



Research on the Optimization and Development of Commercial Banks Based on Fintech Development

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Abstract. The power of science and technology has become an important core competitiveness of the financial industry, and while it brings high efficiency and quality to financial business, it also faces new risks and challenges. The financial industry should deal with the relationship between security and development, gather consensus and synergy, and promote fintech to move forward steadily, and truly make fintech serve the people and benefit the people. "Fintech is technology-driven financial innovation. The financial administration should further improve the relevant supporting rules, and financial institutions should formulate an all-round digital transformation strategy, promote the in-depth application of fintech and accelerate digital transformation. In the development of fintech, extra attention needs to be paid to fairness and balance. This paper is based on the development of financial technology on the development of commercial banks to carry out a new breakthrough research, combined with the study of the progress and development of financial technology, a better study of the optimization of the development of commercial banks rain the future direction of the bank, and make a new analysis and outlook on the development of the bank.

Keywords: Financial development; Technological innovation; Business progress; Financial technology

1 Introduction

Innovative development is the core concept of the transformation of old and new kinetic energy for China's economic development, and the potential and impetus for high-quality development lies in innovation. For the portrayal of the concept of innovative development, the following aspects are examined [1]. First of all it is the talent capital, the source of enterprise innovation in scientific research colleges and institutes, a group of high-quality scientific research talents with strong independent innovation ability is the necessary reserve to realize the development of innovation [2]. Coordinated development is the inherent requirements of economic and social stability, sustainable and healthy development, only when the government, enterprises, individuals to achieve coordinated development, can maximize the clarity of property rights, reduce transaction costs and improve transaction efficiency. In this paper, coordinated development is mainly divided into the following three dimensions, namely urban-rural coordination,

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industrial structure and supply and demand coordination. Shared development is aimed at solving the problem of imbalance and inadequacy in development, and is the fundamental starting point and landing point of development in contemporary China [3] [4].

Globally, fintech has absorbed financing totalling more than \$200 billion, and more than 400 investment institutions and financial institutions are actively involved in fintech investment, including many traditional financial enterprises. Financial embrace of technology has become a mandatory course of study, rather than an icing on the cake option.

McKinsey Global Senior Managing Partner Qu Xiangjun said: "Fintech is continuing to reshape the global financial industry on a large scale, and the overlap between technologies is accelerating, while new technologies continue to emerge, also giving rise to a lot of new unicorns, in addition to venture capital also attracted more and more financial institutions to participate in the competition for investment. 2021, the total amount of fintech investment jumped to more than 220 billion U.S. dollars, 2022, and 2022, the total amount of fintech investment in the financial industry jumped to over \$20 billion. to over \$220 billion in 2021, and the total investment in 2022 is expected to continue this trend. As technology evolves, the new business models it creates continue to mature. there are 7 key technologies and 22 categories of innovative business models to watch for in the fintech space in 2022".

Looking at the latest developments in global FinTech 2022, there are four major trends that are particularly noteworthy. First, the technology is maturing, the application is penetrating deeply, and it is moving from pilot to scale application; second, emerging technologies are emerging, broadening the connotation of technology and injecting new vitality into the financial sector; third, the superposition of multiple technologies is exerting a multiplier effect and injecting innovative momentum into finance; fourth, privacy protection is awakening, information security is adding value, and it is becoming the new growth point of fintech. Starting from the four major trends, this issue of the quarterly magazine summarises seven new technologies that will reshape the future landscape of the financial industry:

Artificial Intelligence: from single-point attempt to comprehensive application, deeply integrating all aspects of business and operation; providing additional value to financial institutions in terms of project/product landing speed, overall work efficiency, comprehensive cost control, and security;

Cloud Computing: accelerating the trend of scaling up to the cloud, cloud computing and edge computing complement each other; front-end outlets and back-end computing power that can be flexibly arranged will unlock a series of application scenarios with high customer perception;

Meta-universe and comprehensive virtual technology: virtual perception constructs virtual worlds and reshapes customer service and internal operations; the continuous development of spatial computing technology and AR/VR/MR technology will redefine customer experience and internal operations;

Blockchain and Web3.0: Internet paradigm iteration and disruption of future business models; blockchain, digital assets, decentralised architecture will disrupt the original portal platform business model and even give rise to a new financial services sector;

Next-generation communications: high-bandwidth, low-latency, and strong security data transmission empowering technological solutions, and IoT technology continues to drive new use cases to the ground; high-throughput satellite networks, 5G/6G, low-energy LANs, and other communications technologies from the sky to the ground are developing individually and integrating with each other, and will empower faster and more secure financial products and applications;

Next-generation integrated development: civilian development, flexible deployment, intelligent assistance, and automated development will transform the traditional technology-intensive development process, further lowering the development threshold, and technological capabilities will no longer be a moat exclusive to technology companies;

Trust Architecture and Digital Identity: building a digital trust system to strengthen the cornerstone of fintech security; zero-trust architecture, digital identity, privacy engineering and other technologies to safeguard financial and privacy security and enhance trust.

2 Modeling of Systematic Coupling Between Financial Technology and Economic High-Quality Development

2.1 Research Methodology

Coupled Coordination Model.

Coupling coordination reflects the degree of interdependence and mutual promotion between two systems [5]. This paper draws on the research results of Zhou DeTian and Feng ChaoCai, and constructs a coupling and coordination model in terms of the "quantitative expansion" of development and the "qualitative increase" of coordination:

Systems development model:

$$T = \alpha FT + \beta HQD \quad (1)$$

System Coordination Model:

$$C = \frac{4FT \times HQD}{(FT + HQD)^2} \quad (2)$$

System coupling model:

$$D = \sqrt{C \times T} \quad (3)$$

Where: T represents the comprehensive level of the development of two different subsystems of fintech and economic high-quality development; FT and HQD represent the development indicators of the different systems of fintech and economic high-quality development measured by the entropy method, respectively; α, β is the weighting factor to be determined, and $\alpha + \beta = 1$, In this paper, the financial technology system and the system of high-quality economic development are recognized as systems of equal status, i.e., they are of equal importance in the development of the real society, and the financial technology system and the system of high-quality economic

development are recognized as systems of equal status, Therefore, the value of $\alpha = \beta = 0.5$ is assigned.; C is the degree of coordination, used to measure the coordination status between the system is good or bad, the larger the value of C, indicating that the degree of coordinated development between the two systems is higher; D is the degree of coupling between the two systems, the closer the coupling degree is to 1, the higher the degree of coupling between the systems, the closer the coupling degree is to 0, which indicates that the coupling between the two is the lower the degree of coupling, according to the degree of coupling, this paper will be divided into 10 intervals of the degree of coupling, Table 1 for the coupling degree of the grade. Table 1 shows the level of coupling degree.

Table 1. Coupling Criteria

Coupling value	Coupling stage	Harmonization level
0.00~0.09	Minimum Coupling	Extreme Disorder
0.10~0.19	Low Level Coupling	Severe disorder
0.20~0.29	Low level coupling	Moderate disorder
0.30~0.39	Antagonistic coupling	Mildly dysfunctional
0.40~0.49	Antagonistic coupling	Nearly dysfunctional
0.50~0.59	Grinding coupling	Barely coordinated
0.60~0.69	Grinding coupling	Elementary coordination
0.70~0.79	Grinding coupling	Intermediate coordination
0.80~0.89	High level coupling	Good coordination
0.90~0.99	Maximum coupling	Quality coordination

3 G Recommendations for the Development of Digital Transformation in Banks

3.1 Building a Big Data Information Platform

One of the major opportunities for Bank G's digital transformation is the creation of a big data and information platform, and seizing this opportunity will require the following measures: strengthening the data infrastructure, accelerating the application of new technologies, and enhancing the ability to innovate digital products [6].

Strengthening Data Infrastructure.

The development of digital transformation cannot be separated from the construction of data infrastructure. Banks should adhere to the digital transformation strategy and accelerate the construction of technology-based big data banks [7].

Accelerating the Application of New Technologies.

With the current rapid development of new technologies, it is difficult for banks to bypass the application of new technology techniques in the process of digital

transformation [8]. Specifically, it includes the following three aspects: artificial intelligence (AI), business intelligence (BI), and cloudization.

Enhance Digital Product Innovation Capabilities.

Banks' digital products are still in the imitation stage and in the position of followers. However, if, according to the Matthew effect, the strong get stronger and the weak get weaker, and large banks represented by ICBC and China Merchants Bank rapidly occupy the core position of the ecosystem, the survival space of banks will be continuously compressed [9].

3.2 Undertake Service Transformation

G Banks have the same development opportunities as other commercial banks when it comes to digital transformation, i.e., the opportunity for commercial banks to undergo service transformation, which can only drive sustainable growth if it is done aggressively so that customers are satisfied with the bank's services [10].

Online And Offline Omni-Channel Service.

The rapid development of fintech companies relies on online resources, and when banks cooperate with them, they can actively learn to think about the development of online resources, and they also need to have the ability to effectively allocate offline resources.

Enhance Service Level Based on Customer's Perspective.

Banks used to be a glamorous place for financial services, with customers queuing up to do business, but the development of fintech has shifted these queues to online, mainly because fintech companies' online services are more convenient, while traditional commercial banks need to move from comfortably lying down and earning money to trying to run up and earn money.

Utilizing Artificial Intelligence Technology to Serve Customers.

With the rapid iteration of artificial intelligence, supported by huge arithmetic power, which can communicate with people without barriers and replace more and more traditional positions, banks should utilize AI technology, actively embrace new technologies and strengthen cooperation efforts with new technology companies to serve customers.

4 Conclusions

In today's financial sector, the power of science and technology has transformed from the subordinate position of support and protection in the past to the driving position of leading and reshaping, and has become an important core competitiveness of the

financial industry. The financial industry should deal with the relationship between security and development, gather consensus and synergy, and promote financial science and technology to move forward steadily, so as to truly realize that financial science and technology serves the people and benefits the people. Currently, global financial regulators are actively promoting the application of regulatory technology to optimize the financial regulatory model, enhance regulatory effectiveness and reduce compliance costs through modern scientific and technological achievements. It is recommended that the domestic financial management authorities base on China's national conditions and promote the work of regulatory technology in a steady and orderly manner.

Reference

1. Jia Jin. Research on retail business development of commercial banks under the background of financial technology[J]. Commercial Exhibition Economics,2023(16): 97-100. DOI: 10.19995/j.cnki.CN10-1617/F7.2023.16.097.
2. Xueqing Dai. Research on the development of financial technology in commercial banks[J]. Financial Guest,2023(03):7-9.
3. Li Fei. Research on retail business development of commercial banks empowered by financial technology[D]. Zhejiang Gongshang University, 2022. DOI: 10.27462/ d. cnki. ghzhc. 2022.000606.
4. You Ting. Research on financial technology to support the development of retail business of China's commercial banks [D]. Anhui University, 2021. DOI: 10.26917 /d. cnki. ganhu. 2021.001136.
5. Duo Qingshuai, Fang Mengyuan. Research on the transformation and development of China's commercial banks under the background of financial technology[J]. China Market,2020(32):43-44. DOI: 10.13939/j.cnki.zgsc.2020.32.043.
6. Niu Shuyang. Research on the transformation and development of commercial banks under the background of financial technology[J]. China Management Informatization, 2020, 23 (06):148-149.
7. WEI Yanqiu, WU Liangjun. Research on the multi-state development of commercial banks under financial technology[J]. Bohai Economic Outlook,2019(08): 5-8. DOI: 10.16457 /j. cnki. hbjjllw.2019.08.002.
8. Cheney Chris et al. Research on the development of science and technology finance in commercial banks [D]. Anhui University,2019.
9. Financial technology subject group of Jiangsu branch of Industrial and Commercial Bank of China, Yan Hong. Research on the development of financial technology in commercial banks--Taking ICBC as an example[J]. China Urban Finance,2017(09):29-32.
10. Aaron et al. Research on the development of science and technology financial business of commercial banks[D]. Anhui University,2017.

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