Proceedings of Business and Economic Studies, 2024, Volume 7, Issue 5
http://ojs.bbwpublisher.com/index.php/PBES
Online ISSN: 2209-265X
Print ISSN: 2209-2641

Research on the Impact of the Digital Transformation of Commercial Banks

Jinjin Gao*

Hebei GEO University, Shijiazhuang 050030, China

***Corresponding author:** Jinjin Gao, 18830157383@139.com

Abstract: The development of the digital economy has presented both opportunities and challenges for the transformation of commercial banks. This article aims to conduct a literature review on the impact of digital transformation on commercial banks and to explore the multi-dimensional effects it brings. Through a review and analysis of relevant domestic and international literature, this paper first defines the connotation of digital transformation in commercial banks. It then conducts a literature analysis and research on the strategic governance, business performance, and risk management aspects of the digital transformation of commercial banks from multiple perspectives. Based on the analysis of the existing literature, the paper explores directions for future in-depth research and offers corresponding policy suggestions, providing a theoretical and practical foundation for the future digital development of commercial banks.

Keywords: Commercial bank; Digital transformation; Bank performance

Online publication: October 24, 2024

1. Preface

A new wave of scientific and technological revolution and industrial transformation is deepening, and digital transformation has become the general trend. According to data released in the "Digital China Development Report" [1], the added value of core industries in the digital economy is expected to exceed 12 trillion Chinese yuan in 2023, accounting for about 10% of GDP, with the digital economy maintaining steady growth. As the backbone of China's financial system, the effectiveness and efficiency of commercial banks' transformation are crucial for improving the financial system's support for the real economy and maintaining overall economic and financial stability.

In recent years, as the digital transformation of commercial banks has accelerated, academic interest in this field has grown significantly. In practice, the path to digital transformation for commercial banks has not been smooth. Faced with the high standards of digital transformation, banks often find their existing infrastructure, technical support, business processes, and risk management capabilities insufficient, leading to a balance between rapid market response and effective risk control. In light of this, this paper focuses on the issues surrounding the digital transformation of commercial banks and aims to explore its extensive impact from multiple dimensions by defining its connotation. By systematically organizing existing research results, the paper not only affirms the theoretical and practical achievements but also addresses existing problems and limitations. Furthermore, this paper will explore key directions for digital transformation research to provide valuable references for both theoretical research and practical exploration of the digital transformation of commercial banks.

2. Literature review

2.1. Connotation of the digital transformation of commercial banks

Commercial banks, as unique enterprises serving the real economy, not only adopt a broad transformation concept but also deeply reflect the specific characteristics of the industry [2]. Wang and Xie [3] pointed out that the digital transformation of commercial banks represents a profound and comprehensive innovation of traditional business models, operating mechanisms, and management systems, all while adhering strictly to the high standards of financial supervision and data security and relying on the dual engines of "data + technology." Another study further explained that the significant difference between digital banks and traditional banks lies in their abandonment of dependence on physical outlets, instead using digital networks as the foundation to provide customers with 24/7, personalized, and interactive online financial services through cutting-edge technology [4].

From a dynamic perspective, the digital transformation process of banks can be divided into two main stages. The first stage is the foundation period, where the focus is on the electronic and information transformation of business operations. During this stage, banks should strategically plan their digital transformation based on their resource conditions and market demands, build flexible and efficient organizational structures, optimize business processes, and lay a solid foundation for data collection, storage, and processing. The second stage is the deepening phase of digital upgrading, where the emphasis is on building a management and governance system that covers the entire life cycle of data. This is achieved through the use of external fintech resources such as cloud computing, big data, and artificial intelligence. By fully tapping into the value of account systems, banks can seamlessly integrate with the digital channels and scenarios of consumers, enterprises, and governments. This not only enhances customer engagement but also effectively improves market competitiveness and drives continuous business growth [5].

2.2.The impact of the digital transformation of commercial banks

2.2.1. Influence on banking strategy and governance

The digital transformation of commercial banks challenges the technical structure, human resource quality, marketing strategy, and competitive landscape of the banking industry. It also has a profound impact on banks' organizational structure, business models, and customer service methods. From a supply-side perspective, digital transformation encourages banks to widely adopt digital technology, which not only enriches the range of financial products and broadens sales channels but also innovates service tools. The establishment of intelligent platforms allows managers to efficiently and accurately collect and analyze customer information, utilizing large-scale data storage capacities to implement quantitative analysis, thereby significantly improving banks' governance efficiency.

From a demand-side perspective, digital transformation has given rise to intelligent marketing systems. Through refined customer management strategies, these systems not only enhance marketing efficiency but also effectively reduce adverse selection and moral hazards, increasing customer satisfaction and loyalty. Simultaneously, the intelligent transformation of traditional business outlets has significantly improved banks' digital service capabilities, better meeting customers' diverse needs and enhancing service efficiency and quality.

However, digital transformation comes at a cost. The reliance on intelligent marketing systems for massive user data has heightened banks' challenges regarding data security and privacy protection. Additionally, while the initial stages of business digitization laid the foundation for data collection and processing, the characteristics of data as core digital management assets—such as increasing marginal returns and decreasing marginal costs—mean that new digital products and services may face low market acceptance and performance risks. Furthermore, digital transformation may lead to the transformation or even disappearance of certain job functions.

2.2.2. Impact on business performance

Digital transformation is prompting the banking industry to integrate digital technology into the core operations of banks, having a profound impact on their business performance. The mainstream academic view suggests that this transformation trend plays a positive role in improving bank performance. Based on panel data analysis of China's banking industry, Ren and Zheng [6] confirmed that digital transformation significantly enhances the profitability of commercial banks in deposit and loan businesses, optimizes revenue structures, and thereby boosts their market competitiveness.

However, several controversies exist in academic circles. First, there is debate about the universality of digital transformation—whether the business and channel changes benefit all types of commercial banks equally. Wang *et al.* [7] highlighted these differences, pointing out that large banks with economies of scale, and small- to medium-sized internet banks with strong data acquisition capabilities, exhibit clear advantages in developing digital loan technology and serving highly digitalized corporate customers. In contrast, small- to medium-sized regional banks, which excel at gathering offline "soft" information, are lagging behind in this transformation [5].

Secondly, questions arise regarding whether the impact of digital transformation varies according to the different development stages of banks [8]. An empirical analysis of annual report data from more than 100 Chinese commercial banks proposed that although channel upgrades are an important aspect of digital transformation, in the short term, the risks and high costs associated with technology implementation may increase operational costs for banks, putting pressure on profit levels [9].

Finally, there is disagreement surrounding the balance between the "spillover effect" and the "competitive effect." When market competition intensifies due to digital transformation, and the "competitive effect" exceeds the "spillover effect" brought by technological innovation, digital transformation may negatively impact the performance of commercial banks [10].

2.2.3. Impact on risk management

The in-depth application of digital technology has significantly expanded the scope of information sharing in the credit market, enabling banks to rely on more comprehensive and accurate data for customer screening and monitoring. This, in turn, reduces the cost of customer screening and ongoing monitoring, directly lowering the risk of loan default [11]. Starting from the new ecosystem of competition and cooperation between fintech and commercial banks, Wang *et al.* [12] highlighted that the deep integration of the two will help reduce the risk exposure of commercial banks. However, Zhu and Li's research [8] questioned the linear relationship. Based on the stage characteristics of digital transformation, they revealed that there may be a nonlinear (inverted U-shaped) relationship between digital transformation and banks' risk-bearing capacity. That is, the initial stages of transformation may accompany rising risks, but as the transformation progresses, risks gradually decrease.

Existing research also emphasizes the role of digital transformation in improving the stability and resilience of the banking sector during major emergencies. Xiao *et al.* [9], using the COVID-19 pandemic as an example, analyzed how digital transformation helped banks better manage their risk exposure through improved risk monitoring, concluding that digital transformation significantly enhanced banks' flexibility in asset allocation and internal risk monitoring. Similarly, Li *et al.* [10], focusing on the COVID-19 period, noted that digital technology not only reduced the risk of physical network interruptions but also mitigated the risk exposure of existing loans through precise risk management strategies, thereby strengthening banks' internal risk control systems.

3. Conclusions and recommendations

This paper reviews and summarizes the impact of digital transformation on three aspects: strategic governance, business performance, and risk management in commercial banks. Overall, the digital transformation of commercial banks has both advantages and disadvantages, acting as a double-edged sword. While significant progress has been made in research on this topic, given that the digital transformation of commercial banks is still in its early stages and far from mature, this emerging field requires further exploration and expansion in both theoretical research and practical application.

3.1. Focus on negative effects such as the digital divide

Research on the impact of the digital transformation of commercial banks primarily focuses on improving performance, enhancing operational efficiency, optimizing management processes, and effectively managing risks. However, the "digital divide" resulting from the development of the digital economy cannot be ignored during this transformation. An important goal of the digital transformation of commercial banks is to ensure the broad coverage of the financial system, allowing all potential service recipients to easily and safely access reasonably priced financial products and services [14]. While the penetration rate of digital devices continues to increase, in some rural and impoverished areas, a portion of the population still faces limitations in accessing and fully using these devices, preventing them from enjoying the convenience and benefits of digital financial services. Therefore, future research should carefully explore the "double-edged sword" effect of digital transformation in the field of inclusive finance—examining how it can "empower" by promoting the expansion and deepening of financial services, and how it may serve as "negative energy" by exacerbating the "digital divide."

3.2. Increasing investment in research and development, and distributing fintech applications

In recent years, commercial banks leading the global digital transformation have increased their investment in technological research and development, advancing new technologies through mergers and acquisitions, strategic alliances, and other means. In contrast, the Chinese banking industry has shown relatively insufficient investment in data research and development. In light of this, China's banks urgently need to increase their investment in digital transformation, particularly in the research and innovation of data technology. First, in key areas such as digital banking infrastructure, digital applications and promotion, intelligent scenario construction, and network security, significant investment in capital and talent is needed to provide solid support for digital transformation. Second, banks should prioritize the independence and development of technology research and collaboration, establishing strong ties with government departments, academic institutions, and tech enterprises. Through deep cooperation and joint research and development, they can build a digital financial technology innovation ecosystem that promotes the rapid transformation and application of technological achievements, thereby advancing the digital transformation of the banking industry to new heights.

3.3. Preventing risks and strengthening digital risk control

With the widespread application of digital technology, accompanying risks such as cyberattacks and technology misuse have become increasingly prominent. In particular, non-traditional risks, such as data security, pose significant challenges to the digital transformation of banks. Internally, banks need a two-pronged strategy: on one hand, they should establish a risk prevention and control system aligned with the digital transformation strategy. This involves fully utilizing cloud computing, artificial intelligence, and big data to upgrade internal risk management systems, enabling intelligent risk monitoring, early warnings, and precision in risk management, thereby improving the timeliness and effectiveness of risk responses [14]. On the other hand, banks must prioritize data security and privacy protection by establishing and enhancing a data security management system, implementing a data classification management strategy, conducting security reviews and evaluations of third-party data cooperation, and ensuring the security and compliance of data in circulation, processing, and storage [15]. Additionally, banks should maintain close communication and cooperation with regulatory authorities to foster a regulatory environment that encourages innovation while ensuring safety, thus promoting the healthy and sustainable development of digital transformation.

Disclosure statement

The authors declare no conflict of interest.

References

[1] Wang S, Xie X, 2021, Do You Know What You Do? Management Cognition and the Digital Transformation of Banks. Financial Comments, 13(6): 78–97.

[2] Luo Y, Cui S, Kuang C, 2022, Digitalization and Business Transformation of Commercial Banks – Based on the Perspective of Traditional Business Structure Change. International Financial Research, 2022(5): 34–44.

[3] Wang S, Xie S, 2022, Digital Transformation of Commercial Banks in China: Measurement, Process, and Influence. Economics (Quarterly Journal), 22(6): 1937–1956.

[4] Sia SK, Soh C, Weill P, 2016, How DBS Bank Pursued a Digital Business Strategy. MIS Quarterly Executive, 15(2): 4.

[5] Zhang Y, Yu Y, Chen Z, 2021, Artificial Intelligence, SME Financing, and Digital Transformation of Banks. Industrial Economy of China, 2021(12): 69–87.

[6] Ren B, Zheng Z, 2021, The Influence of Fintech on the Risk-Taking of Commercial Banks – Based on the Perspective of the Credit Structure of Commercial Banks. Journal of Guizhou University of Finance and Economics, 2021(5): 61–69.

[7] Wang X, Deng X, Zhou H, 2022, The Impact of Fintech on the Business Performance of Commercial Banks: To Promote or Restrain Them? Reform, 2022(8): 141–155.

[8] Zhu X, Li X, 2022, Fintech and Bank Credit Risk: Increased or Decreased. Journal of Shanxi University of Finance and Economics, 44(11): 39–52.

[9] Xiao Y, Li S, Liang B, 2020, Application of Fintech in Banking Under the Impact of COVID-19: Theoretical Logic, Practical Characteristics, and Path of Change. Research of Financial Economics, 35(3): 90–103.

[10] Li J, Jiang S, Huang T, 2020, Fintech Performance and Digital Transformation of Financial Services Under Major Public Health Emergencies. Journal of Lanzhou University (Social Science Edition), 48(3): 84–95.

[11] Chan T, Hamdi N, Hui X, et al., 2022, The Value of Verified Employment Data for Consumer Lending: Evidence from Equifax. Marketing Science, 41(4): 795–814. https://doi.org/10.1287/mksc.2021.1335

[12] Wang L, Huang Y, Hong Z, 2024, Digitalization as A Double-Edged Sword: A Deep Learning Analysis of Risk Management in Chinese Banks. International Review of Financial Analysis, 94(3): 2–12.

[13] Bueno LA, Sigahi TFAC, Rampasso IS, et al., 2024, Impacts of Digitization on Operational Efficiency in the Banking Sector: Thematic Analysis and Research Agenda Proposal. International Journal of Information Management Data Insights, 4(1): 100230. https://doi.org/10.1016/j.jjimei.2024.100230

[14] Yu JW, Wu BY, 2021, Digital Finance and the Risk-Taking of Commercial Banks – An Empirical Study Based on Chinese Commercial Banks. Industrial Economic Review, 12(4): 108–128.

[15] Zhai SB, Cheng YT, Xie L, 2023, Impact of Commercial Bank's Digital Transformation on Their Risk-Taking Level. Journal of Beijing Technology and Business University (Social Sciences), 38(2): 75–86.