information, such as age, gender, occupation, etc., as well as consumer behaviour data, including purchase records, financial management, etc., should be taken into account. In addition, it is also necessary to collect information on the user's asset status, as well as location and family size. By analysing and mining these data, a comprehensive and accurate user profile can be obtained.

In terms of risk assessment, big data analytics can help financial institutions better identify potential risks. By analysing data such as customers' transaction records and credit history, financial institutions can assess customers' credit risks and provide a basis for loan decisions. At the same time, big data analytics can also be used for market risk assessment, by monitoring market dynamics and industry trends, potential risk factors can be identified in a timely manner.



Figure 2. Big data analysis

4.1.2. Artificial intelligence

Artificial intelligence is also being used more and more widely in traditional financial institutions, mainly in areas such as customer service and risk control.

In terms of customer service, the emergence of intelligent customer service provides customers with a more convenient and efficient service experience. Through natural language processing technology, intelligent customer service can understand the customer's questions and provide accurate answers to

achieve 24-hour uninterrupted service. According to statistics, intelligent customer service can solve about 80% of common customer problems, greatly reducing the pressure of manual customer service.

In terms of risk control, AI can build intelligent risk control models through machine learning algorithms to automatically identify and assess risks. By analysing the customer's transaction behaviour, credit history and other data, the intelligent risk control model can detect abnormal transaction behaviour in a timely manner and reduce the risk of fraud. Meanwhile, AI can also be used for credit assessment, providing financial institutions with more accurate credit assessment results by analysing multi-dimensional data of customers.

Artificial intelligence can also be applied to the field of investment decision-making. Through big data analysis and machine learning algorithms, intelligent investment consultants can provide personalised investment advice to help clients develop more scientific investment strategies. According to relevant data, the investment return rate of intelligent investment consultants is on average about 10 per cent higher than that of traditional investment consultants.

4.2. Co-operation Case Studies

4.2.1. Introduction to integration cases

(1) Balance Transfer and Tianhong Fund

In 2013, Tianhong Fund entered into a co-operation with Alipay and launched Balance Treasure. As China's first Internet money fund, Balance Bao pioneered the mode of "starting from 1 yuan, redeemable at any time", using the power of the Internet to meet the needs of the general public for small amounts of money management. By combining Alipay's user traffic with Tianhong Fund's money fund products, it realises the integration of financial technology and traditional financial institutions. After the birth of the balance treasure, the scale grew rapidly, and in 2017, the total scale of Tianhong Fund exceeded 1.2 trillion yuan, becoming the first public fund company with a scale of more than one trillion yuan in China. In 2018, the total scale of Tianhong Fund was as high as 1.99 trillion yuan. However, with Alipay's access to other fund companies' money funds, Tianhong's balance treasure monopoly disappeared, and the scale began to go downhill. In addition, the continuous decline of the balance of the treasure yield, also led to the loss of users. However, it is undeniable that the cooperation between Balance Bao and Tianhong Fund has provided a successful case for the integration of financial technology and traditional financial institutions.

(2) Jingdong Financial and traditional banks

Jingdong Finance has cooperated with traditional banks to launch a series of innovative financial products and services. Jingdong Finance has cooperated with a number of banks to launch a white stripe co-branded credit card, which combines the consumption scenarios of Jingdong Finance and the credit card services of the banks to provide users with a more convenient consumption experience. In addition, Jingdong Finance also cooperates with banks to carry out supply chain finance business, providing financing services for small and medium-sized enterprises through big data analysis and risk assessment. The cooperation between Jingdong Finance and traditional banks gives full play to the advantages of both sides and achieves resource sharing and mutual benefit.

(3) Anthem and the traditional insurance industry

Ant Gold cooperated with the traditional insurance industry to launch a number of innovative insurance products. Ant Insurance cooperated with a number of insurance companies to launch the Good Medical Insurance series of products, which are sold through the Internet channel and provide users with a more convenient insurance purchasing experience. At the same time, Ant Insurance also uses big data analysis and artificial intelligence technology to provide users with personalised insurance recommendations and risk assessment services. The cooperation between Ant Financial

Services and the traditional insurance industry has promoted the digital transformation and innovative development of the insurance industry.

WeChat Pay and Traditional Retail: WeChat Pay has cooperated with the traditional retail industry to launch the WeChat Pay Smart Retail Solution. Through WeChat Pay's code-sweeping payment, small programmes and other functions, it provides traditional retailers with more convenient payment methods and marketing tools. At the same time, WeChat Pay also uses big data analysis and artificial intelligence technology to provide precision marketing and customer relationship management services for traditional retail. The cooperation between WeChat Pay and traditional retail industry has promoted the digital transformation and upgrading development of traditional retail industry.

4.2.2. Summary of integration patterns

(1) Data Sharing and Innovative Co-operation

Fintech companies and traditional financial institutions share data to achieve accurate customer profiling and risk assessment. Balance Bao provides Tianhong Fund with accurate customer profiles through Alipay's user data, thus launching more personalised financial products and services. At the same time, fintech companies and traditional financial institutions can also work together to carry out innovative projects, such as the White Stripes co-branded credit card launched by Jingdong Finance in cooperation with traditional banks, which is an innovative financial product and service.

Strategic alliance with complementary advantages: Fintech enterprises and traditional financial institutions achieve complementary advantages and win-win development by establishing a strategic alliance. In the cooperation between Ant Financial Services and the traditional insurance industry, Ant Financial Services uses its technological advantages and innovation capabilities to provide support for the digital transformation and innovative development of the traditional insurance industry; the traditional insurance industry, in turn, makes use of its financial strength and industry experience to provide Ant Financial Services with support for its insurance products and services.

(2) Open platform and ecological co-operation

Fintech companies build open platforms to attract traditional financial institutions to move in and jointly build financial ecosystems. WeChat Pay has built the WeChat Pay smart retail open platform to attract traditional retailers to move in and jointly build a smart retail ecosystem. Through open platform cooperation, fintech enterprises and traditional financial institutions can jointly launch richer financial products and services to meet the diverse needs of users.



Figure 3. Open platform and ecological co-operation

5. FUTURE TRENDS IN THE INTEGRATION OF FINTECH AND TRADITIONAL FINANCIAL INSTITUTIONS

5.1. Outlook for the direction of development

5.1.1. Digital transformation

With the continuous progress of technology, the integration of fintech and traditional financial institutions will continue to deepen in terms of digital transformation. Traditional financial institutions will further increase their investment in digital technology, build a more complete digital infrastructure, and enhance their data storage and analysis capabilities through the construction of efficient data processing centres to provide strong support for businesses such as precision marketing and risk assessment.

According to statistics, more than 80 per cent of traditional financial institutions have formulated a clear strategy for digital transformation, and it is expected that this proportion will continue to rise in the coming years. Digital transformation will make the business processes of traditional financial institutions more efficient and transparent [5]. Customers can conveniently handle all kinds of financial services, such as account opening, loan application and wealth management purchase, through online channels, which greatly improves service efficiency. Through digital process optimisation, the loan approval time can be shortened from several days to a few hours or even a few minutes, which greatly improves customer experience.

In addition, digital transformation will promote data sharing and cooperation among financial institutions. Through the establishment of a unified data standard and sharing platform, financial institutions can better integrate resources and achieve complementarity of advantages, and banks can share customer data with insurance and securities institutions to provide customers with more comprehensive financial service solutions.

5.1.2. Intelligent upgrading

In the future trend of fintech integration with traditional financial institutions, intelligent upgrading will become a key direction. With the help of advanced technologies such as artificial intelligence, big data and blockchain, financial institutions will realise the intelligence of financial products and services.

Artificial intelligence technology will play a greater role in customer service, risk assessment, investment decision-making and other areas. Intelligent customer service can more accurately understand customer needs and provide more personalised services through natural language processing technology. At the same time, the intelligent risk control system can monitor customer transaction behaviour in real time, discover potential risks in a timely manner, and improve risk prevention capabilities.

Big data technology will provide financial institutions with more accurate customer profiles and market forecasts. By analysing huge amounts of data, financial institutions can gain an in-depth understanding of customers' needs and preferences, tailor financial products and services for customers, and recommend suitable financial products for customers based on their consumption habits and risk tolerance.

Blockchain technology will enhance the security and transparency of financial transactions. Through a decentralised distributed ledger, blockchain can ensure the non-tampering and traceability of transaction records and reduce transaction risks. In the field of cross-border payments, blockchain technology can achieve fast and secure fund settlement and improve transaction efficiency.

5.2. Future Landscape and Competitive Landscape

5.2.1. Innovative developments in the financial sector

Fintech will continue to drive innovation and development in the financial industry. As technology continues to advance, new fintech applications will continue to emerge, bringing more innovative opportunities to the financial industry, and the development of quantum computing technology may bring revolutionary changes to financial risk assessment and investment decision-making. According to relevant studies, the application of quantum computing in the financial sector is expected to improve the accuracy of risk assessment by at least 30 per cent.

Fintech will also promote innovation in the financial services model. Through virtual reality (VR) and augmented reality (AR) technologies, financial institutions can provide customers with a more immersive financial services experience. Customers can visit virtual banking offices, learn about financial products and services, and make investment decisions through VR equipment. In addition, fintech will also promote the innovation of financial products, such as digital asset trading platform based on blockchain technology, smart contract insurance and other new financial products will continue to emerge.

5.2.2. Reshaping the financial sector landscape

The integration of fintech and traditional financial institutions will further deepen and reshape the financial industry landscape. On the one hand, traditional financial institutions will embrace fintech more actively, increase technological innovation and digital transformation to enhance their competitiveness, and traditional banks will further expand their online business, strengthen cooperation with fintech companies, and launch more innovative financial products and services.

On the other hand, fintech companies will continue to grow and become important players in the financial industry. As the fintech market continues to expand, fintech companies will compete more fiercely with traditional financial institutions in areas such as payments, lending and investment. According to market research firms, the share of fintech companies in the global financial market will continue to grow over the next five years and is expected to reach more than 30 per cent.

In addition, the integration of fintech and traditional financial institutions will also promote cross-border cooperation and integration in the financial industry, and financial institutions will cooperate more closely with technology companies, e-commerce platforms, social media and other enterprises to jointly create a diversified financial services ecosystem [6]. Such cross-border cooperation will bring more innovation and development opportunities to the financial industry, and will also intensify the competitive landscape of the financial industry.

6. CONCLUSIONS AND OUTLOOK

This study examines the impact and convergence of fintech on traditional financial institutions. The impact is reflected in business and profitability models, while the integration has technology applications and multiple cooperation models. Future convergence will continue to deepen in digital transformation and intelligent upgrading, and promote the innovative development of the financial industry. Traditional financial institutions should actively respond to the challenges, and regulators should strengthen supervision.

6.2 Outlook of Future Research Directions: First, focus on the application of emerging technologies in the financial sector and multi-technology convergence; second, focus on the new risks of fintech, improve the regulatory system, and explore the innovative regulatory model; third, understand the changes in customer needs and enhance customer experience; fourth, conduct international comparison and cooperation, learn from successful experiences, and strengthen international cooperation to Enhance the international competitiveness of China's financial industry. In short, there are many research directions in this field in the future, which can promote the integration of financial technology and traditional financial institutions to a higher level.

REFERENCES

- [1] Abraham E, D.P. N D V, Kwasi P C C. FinTech and financial development: the role of traditional financial institutions [J]. African Journal of Economic and Management Studies, 2024, 15(4):704-719.
- [2] Liu X. Fintech Disruption in Traditional Banking: Opportunities and Challenges for Financial Institutions [J]. Trends in Social Sciences and Humanities Research, 2024, 2(8):
- [3] Abikoye E B, Adelusi W, Umeorah C S, et al. Integrating Risk Management in Fintech and Traditional Financial Institutions through AI and Machine Learning [J]. Journal of Economics, Management and Trade, 2024, 30(8):90-102.
- [4] Barbosa K, Rocha P D B, Pereira M L, et al. Payment card interchange fee regulation and financial institutions: The effects on traditional and fintech financial conglomerates* [J]. Finance Research Letters, 2024, 64105491-.
- [5] Nermin S. How Traditional Financial Institutions have adapted to Artificial Intelligence, Machine Learning and FinTech? [J]. Proceedings of the International Conference on Business Excellence, 2022, 16(1):837-848.
- [6] Suprun A, Petrishina T, Vasylchuk I. Competition and cooperation between fintech companies and traditional financial institutions [J]. E3S Web of Conferences, 2020, 16613028.