

Research on the Impact of Sci-Tech Finance on the Bank Financial Performance — A Case Study of Bank of Shanghai

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Abstract: Technology and Finance is to provide technical financing support for financial enterprises through the transformation and upgrading of financial products and promote the market-oriented transformation of scientific and technological achievements. Scientific and technological innovation cannot be separated from financial support. Commercial banks invest funds in developing good scientific and technological innovative enterprises through loans and other ways to improve their R&D and innovation capabilities. At the same time, scientific and technological progress also promotes financial development and improves the efficiency of resource allocation of commercial banks. This paper takes the Bank of Shanghai's solution to the financing problem of BOLUE Management Consulting Company as a specific case, analyzes the impact of establishing the specialized mechanism of science and technology finances on the financial performance of the Bank of Shanghai, draws inspiration from the specific business of the Bank of Shanghai, and puts forward suggestions on how to follow up the development of science and technology finance for China's banking industry.

Keywords: technology and finance; commercial bank; financial performance

1. The Introduction

1.1. The Research Background

In recent years, China's central and government have actively promoted the innovation-driven development strategy, and technology-based enterprises are playing an increasingly important role in China's economy. However, compared with developed countries, the development of science and technology finance in China is still not perfect, the science and technology finance system is not perfect, the science and technology finance talents are lacking, and the quality of services and products can not meet the needs of the development of science and technology innovation enterprises ^[1]. To solve these problems, China's financial industry can get innovation in product quality and service, so as improve the financial performance of banks, promote the best development of science and technology enterprises, and

promote the positive development of the whole society.

1.2. The Innovation Points

The innovation of this article lies in the science and technology financial background combined with a specific case of Shanghai Bank, the Bank of Shanghai for science and technology focus on refining the specific measures for financial loans, calculated the financial specific financial impact on the Bank of Shanghai science and technology, from the Bank of Shanghai refine inspiration measures, and on the domestic banking financial related advice for how to follow up.

2. Literature Review

Mao Qian, Xizang Zhao (2014) for small and mid-sized enterprise, using charts and IS-LM model, summarizes the regional scientific and technological small and medium-sized enterprise financial innovation to the local economy, the influence of the study: when the financial innovation of science and technology IS conducive to the growth of the real economy, and the irrational excessive financial innovation will produce negative effects on the development of the real economy ^[2]. Jin Yufang (2018) with commercial Banks to finance as the theme of science and technology under the conditions of the new normal Angle of view, analyzing the financial current situation of science and technology, think the commercial Banks can not understand how to choose the effective customer and completing a large amount of financing, put forward under the new normal, commercial Banks should actively seek innovation of science and technology of risk management technology, financial services products ^[3]. Lee et al. (2014) focused on analyzing the income from liquid net interest business and illiquid interest business of Chinese commercial banks. The income from illiquid interest business is the main inherent source of income from liquid profit business of banks. The combination of science and technology and finance are an important means and basic guarantee to build an innovative country, but there is still a lack of evaluation system and index system for the development of science and finance in China ^[4].

To sum up, sci-tech finance is crucial to the development of sci-tech enterprises, financial institutions and even the whole society. To explain the effectiveness

of sci-tech finance on financial institutions and to promote the development of financial institutions through the innovation of sci-tech finance are conducive to financial institutions to feed back scientific and technological innovation and social progress. In this paper, the author intends to summarize the impact of sci-tech finance on the financial performance of commercial banks based on previous achievements, and analyze the enlightenment of the specialization of sci-tech finance, so as to discuss the current strategies of commercial banks in the face of sci-tech finance, hoping to contribute to the healthy and stable development of the banking industry.

3. Case Introduction

3.1. Introduction to the Bank of Shanghai

Commercial banks have shown a new trend of development in recent years, which is mainly reflected in the continuous emergence of financial innovation, financial products, credit products, financial instruments and other continuous innovation [5]. Bank of Shanghai Co., LTD. (hereinafter referred to as "Bank of Shanghai") was established on December 29, 1995. Headquartered in Shanghai, it is a company listed on the main board of the Shanghai Stock Exchange with stock code 601229. In recent years, Bank of Shanghai has grasped the trend of fintech to meet the increasingly diversified financial service needs of corporate and individual customers with smarter and more professional services. The market influences of The Bank of Shanghai has been constantly improving since its establishment. According to the performance report, by the end of 2020, the total assets of the Bank of Shanghai were 2,462.244 billion yuan, an increase of 10.06% compared with the end of the previous year. Its operating revenue reached 50.746 billion yuan, up 1.90% year-on-year. It ranks 73rd in the global banking industry in terms of tier 1 capital in the banker's 2020 List of the World's Top 1000 banks.

3.2. Case Study of Shanghai Bank's Science and Technology Finance Loan

BOLUE Management Consulting (Shanghai) Co., Ltd. was established in May 2013 with a registered capital of only 1.3 million yuan. Its main business is providing B2B finance and tax training services and consulting services via the Internet. It is a typical small and micro technology enterprise in its initial stage. Because of the lack of start-up capital, the business is very slow. Bank of Shanghai has extended an olive branch to BOLUE in time to support the development of the enterprise step by step. In 2014, Bank of Shanghai first provided 300,000 yuan loan to enterprises to start business. In 2015, it provided 1 million yuan of corporate overdraft and 1.5 million yuan of equity pledge loans to enterprises; in 2017, Bank of Shanghai exclusively launched the special product of "investment and loan protection", and provided 8 million yuan of "investment and loan protection" loan to BOLUE Company. Meanwhile, it provided comprehensive financial services such as loan settlement one-card and B2C e-bank payment for

enterprises.

After obtaining financial support from Bank of Shanghai, BOLUE Developed rapidly, with sales growth rate of more than 200% from 2014 to 2016. By the end of 2018, the turnover of the company is nearly 80 million yuan, and its business covers 13 provinces and cities, with many the world's top 500 customers. The specialized mechanism of science and technology finances gradually established by the Bank of Shanghai enables the bank to timely find small and medium-sized science and technology enterprises and solve the financing problems of enterprises after passing certain qualification examination. This mechanism has realized the business expansion of the bank and has a positive impact on the financial performance of the bank.

4. Case Analysis

4.1. Analysis on the Impact of Sci-Tech Finance on Financial Performance of Shanghai Bank

The influence mechanism of sci-tech finance on bank finance has two aspects. On the one hand, by improving fintech and building a service platform, the bank realizes the connection between the sci-tech innovation chain and the financial capital chain, and promotes the change of bank financial performance. On the other hand, banks themselves increase capital investment in science and technology enterprises, and then change the operation of banks. Therefore, this paper first analyzes the changes in profitability of The Bank of Shanghai before and after the initial establishment of the specialized mechanism of science and technology finances, and second, analyzes the Bank of Shanghai's investment in science and technology enterprises and the changes in business content.

As can be seen from Figure 1, the annual net profit of Bank of Shanghai shows a trend of growth from 2018 to 2020, and the growth rate is the fastest in 2019. This is because in 2019, Bank of Shanghai successfully established the specialized mechanism of science and technology finances. The powerful science and technology hardware and convenient process promote the bank's attraction to more high-quality enterprise loans. Thus promoted the bank net profit growth. In 2020, Bank of Shanghai will have 842 fintech personnel, an increase of 19.26% over the previous year, accounting for 6.51% of the total number of employees. Fintech investment reached 1.549 billion yuan, up 8.09% year-on-year, accounting for 3.14% of the company's operating revenue; In addition, Bank of Shanghai has been awarded fintech awards such as 2019 Outstanding Contribution Award for Fintech Innovation and 2020 China E-Banking Golden League Award, which proves that the bank is developing rapidly towards the strategy of "online, digital and intelligent" and lays a foundation for the growth of performance.

Table 1. Bank of Shanghai net interest rate changes from 2018 to 2020

	2018	2019	2020
Bank of Shanghai	41.17%	40.83%	41.21%

The industry average	33.01%	32.52%	30.95%
The industry median	33.32%	32.94%	32%

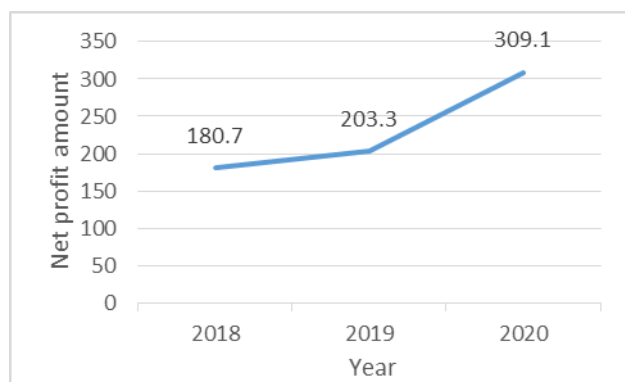


Figure 1. Net profit of Bank of Shanghai in 2018-2020 (Unit: 100 million yuan)

As can be seen from Table 1, the profitability of Bank of Shanghai is higher than the average level and median value of the industry and has always been maintained at a high level of over 40%. The improvement of fintech and service level has stabilized the profitability of The Bank of Shanghai, and the overall risk of the bank will not fluctuate greatly even if it suffers the impact of the epidemic in 2020. According to the data in Table 2, the capital adequacy ratio of Bank of Shanghai in the three years from 2018 to 2020 remains at about 13%, while the target standard ratio of bank capital adequacy ratio is 8% according to the International Banking Basel Accord. Even under the impact of the epidemic, Bank of Shanghai has not suffered a drastic decline in its capital adequacy ratio. In addition, according to the data released by CBRC, the average non-performing loan ratio of Chinese commercial banks in 2020 was 1.92%, and Bank of Shanghai was far lower than this index in the three years' data, indicating that the non-performing loan level of Bank of Shanghai is low and the management level is high.

Table 2. Some special indicators of bank of Shanghai in 2018-2020

	2018	2019	2020
Capital adequacy ratio	13%	13.84%	12.86%
Non-performing loan ratio	1.14%	1.16%	1.22%

4.2. Analysis on the Influence of Sci-tech Finance on the Business Contents of Bank of Shanghai

As can be seen from Table 3, the loan balance of science and technology enterprises and the number of customers of science and technology enterprises of The Bank of Shanghai increased rapidly from 2018 to 2020. This is because the Bank of Shanghai took science and technology finance as its business feature, continuously increased its support to science and technology enterprises, and formed a professional science and technology finance mechanism.

Bank of Shanghai professional financial mechanism of science and technology mainly have two aspects, on the one hand is the Bank of Shanghai and government

agencies to open cooperation, to explore a new mode science and technology innovation services, integrate the advantage resources to cultivate professional ability, initially formed "a system, an expert database, a set of financial products", to promote research and development of "credit", "science and technology innovation debt" and other innovative products; On the other hand, combined with the comprehensive financial service needs of listed companies on the Science and Innovation Board, a package of service schemes covering "nurturing support, listing sprint and listing service" will be launched.

Table 3. Customer data of science and innovation enterprises of Bank of Shanghai in 2018-2020

	2018	2019	2020
Loan balance of science and technology enterprises	658.7	848.4	911.2
Number of loan customers of technology enterprises	822	1,069	1,439

4.3. The Enlightenment of the Bank of Shanghai to Establish Specialized Technology Financial Mechanism

4.3.1. Strengthen information communication and realize loans on demand

The biggest characteristic of Bank of Shanghai's business is its practical spirit, willing to take the initiative to communicate with enterprises applying for loans, and make timely loans after fully investigating their business background. The Bank of Shanghai adopts the concept of specialized science and technology finance to actively investigate the operation and financial situation of science and technology enterprises, establish a communication and contact mechanism with enterprises applying for loans, and provide necessary financing support to enterprises at different stages of development.

4.3.2. Optimize business processes and open green channels

Another advantage of the Bank of Shanghai is its simplified business process and timely lending to enterprises applying for loans. In case of incident, BOLUE enterprise management consulting company with the "global Internet education entrepreneurship contest" champion prize and the title of "star of entrepreneurship" is to apply loan, the benefit from the Bank of Shanghai professional financial mechanism of science and technology to simplify approval process, open a green channel for small and medium-sized science and technology innovation enterprise, making "the loan has been verified, The phenomenon of companies going to bankrupt no longer occurs.

4.3.3. Improve fintech and promote performance progress

In addition to increasing support for science and technology start-ups, banks also need to improve their own level of fintech. Under the professional financial mechanism of "opening up, cooperation, pioneering and innovation", Bank of Shanghai has achieved the growth of performance against the wind, which cannot be

separated from its own capital and talent investment in fintech [6]. After entering the information age, the hardware advantages brought by fintech are an integral part of the development of banks.

5. Conclusions

Under the background of science and technology finance, the risk assessment, traditional business and credit system of commercial banks have been impacted. In order to seek new development opportunities, commercial banks should take the initiative to solve their loan problems through various means [7]. Bank of Shanghai has actively innovated its business model, applied the concept of "science and technology finance" to specific business operations, established a specialized mechanism of science and technology finance, simplified the operation process, and lent money timely and on demand, which not only promoted the improvement of bank performance, but also solved financing difficulties for enterprises, thus realizing a win-win situation for both banks and enterprises.

6. Suggestions

6.1. Improve the Design of the Technology and Finance System

Information asymmetry between science and technology enterprises and commercial banks are a major obstacle to the development of science and technology finance. Commercial banks can introduce the enterprise credit data of government departments and combine the operating a cash situation of enterprises to build a multi-level and a diverse credit system and form a professional science and technology finance mechanism [8].

6.2. Innovate Financial Products and Services

In order to meet the development needs of science and technology enterprise with each passing day, financial institutions should be differentiation and the innovation of products and services, comply with the current development needs of financial products, strengthen the communication and contact with enterprise, customized financial products and financial technology and the update service mechanism, make a wider science and technology enterprise to obtain financing in a timely and effective manner [9].

6.3. Attach Importance to the Training and Introduction of Talents

With the rapid development of science and technology, the increasingly development of science and technology finance needs more and more professional talents to keep its vitality. Commercial banks should pay attention to the introduction and training of financial and science and technology compound talents. On the one hand, it pays attention to the introduction of talents in the field of science and technology and finance, and hires those with relevant industrial discipline knowledge or working experience as project team members; On the other hand, it is necessary to train scientific and financial talents within the commercial bank system, to meet the needs of the development of scientific and financial development of commercial banks [10].

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