Research on the Development Strategy of Everbright Bank's Digital Transformation in the Context of Financial Technology

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Abstract: Under the background of rapid development of digital economy, digital transformation of commercial banks has become the key to enhance competitiveness and adapt to market changes. Taking Everbright Bank as an example, this paper analyzes the internal and external influencing factors of its digital transformation by using the PEST model and the GREP model, and discusses how commercial banks can promote digital transformation in the context of financial technology. The study finds that Everbright Bank has constructed a comprehensive digital ecosystem covering various fields such as convenient bill payment, government services, inclusive finance, pension finance, etc. through its "123+N" digital banking strategy, which has significantly improved its service efficiency and customer experience. Meanwhile, Everbright Bank has achieved remarkable results in technology application, risk management and talent training, providing solid support for digital transformation. Through big data, artificial intelligence and other technological means, Everbright Bank has excelled in risk identification, monitoring and management, and its non-performing loan ratio has remained stable and asset quality has been safeguarded. The research in this paper provides more forward-looking and grounded suggestions for the digital transformation of other commercial banks.

Keywords: Everbright Bank; Digital Transformation; PEST Model; GREP Model

1. Introduction

Against the backdrop of the current rapid development of the digital economy, financial institutions have accelerated the pace of digital transformation, made fintech a strategic priority, and actively cooperated with third-party technology companies to improve service quality and operational efficiency. However, this transformation process also brings financial pressure and business operation challenges. Therefore, how to reasonably invest in digitalization construction has become a key task for the development of commercial banks. As a large commercial bank in China, Everbright Bank has continued to make efforts in financial business innovation, serving the real economy, and fulfilling social responsibility, and is committed to promoting the high-quality development of the financial industry. This paper takes Everbright Bank as the research object and analyzes its digital transformation using the GREP model and PEST model to explore how commercial banks can better promote digital transformation in the context of fintech to meet customers' growing demand for personalized financial services. Through in-depth study of Everbright Bank's digital transformation practice, this paper aims to provide useful references and lessons for other commercial banks.

2. Literature Review

Domestic scholars have mainly studied the digital innovation, challenges and development paths of commercial banks. He and Ruan [1] pointed out that fintech is the innovation of the financial industry in all aspects based on various digital technologies such as big data, cloud computing, artificial intelligence, blockchain, etc., and it is an important path for the development of China's digital economy industry at present. Liang [2] pointed out that financial technology innovation is an important driving force for the digital transformation of commercial banks. Zhu and Wang [3] believes that the core driving force of the digital transformation of commercial banks lies in

fintech innovation, and it is an important way for commercial banks to cope with the challenges of the new era to create a fintech bank by innovating financial products and service models. At the same time, Shen and Zhu [4] pointed out the challenges faced by commercial banks in the process of digital transformation, such as ambiguous strategic positioning, weak application scene infrastructure, and weak data-driven capabilities. Liu and Feng [5] believes that the digital transformation of banks has a significant impact on the high-quality development of enterprises, and that improving the quality and efficiency of financial services to the real economy is one of the important measures to enhance the innovative vitality of enterprises. In order to ensure the smooth progress of digital transformation, commercial banks should strengthen the adjustment and optimization of the organizational structure, but also increase the investment in scientific and technological research and development to improve the quality of data and the level of security, so as to provide solid technical support for digital transformation.

The research of foreign scholars mainly focuses on the disruption of financial technology (FinTech) and digital transformation on the traditional banking business. Huang and Tan [6] believes that digital transformation is a process in which enterprises utilize digital technology for self-improvement, and emphasizes the impact of fintech in innovative services, business models, and on financial products and processes, constructing a variety of models to analyze the impact of digital transformation. In terms of practical research, Raphael et al. [7] conducted in-depth studies such as extensive data surveys and data analysis on groups such as fintech, mobile payments, and small and medium-sized enterprises (SMEs), and concluded that the development of customer relationship management by commercial banks plays an important role in the digital transformation strategy of commercial banks. Scholars have proposed the use of fintech to optimize the risk management strategies of banks by studying the risks that commercial banks face due to different influencing factors.

3. Everbright Bank Digital Transformation Case Introduction

3.1 Basic Information of Everbright Bank and the Development History of Digital Transformation

Founded in 1992, Everbright Bank is a national joint-stock commercial bank approved by the State Council and set up with the approval of the People's Bank of China. It has set up 1,312 branches within the country, realizing the full coverage of the service network of provincial administrative regions within the country, and its institutional network radiates to 150 economic center cities across the country. In recent years, Everbright Bank has focused on high-quality development, formed an operational system with balanced business development and optimal risk management, and continuously improved its innovation capability. It has created a pattern of digitalization, integration, specialization and lightweight development, and promoted product innovation, channel innovation and service model innovation.

Everbright Bank's digital transformation has gone through three important phases, gradually building a digital financial service system with special features. In 2010, Everbright Bank launched "Everbright Cloud Bill Payment" in cooperation with Alipay and UnionPay, integrating scattered bill payment projects across the country, establishing an open network bill payment system, covering water, electricity, natural gas and other livelihood payment services, solving the problem of inconvenience in offline bill payment, and accumulating a large number of network platform users, laying a data foundation for the development of digital scenario finance. digital scene financial development to lay the data foundation. The second transformation: business platformization. from 2019, Everbright Bank's investment in science and technology has increased significantly, from 3.4 billion yuan in 2019 to more than 6 billion yuan in 2022, and the proportion of science and technology personnel has increased from 3.38% to 7%. During this period, Everbright Bank put forward the "123+N" digital Everbright strategy, integrating algorithmic models, building cloud computing and big data platforms, and realizing business mobility, openness, and ecologization. in 2021, it released a white paper on the valuation of data assets in commercial banks, and completed the

DCMM quantitative management level certification to promote the monetization of data assets. Establish a data center and intelligent marketing platform, with 1,200 customer profiles and over 10 billion yuan of business transaction growth from precision marketing. Third Transformation: Scenario-based Financial Ecology In 2021, Everbright Bank deepened its digital transformation and built a scenario-based financial ecological service system. Everbright launched "Logistics" to provide financial services for freight transportation platforms, with a cumulative transaction amount of more than 370 billion yuan, covering more than 8 million shippers and drivers; "Optical Payment" and "Optical ICT" support industrial chain payment and blockchain financing. Supported industrial chain payment and blockchain financing, serving over 100 core enterprises. 2022, set up a financial technology department, increased investment in financial technology risk control, strengthened digital financial supervision and risk control, and enhanced the level of digital governance.

3.2 Macro-Environmental Analysis of Everbright Bank Based on PEST

In terms of political factors, since the development of fintech, the state has provided various policy guidelines and support for the digital transformation of commercial banks. In 2018, Baxing Credit was established to help banks improve the efficiency of credit services through big data. In 2021, the Outline of the 14th Five-Year Plan proposed to accelerate digitalization development and promote banks to improve data governance and safeguard data security.2022, the Financial Technology Development Plan (2022-2025) was released, encouraging banks to optimize their services by using technologies such as big data, cloud computing and artificial intelligence.2023, the Central Financial Work Conference emphasized the strengthening of financial supervision and the optimization of financial services.2024, the Action Plan for Promoting the High-Quality Development of Digital Finance was issued, making systematic requirements for digital financial development with systematic requirements. These policies provide a clear direction for the digital transformation of commercial banks, helping them to improve their service quality and risk management capabilities.

In terms of economic factors, the financial market has broad prospects for development. Since 2022, China's financial market has begun to develop with high quality as its goal, bringing great vitality and potential to our economy. Although the Fed's interest rate hike in 2022 brought a certain impact to our economy, making its growth rate drop to 1.60%, since the implementation of the Financial Technology Development Plan (2022-2025), the growth rate of China's financial industry has seen a turnaround and increased, with a growth rate of 5.20% and 5.60% in 2023 and 2024, respectively. This indicates that China's financial industry is in good shape and the value generated by financial services and related financial subsidiary activities is increasing. Everbright Bank, as one of the large state-owned banks, should seize the opportunity of the times and continuously improve the bank's market share.

In terms of social factors, with the popularity of online consumption, more and more customers tend to learn about commodities through online platforms. by the end of 2024, the number of Internet penetration in China reached 1.108 billion people, accounting for 79% of the total number of people, which provides a broad space for the digital transformation of commercial banks. Traditional banks have migrated their business online and cooperated with Internet technology companies to enhance their comprehensive competitiveness. Everbright Bank's mobile banking, Sunnywise Life and Cloud Bill Payment are the core products of its online business. In the past five years, the user scale of Everbright Bank's three major APPs has maintained a growth rate of more than 15%, and by 2023 the cumulative number of users will exceed 300 million. Among them, mobile banking has 61,915,700 registered users and 27,128,500 monthly active customers, an increase of 17.81% from the end of last year. This indicates that the scale of Everbright Bank's online business has been expanding, and the volume of customers continues to rise, which has become an important factor in its revenue growth.

In terms of technological factors, Li and Wu [8] pointed out that Baumol's cost disease refers to the unbalanced growth of technology level in different sectors of the economy, and the

industry with faster productivity progress will lead to the rise of wages in other industries, which will lead to the rise of costs. Baumol's research theory mentions that technological upgrading can bring greater benefits to enterprises. In the context of the rapid development of financial technology, commercial banks have increased their investment in financial technology, using artificial intelligence, big data, Internet of Things and other technologies to optimize business processes and improve fund management, user experience and risk control capabilities. The convenience, low cost and high security of the Internet help alleviate the problem of information asymmetry and promote the business upgrading and future development of commercial banks. Digital transformation also brings new development opportunities for SMEs. However, traditional banks have deficiencies in data management, data information is ponderous and not systematized, the architecture of business and product data links is not clear, and the data-driven value service system has not yet been constructed. Data risk is a major problem faced by commercial banks, and the interconnection of data needs to be further processed, which puts forward higher requirements for banks' security technology and supervision. Therefore, commercial banks need to upgrade their digitization technology to safeguard customer information security while tapping the value of data.

3.3 Analysis of Internal Factors of Everbright Bank Based on GREP

GREP model is mainly used in the internal competitiveness analysis of enterprises, and this part will analyze the competitiveness of Everbright Bank from four aspects: internal governance, development resources, entrepreneurs, and products or services.

In terms of internal governance structure, Everbright Bank, as a national joint-stock commercial bank approved and established by the central bank, its decision-making body is the company's board of directors, the authority is the company's general meeting of shareholders, and the group's supervisory board is appointed by the State Council. As of June 30, 2024, the major shareholding shareholder of Everbright Bank was China Everbright Group Corporation, with a direct or indirect shareholding of approximately 47%. Everbright Bank has established a governance structure with the general meeting of shareholders, the board of directors, the supervisory board and senior management as the main body, forming a corporate governance mechanism with each of them performing its own duties and exercising checks and balances on each other. Everbright Bank's internal employee motivation mechanism is also quite complete, with performance appraisals linked to employee compensation, regular assessments and timely feedback. In addition, Everbright Bank has optimized and upgraded the "Green Channel for Medical Treatment" and the "Employee Comfort Plan" to solve the problems of employees' life. These measures have helped enhance employee satisfaction and corporate cohesion. According to the annual report of Everbright Bank in 2023, Everbright Bank has 3,685 fintech employees, accounting for 7.74% of the total number of employees, and the number has been rising year by year, which shows that Everbright Bank has continued to increase its investment in the field of fintech in order to support the digital transformation. Everbright Bank has provided a solid foundation for digital transformation and business development through a sound corporate governance structure and effective employee incentive policies. Its continued investment in the field of financial technology helps to improve service efficiency and customer experience and enhance market competitiveness.

In terms of development resources, the core resource of commercial banks is bank capital. This paper evaluates the capital quality of Everbright Bank through the indicators of capital adequacy ratio, liquidity coverage ratio and non-performing loan ratio. In 2023, the capital adequacy ratio of Everbright Bank is 13.5%, which shows that it has a strong risk-resistant ability and can support long-term development. During the same period, the liquidity coverage ratio reaches 149.17%, indicating strong asset liquidity, good short-term payment and financing ability, and stable operations. From 2021 to 2023, Everbright Bank's nonperforming loan ratio stays at 1.25% for three consecutive years, with high asset quality and strong anti-risk ability. These figures show that Everbright Bank has high

quality capital resources, which can support long-term development and technological upgrading, and attract high-quality customers. In terms of brand resources, Everbright Bank aims to "build a first-class wealth management bank", and carries out all-around branding through digital platforms and communication media to enhance its visibility and market influence. Everbright Bank has been actively shaping special financial products to meet customer needs and provide high-quality services, and its brand awareness and market influence have been continuously improved, and it has been recognized as the "Best Joint-stock Bank of the Year" by the Financial Times; in terms of customer resources, Everbright Bank's business centers on the three major indexes of FPA, AUM and GMV. 2023, the total amount of FPA of public business will increase by 2023, and the total amount of FPA of public business will increase by 2023. In 2023, the total FPA of public business reached 5 trillion yuan, the total AUM of personal business reached 2.73 trillion yuan, and the total GMV of interbank business reached 3.94 trillion yuan. The total business volume has risen steadily in the past five years and customer resources have continued to grow, providing a solid foundation for Everbright Bank's steady development.

In terms of entrepreneurial talent, Everbright Bank has a well-established management structure with a total of 16 board members, including 8 PhDs and 14 masters, all of whom are high-level talents in the fields of finance and management and are able to provide professional advice to the company. The company regularly conducts management selection and evaluation to optimize the management team. There are 6,701 executive management personnel, accounting for 15.86% of the total employees, from various fields such as finance, accounting, financial technology and management to promote management diversity. Everbright Bank employs about 50,000 people, with an educational distribution of 9% college and below, 70% undergraduate, and 20% graduate and above. The bank has also established the Seven Swords Talent Training System for Digital Transformation to strengthen talent construction. The bank has implemented the "Sunshine Talent" ten major projects and the "Sunshine Excellent Talent" four major programs to strengthen talent construction. 2023, the online courses of Sunshine Academy reached 17,000, more than 8,000 training courses were held, and the learning hours of employees were 1,361,200 hours. Through systematic training, Everbright Bank's talent system will develop towards high quality.

In terms of products or services, Everbright Bank's business is categorized into three major segments: corporate finance, retail finance and financial market, and its operation is measured by three Polaris indicators: FPA, AUM and GMV. The corporate finance business focuses on the "five major articles" of finance, with total FPA reaching 5.09 trillion yuan in 2023, a year-on-year growth of 5%, and total number of customers reaching 980,300, a growth of 1.7%. Through the integration of "commercial, investment and private" data interoperability, we have built a new model of customer layering and grading, and promoted digital transformation; our retail financial business covers payments, deposits and loans, and expatriate finance, etc., and our special "Sunshine Wealth Management" business has created nearly 500 billion yuan of income for investors since its inception in 2004, and has served investors with a wide range of services in the region. Since its establishment in 2004, the "Sunshine Wealth Management" business has created nearly 500 billion yuan of revenue for investors and served hundreds of millions of customers. 2023 retail business revenue will be 64.949 billion yuan, accounting for 44.58% of the bank's total revenue. Everbright Bank is committed to building a digital retail bank and strengthening its asset quality and capital allocation capabilities; the financial market business follows the national strategy, with GMV revenue of RMB 27.872 billion in 2023, accounting for 19% of the bank. It went online with a digital integrated service platform to optimize asset allocation, improve the investment layout of public REITs, coordinate customers' investment and financing needs, and enhance wealth management and investment and financing capabilities.

4. Analysis of The Effectiveness of Everbright Bank's Digital Transformation

4.1 Steadily Improving Profitability
Everbright Bank has deepened its digitization

in recent years and has been developing well. from 2019-2023, its operating revenue has been maintained between 130-150 billion yuan and net profit between 37.45-41.076 billion yuan, with the growth rate remaining above 3%, and its overall revenue capacity has been stable. Although there was a small decline in profit in 2023 due to the consolidation of asset quality control and increased provisioning, the overall growth has remained benign. In terms of retail customer management, the implementation of the customer management strategy of "stratified and segmented, data-driven, channel synergy and transaction conversion" has attracted a large number of online retail customers and boosted the development of the retail business. Its AUM retail business assets have been increasing year-on-year for five consecutive years and will exceed RMB 2.73 trillion in 2023, which makes it even more determined to develop its digital retail business strategy and realize the digital upgrading of its financial retail business. Meanwhile, Everbright Bank's high-quality liquid assets have steadily increased in recent years, from 0.63 trillion in 2019 to 1.06 trillion yuan in 2023. This stems from the continuous expansion of its business, as well as the increased investment in financial technology and the improvement of its risk control system, which has gradually shown the effectiveness of its high-quality liquid assets control, bringing greater assurance for asset quality.

4.2 Expanding Coverage of Digital Services

With the "123+N" digital banking strategy as the core, Everbright Bank has built a comprehensive digital ecosystem covering various fields such as convenient bill payment, government services, inclusive finance and pension finance, etc. In the field of convenient services, "Everbright Cloud Bill Payment" has accessed more than 17,000 basic life bill payment services. In the field of convenient services, Everbright Cloud Bill Payment has accessed more than 17,000 basic daily life bill payment services, and nearly 1,700 digital RMB APP bill payment services have been launched, with the amount of services exceeding 100 million yuan, a year-on-year increase of 206%. In terms of financial inclusion, Everbright Corporate Mobile Banking supports services such as tax management and supply chain finance, with the balance of loans to small and micro enterprises reaching RMB 379.133 billion at the end of 2023, a year-on-year increase of 24.18%, and a non-performing rate of only 0.85%. Everbright Bank also provides online personnel and salary management solutions for MSMEs through the "Payroll" platform. In addition, Everbright Bank has cooperated with large enterprises, such as Huawei Hongmeng, to launch the Beta version of the Cloud Payment APP, and has exported its services to more than 840 platforms, supporting multi-scenario business. Its digital transformation is based on the main line of "technology-driven, scene integration and data empowerment", and it builds a multi-dimensional service network through cloud payment, mobile banking, intelligent customer service and other platforms to realize the "last mile" of people's livelihood services.

4.3 Continuous Improvement of Risk Control Capability

Everbright Bank utilizes to conduct intelligent monitoring when customers carry out fund operations, adopts multi-factor risk authentication, prevents customer information theft, and strengthens customer biometrics; Everbright Bank also makes relevant risk deployment and control of the company's internal business risks, combining big data, artificial intelligence, and other data risk identification technologies to discover the company's potential risks in a timely manner. Everbright Bank's non-performing loan balance has always remained below the level of 50 billion yuan in the past five years, and the non-performing loan ratio has always remained at 1.25% since 2021, a decrease of 0.13 percentage points from 2020. Its ratio is strictly controlled within the nationally prescribed NPL ratio, indicating Everbright Bank's high asset quality and strong risk resistance.

5. Conclusion

5.1 Research Conclusions

Through the in-depth study of Everbright Bank's digital transformation, this paper comprehensively analyzes its internal and external influencing factors by comprehensively applying the PEST model and the GREP model, and draws the following

conclusions by combining the effectiveness of specific practices: first, policy support and market demand drive digital transformation. With the strong support of national policies, the rapid development of financial technology provides a broad space for the digital transformation of commercial banks. Everbright Bank has actively responded to the policy call to promote digital transformation through cooperation with technology companies and increased investment in science and technology to meet customers' growing demand for personalized financial services. Second, digital transformation enhances comprehensive competitiveness. Through its "123+N" digital banking strategy, Everbright Bank has built a comprehensive digital ecosystem covering multiple fields, significantly improving service efficiency and customer experience. Its innovative practices in the areas of convenient bill payment, inclusive finance, and retail finance have not only expanded its business scope, but also enhanced its market competitiveness. Third, technology and talent are the key support for transformation. In the process of digital transformation, Everbright Bank has continued to increase its investment in financial technology and establish a perfect technology platform and data governance system. At the same time, it has cultivated and attracted a large number of fintech talents by building a diversified talent cultivation system, which provides a solid technical and talent guarantee for the transformation. Fourth, risk management capability has been significantly enhanced. Through big data, artificial intelligence and other technical means, Everbright Bank has achieved remarkable results in risk identification, monitoring and management. The continued stability of its non-performing loan ratio indicates that digital transformation has effectively improved risk prevention and control capabilities and safeguarded asset quality.

5.2 Policy Recommendations

Innovate digital financial products and services. Commercial banks can promote digital transformation in a number of ways. One is to digitize traditional financial products and services, integrate digital wallets and payment tools into mobile banking, and realize multi-scene payment. The second is to access AI intelligent investment advisors in mobile clients, which calculate customers' risk tolerance and investment preferences through algorithms to enhance customer satisfaction and loyalty. Third, we use blockchain and big data technology to verify the authenticity of business, and carry out enterprise financing lending through smart contracts to improve service efficiency; meanwhile, we conduct real-time wind control of customers' credit and use big data to determine the eligibility of customers to use money, and provide services in a timely manner.

Improve the efficiency of AI automated marketing services. Commercial banks can integrate multi-dimensional data such as customer transactions, social and credit, use clustering algorithms (e.g., K-means) and decision tree models (e.g., CART) to segment customer groups, and accurately identify high-net-worth customers and potentially churning customers. With the data information from cooperation with external companies, we accurately portray customer profiles, realize personalized services, save marketing costs and improve transaction efficiency. At the same time, we use marketing cloud platforms (e.g., Salesforce, Adobe Campaign) to automate marketing and generate personalized marketing content with the help of AI technology to improve user response.

Sound fintech talent training system. Digital transformation is one of the important policy directions for commercial banks in the next five years, facing many unknown challenges and risks. Commercial banks need to reserve a talent and technology pool in advance, strengthen the database substrate construction, and optimize the technology platform. Talent cultivation for commercial banks can be divided into three stages: in the early stage, build job competency mapping, identify key skill talents, build project development teams jointly with other departments, and improve internal staff's business ability and technical level; in the middle stage, set professional level competency certification and technical grades, give different salaries and incentives, set up internal entrepreneurship funds, encourage the development of scientific research projects, and incorporate knowledge documents; in the late stage, cultivate In the later stage, cultivate technical leaders, participate in international exchange programs,

attract globalized talents, and form a diversified team.

Strengthen the financial risk control capability of the digital platform. The digital transformation of commercial banks faces many unknown risks in the internal and external environments, such as data security and model risk. To cope with these challenges, banks can take the following measures. In terms of risk prevention and technology application, commercial banks can use machine learning (e.g., XGBoost, LightGBM) to build anti-fraud scorecards and intercept abnormal transaction accounts; deploy user and entity behavior analysis (UEBA) systems to monitor abnormal customer behavior, strengthen authority management, and reduce transaction risks. In terms of employee training and risk management, we have organized more employees to participate in digital compliance training to strengthen anti-money laundering and risk prevention awareness; used natural language processing (NLP) technology to capture public opinion data in real time to control reputational risk; and used streaming computing (e.g., Apache Flink) to build an operational risk dashboard and integrate key indicators. In terms of dynamic and adaptive risk management, a more dynamic and adaptive risk management system is established to flexibly respond to various financial risks.

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