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A Study on the Impact of Financial Technology on Medium, Small and Micro Enterprises in China

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Abstract

This paper focuses on the impact of FinTech on Medium, Small and Micro Enterprises (MSMEs) in China, firstly exploring the application and development of FinTech in China's credit services for MSMEs, and then focusing on inclusive MSME lending by Chinese banking financial institutions from 2015 to 2021. The paper then analyses the development status and background of BTI. In order to solve the problem of difficult and expensive financing for enterprises, the paper analyzes and summarizes two feasible integration and innovation models: "blockchain + BTI" and "digital economy + BTI". Finally, by studying the relationship between blockchain technology, cryptocurrency and cross-border payment industry and enterprise operation, the working principle of blockchain technology to enhance the efficiency of cross-border payment is analysed and mapped out based on relevant literature and data.

Keywords

FinTech, Medium, Small and Micro Enterprises, Credit Services, Blockchain, Cryptocurrency, Cross-Border Payment, Digital Economy

1. Introduction

The rapid development of financial technology is reshaping the competitive landscape of China's financial industry, improving the efficiency of financial services, intensifying market competition and posing significant challenges to Chinese micro and small enterprises. As a new form of inclusive finance, FinTech has been recognised by many countries and international organisations for promoting the inclusive development of financial resources and the real economy. As the back-

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bone of national economic development, the development of micro and small enterprises has always been a key concern for the Chinese government as well as financial institutions.

This paper first examines the application and development of FinTech in China's credit services for micro and small enterprises, and also analyses the lending of inclusive micro and small enterprises by Chinese banking financial institutions from 2015 to 2021. However, the outbreak of the new crown pneumonia epidemic has led to a severe test of the development of MSMEs, while Chinese MSMEs have long faced the difficulties of difficult and expensive financing, and the financing status does not match their position and role in the national economy, making it urgent to enhance financial support for MSMEs. According to the data released by the China Banking and Insurance Regulatory Commission, as at the end of 2019, the balance of loans to small and micro enterprises in China for inclusive purposes was RMB 11.59 trillion, accounting for only 7.6% of the RMB 153.11 trillion balance of loans from financial institutions; as at February 2020, the loan coverage rate of Chinese banks for small and micro enterprises and individual entrepreneurs was only around 20%. In addition, the interest rates charged by banks for loans to MSMEs are often above the benchmark interest rate, and there are problems such as charging intermediate service fees to raise the cost of financing for MSMEs. Most MSMEs have difficulty in obtaining bank loans, and the few that do have access to bank loans face high-interest rates and high intermediary fees, so the financial support available to MSMEs in China is still inadequate.

In July 2015, in order to promote the long-term and healthy development of the bank-tax interaction business and to solve the problems faced by Chinese small and micro enterprises in terms of difficulty in financing and expensive financing, insufficient financial support, small scale of income and high business risks, the State Administration of Taxation of China and the CBRC jointly launched a financing tool: Bank-Tax Interaction (BTI), and also to promote the development of the real economy, facilitate information exchange and sharing among multiple parties such as taxation departments, banking and financial institutions, and innovate ways of financing for small and medium-sized enterprises. The BTI also aims to promote the development of the real economy, facilitate the exchange and sharing of information between the tax authorities, banking and financial institutions and other parties, and innovate financing methods for MSMEs. Bank-tax interaction transforms the tax credits of MSMEs into financing credits, which has played a significant role in helping MSMEs to raise funds, but the product innovation under this model is constrained and its effectiveness is not sufficient.

Therefore, this paper argues that it is crucial to study the impact of FinTech on Chinese MSMEs. And the innovation of this paper is based on the challenges of "bank-tax interaction", and explores 2 models of integration and innovation: "blockchain + bank-tax interaction" and "digital economy + bank-tax interaction", with the aim of promoting the long-term healthy development of bank-tax

interaction business and effectively solving the financing problems of Chinese MSMEs. At the same time, we analyse the current development of blockchain technology, cryptocurrency and cross-border payment industry, and analyse and depict the working principle mechanism route of blockchain technology to enhance the efficiency of cross-border payment.

2. About FinTech

2.1. Definition of FinTech

Today, the theoretical underpinnings of FinTech are still a matter of interpretation (Fang, 2010). Liu, Chen, and Si (2005) argue that technological innovation is not a strict concept, science is about discovery, technology is about invention, and scientific knowledge and technological inventions are only called innovation when they are translated into commercial activities by entrepreneurs. Fang (2010) suggests that it is a process of increasing the organic composition of financial capital, *i.e.* homogenous financial capital is heterogeneously allocated through science and technology to obtain high added returns. FinTech is defined by the Financial Stability Board (FSB) as a business that applies to six financial sectors: payments and settlements, lending and financing, wealth management, retail banking, insurance and transaction clearing. Gomber, Koch, and Siering (2017) argue that the use of high-tech tools will disrupt the original order and rules of the financial system. FinTech can help transform traditional financial institutions and, through technological innovation, create new products and services that traditional financial institutions cannot offer. Institutions can then form commercial complementarities with new FinTech companies through investments or partnerships. This paper argues that FinTech is a new form of business that uses advanced technologies such as big data, artificial intelligence and blockchain to improve the operational efficiency of the financial industry.

2.2. FinTech in the Context of China's Economic Structural Transformation

Chen (2016) explains the rapid growth of FinTech in China for 2 reasons: 1) China has the advantage of being a late starter; and 2) Comprehensive growth of technology, finance and real life needs in China. Wang (2020) found that FinTech affects the retail business of Chinese commercial banks mainly from three dimensions, namely technology, industry and integration, through four ways, namely promotion effect, competition effect, demonstration effect and connection effect. The promotion effect under the dimension of technology has a positive effect, the competition effect under the dimension of industry has a negative effect, and the demonstration effect and connection effect under the dimension of integration have a positive effect. Wu (2015) believes that FinTech can break through the business limitations of traditional financial services in time and space, concentrate the available financial resources, and then provide financial services flexibly and conveniently, and finally actualize the goal of ameliorating

the efficiency of resource allocation in the financial system. Guo and Ding (2015) believe that financial technology can enlarge the boundary of traditional finance, solve the difficult of obtaining financial resources, and improve the supply and demand structure of the financial market. Zhu, Cai, and Li (2019) used Vensim-PLE software to simulate the system dynamics of Chengdu's science and technology finance on science and technology innovation and entrepreneurship, and found that science and technology finance promoted Chengdu's science and technology innovation and entrepreneurship. This paper examines the development environment for FinTech in China from four perspectives: economic, policy, social and technological environments (see **Figure 1**).

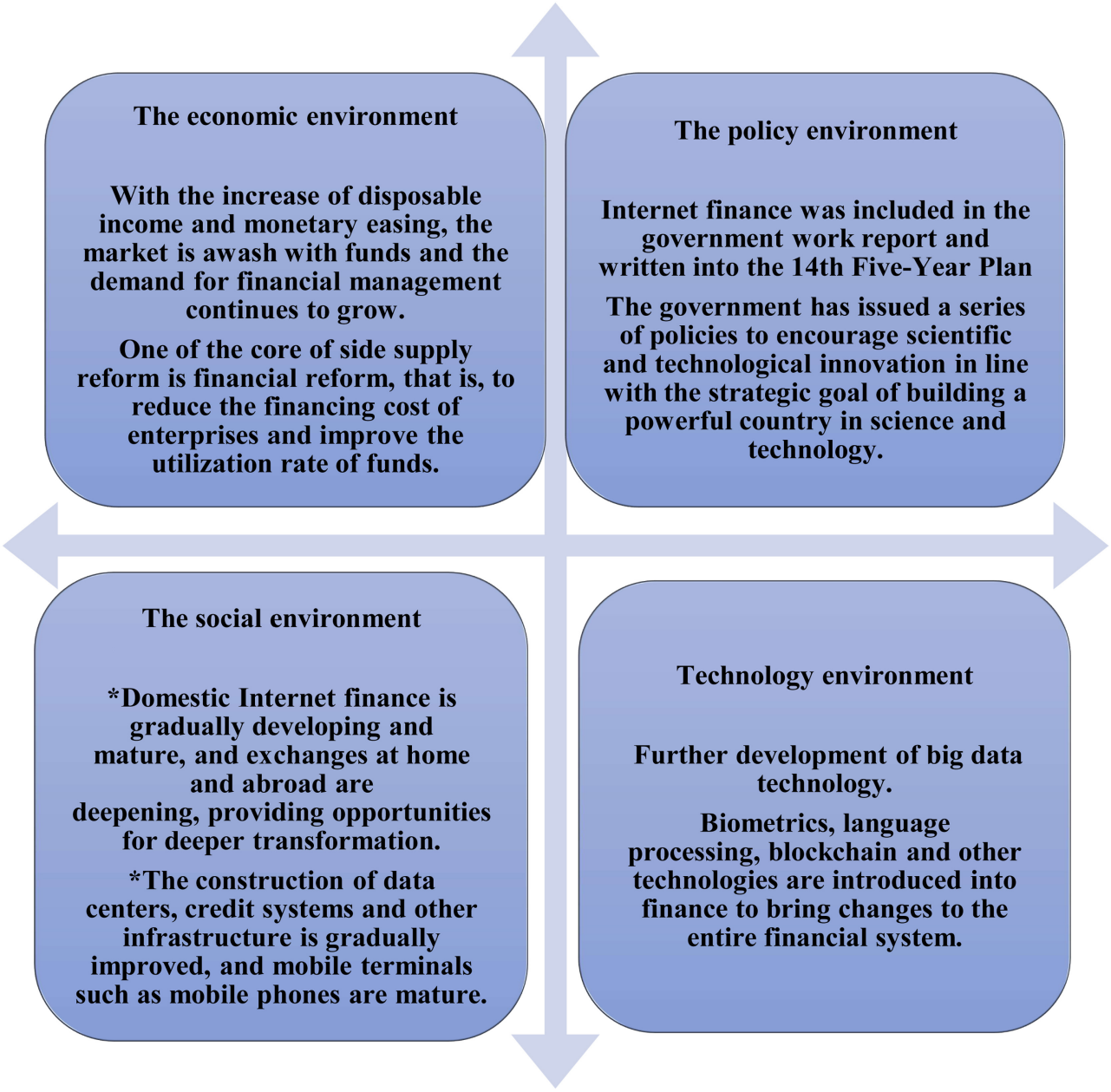

Figure 1. China's FinTech environment.

3. Application and Development of FinTech in Credit of Small and Micro Enterprises in China

The number of small and micro economic entities in China has been growing continuously for the last decade or so. Even though the growth rate has declined due to the epidemic, the overall size remains high. Small and micro enterprises include small enterprises, micro enterprises, individual entrepreneurs and family-type enterprises, with individual entrepreneurs accounting for the highest percentage. According to data made public by the State Council of China, by 2021, the number of self-employed households in China will have exceeded 100 million, the largest number of market entities in China, and will have provided employment for 276 million people. They play a very important role in China's national economy, with their typical characteristics of "self-organisation", "self-employment" and "self-adaptation". By the end of August 2022, the number of new self-employed households nationwide increased from 40.6 million to 109 million, reaching a new historical level. It is evident that there is still much room for the development of small and micro economic entities in China.

At present, China's small and micro enterprises are facing the problem of difficult and expensive financing. According to the World Bank's 2018 report "Msmes Financing Gap: An Assessment of the Financing Shortage and Opportunities for micro, small and medium Enterprises in Emerging Markets", 23 million small and micro enterprises in China currently have difficulty financing loans, with a total demand gap of about 11.9 trillion yuan. The potential financing demand of China's micro, small and medium-sized enterprises reaches 30.6 trillion yuan, but the financing supply is only 17.4 trillion yuan, and the potential financing gap is as high as 13.2 trillion yuan, accounting for 57% and 43% of the financing demand respectively. Small and micro enterprises are small in scale, weak in risk resistance, and difficult to obtain capital loans from formal financial institutions. According to data from the People's Bank of China, the ratio of small and micro enterprises to obtain loans from banks and private financing is 6:4.

3.1. The Main Body and Scale of Credit Service of China's Small and Micro Enterprises

In the Chinese market, most financial institutions engaged in the micro and small credit business must aim for profitability but also have a social responsibility. The growth of a micro and small credit business usually requires adherence to a number of basic principles, such as the principle of business sustainability and the principle of risk pricing. The level of interest rates can reflect whether the micro and small credit business can be run successfully and be profitable in the long run. Usually, credit interest rates are made up of four main components: business costs, cost of capital, risk premium and reasonable profit. Only when the interest rate is higher than these four components can the normal operation of the credit business be guaranteed. Because of the short, small and fre-

quent nature of the capital needs of micro and small enterprises, the main lending institutions need to expand their business to cover as many costs as possible, but due to high operating costs, the lack of timeliness and accuracy of information, inaccurate expected default rates also further increase costs, which affects the forecast of default rates, leading to an increase in the risk premium, ultimately leading to micro and small enterprises The difficulty of financing and the high cost of financing are widespread.

The China Banking Regulatory Commission announced that as at the end of November 2020, the balance of credit loans and new loans to small and micro enterprises nationwide had increased by 31.34% and 50.33% respectively from the beginning of the year, while the balance of medium and long-term loans had increased by 11.79% from the end of January 2020. At the end of 2020, the balance of loans to small and micro enterprises nationwide was RMB 42.7 trillion, up year-on-year from RMB 36.9 trillion in 2019 15.7%. Of which, the balance of loans for inclusive micro and small enterprises was RMB 15.3 trillion. 2020 loan balance growth rate for micro and small enterprises was 15.72%, and the growth rate of enterprise loan balance was the third percentile. In recent years, the growth rate of the balance of loans to micro and small enterprises has generally been higher than the growth rate of the balance of loans to enterprises, indicating that the problem of non-integration of supply and demand for loans to micro and small enterprises has been alleviated with the tilting of policies and the marketisation of China's credit system. From January to November 2020, the interest rate on new loans to micro and small inclusive enterprises in the banking sector was 5.88%, down 0.82 percentage points from 2019. at the end of the second quarter of 2022, the banking and insurance according to The main regulatory indicators of banking financial institutions' loans to small and micro enterprises (including loans to small and micro enterprises, loans to individual enterprises and loans to small business owners) totalled RMB 55.8 trillion, of which the balance of loans to inclusive small and micro enterprises with total single-account credit of USD10 million or less was RMB 21.8 trillion, up 22.6% year-on-year, 11.69 percentage points higher than the average growth rate of all loans. In the first half of 2022, new goods and loans for inclusive micro and small enterprises amounted to RMB 2.69 trillion, an increase of RMB 210 billion over the same period of the previous year. All these figures reflect that lending to small and micro enterprises in China increased in 2022 compared to last year. Meanwhile, government loans for subsidised housing projects reached RMB 6.3 trillion.

3.2. Inclusive Loans to Small and Micro Businesses in China's Banking Financial Institutions

Figure 2 shows that as of December 2021, the balance of bank financial institutions' loans to small and micro enterprises was 50.0 trillion yuan, including loans to small enterprises, industrial and commercial households and loans to small and micro business owners. At the same time, as the balance of inclusive

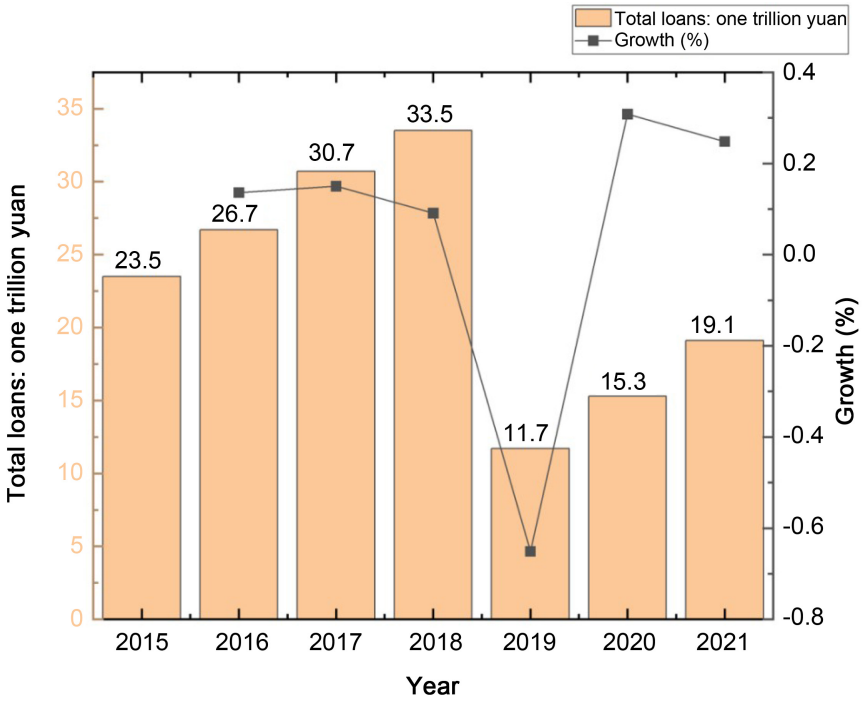

Figure 2. Inclusive small and micro business loans and growth of China's banking financial institutions from 2015 to 2021. Source: The 2015-2021 data released by the China Banking and Insurance Regulatory Commission.

SME loans increases, the economic growth rate is also decreasing. In 2021, the loans to inclusive small and micro enterprises of China's banking financial institutions were 19.1 trillion yuan, with an annual growth rate of 24.9%. It also shows the loan situation of inclusive small and micro enterprises of China's banking financial institutions in the quarters of 2020 and 2021. The results show that the rate of rise of the four quarters in 2021 decreased quarter-by-quarter, and the rate of increase of the whole year in 2021 was 24.9%, which decreased by 9 percentage points compared with the first quarter of 2021.

4. Bank-Tax Interaction (BTI)

4.1. BTI Background Information

In 2015, the State Administration of Taxation of China and the China Banking Regulatory Commission (CBRC) issued BTI-related documents, with the aim of helping to solve the financing problems of small and micro enterprises and promoting their development through communication and consultation between taxation departments, CBRC dispatching agencies and banking financial institutions. By banking-tax interaction, it means that under the premise of taxpayers' authorisation, taxation departments provide tax credit information to banks for free (Chen & Chen, 2017), and banks use this information to optimize loan approval procedures, simplify loan procedures, improve loan approval efficiency, increase credit support and expand credit loan business for creditworthy and high-quality small and micro enterprises that meet the loan conditions (Yang,

Wu, Li, & Peng, 2021). The government should also improve the efficiency of loan approval procedures, increase credit support, and expand credit loan business (Yang, Wu, Li, & Peng, 2021). According to the statistics of the State Administration of Taxation, Bank-tax Interaction assists the development activities of small and micro enterprises. In 2021, it helped small and micro enterprises to obtain relevant loans of 7.033 million, with the loan amount of 1678.99 billion yuan, up 46.9% year-on-year.

4.2. Advantages of BTI

Tax-banking interaction can alleviate the information asymmetry between banks and enterprises. The tax-banking interaction model makes full use of the "Internet + Big Data + Tax + Finance" platform, which allows taxation and banking supervision departments to query and monitor credit data of MSMEs at any time. As the cost of financing is lower than other financing channels, micro and small enterprises will take the initiative to signal to credit institutions that they are good enterprises, so that credit institutions are fully aware of the development potential and the possibility of credit default (Chen, Luo, & Yang, 2021). Chen and Chen (2017) propose that under the perspective of collaborative governance, bank-tax interaction is a community of diversified union of commercial banks, tax departments and enterprises, which is conducive to the win-win cooperation of all participating parties. Commercial banks can more effectively solve the risk problem of loans for small and micro enterprises; honest enterprises can apply for free unsecured credit loans, effectively solving the financing problem; taxation departments, by supporting the development and growth of honest taxpaying enterprises, guide more taxpayers to operate according to the law and pay taxes in good faith, forming a good value guidance of trustworthy incentives and disciplinary actions in the whole society. Yang, Wu, Li, and Peng (2021) find that tax interaction significantly increases the average loan availability and loan amount of MSMEs, and that tax interaction increases the flow of funds to enterprises that did not have loans before the policy was implemented and were short of liquidity, and that most of the financial indicators of enterprises do not affect the flow of tax-interactive loans. Chen, Luo, and Yang (2021) argue that tax interaction can remove the financing constraint for MSMEs, and that firms' investment incentives have a U-shaped relationship with the bank credit multiplier, and that for firms with low growth rates, accommodative credit policies have a greater effect on their investment.

5. Financing Programmes for Small and Micro Enterprises

Charaia, Chochia, and Lashkhi (2021) found that while the SME sector makes a vital contribution to employment, diversification and productivity in developing countries, they still face significant credit constraints among traditional institutions, and thankfully modern digital technologies from the FinTech sector are providing higher quality solutions. The growth of micro and small enterprises

has greatly contributed to China's economic growth, but their survival has been faced with difficulties in financing and uncertainty. The outbreak of the epidemic has made this contradiction even more apparent. In recent years, the growth of micro and small enterprises has been hampered even more than that of large enterprises by the new crown pneumonia epidemic. Between 2016 and 2020, the share of micro and small enterprises in the country's market players rose from 94.1% to 96.8%. They play an important role in encouraging entrepreneurship and relieving employment pressure, and are an important force in driving the real economy and social development. Against the backdrop of downward macroeconomic pressure, the market share of micro and small enterprises has increased, but the year-on-year growth rate has continued to decline. Through the collation and analysis of relevant studies, this paper proposes two different innovative integration models: the "Blockchain + BTI" integration model and the "Digital Supply Chain Finance + BTI" integration model, aiming to enhance the financing efficiency of Chinese MSMEs and improve their development environment. The aim is to improve the financing efficiency and development environment of Chinese SMEs.

5.1. "Blockchain + Bank-Tax Interaction" Integration Mode

Zhang, Liang, and Jiang (2016) argue that blockchain is essentially a shared, trusted, distributed public ledger that can be verified by anyone but cannot be controlled by a single user, and that participants can only make changes according to strict rules and consensus to jointly keep the ledger up to date. Li and Ren (2016) point out that blockchain technology may fundamentally change the modern financial credit system, reduce financial risk, break through the financial sector, and expand the blockchain scope of application. Mattila and Seppala (2015) argue that blockchain technology could revolutionise the logic of value creation in society and the digitisation of industry by enabling intelligent components to share more than mere data computing power, storage capacity, bandwidth and even energy. Zhang, Liang, and Jiang (2016) suggest that the development of blockchain technology will have a positive effect on the direct financing market, where blockchain technology makes information more transparent and allows investors to invest more confidently in direct investments. And the risk of default is high and the agency cost for companies will be greatly reduced. An and Yang (2021) propose that blockchain technology can be fully applied to the whole process of information interaction among taxation departments, banks and micro and small enterprises in bank-tax interaction, which can effectively solve the problems of uncontrollable information security, insufficient information sharing and restricted innovation exploration under the current business model and system architecture.

An and Yang (2021) suggest that there are three models of blockchain: private, public and federated: public chains are open to everyone and anyone can participate; private chains are open to individual individuals or entities; and federated

chains are controlled by pre-selected nodes and open to specific groups of organisations. Coalition chains combine the decentralisation of public chains with the efficiency of private chains, while facilitating regulation. For "Blockchain + Tax Interaction", considering the inherent differences between tax authorities, banks and enterprises, and taking into account factors such as operational efficiency, system security and business support capability, the best technology model is the Alliance Chain (see Figure 3 and Table 1).

5.2. "Digital Supply Chain Finance + Bank-Tax Interaction" Integration Mode

SCF is a credit financing system built by banks and other financial institutions based on supply chain networks around core enterprises and relying on upstream and downstream cooperation in the supply chain, covering basic elements such as information flow, capital flow, logistics and commercial flow, which is important for optimising the financing structure of enterprises in the supply chain (Song & Lu, 2017; Yang, Zhu, & Zhao, 2016). Hu and Huang (2009) suggest that supply chain finance can not only generate new markets and profit models for commercial banks, but also effectively reduce the cost of supply chain management. In addition, in response to the financing constraints faced by SMEs, the information advantage of large enterprises can be used to compensate for the credit deficit and information asymmetry of SMEs in the division of labour and cooperation system between SMEs and large enterprises

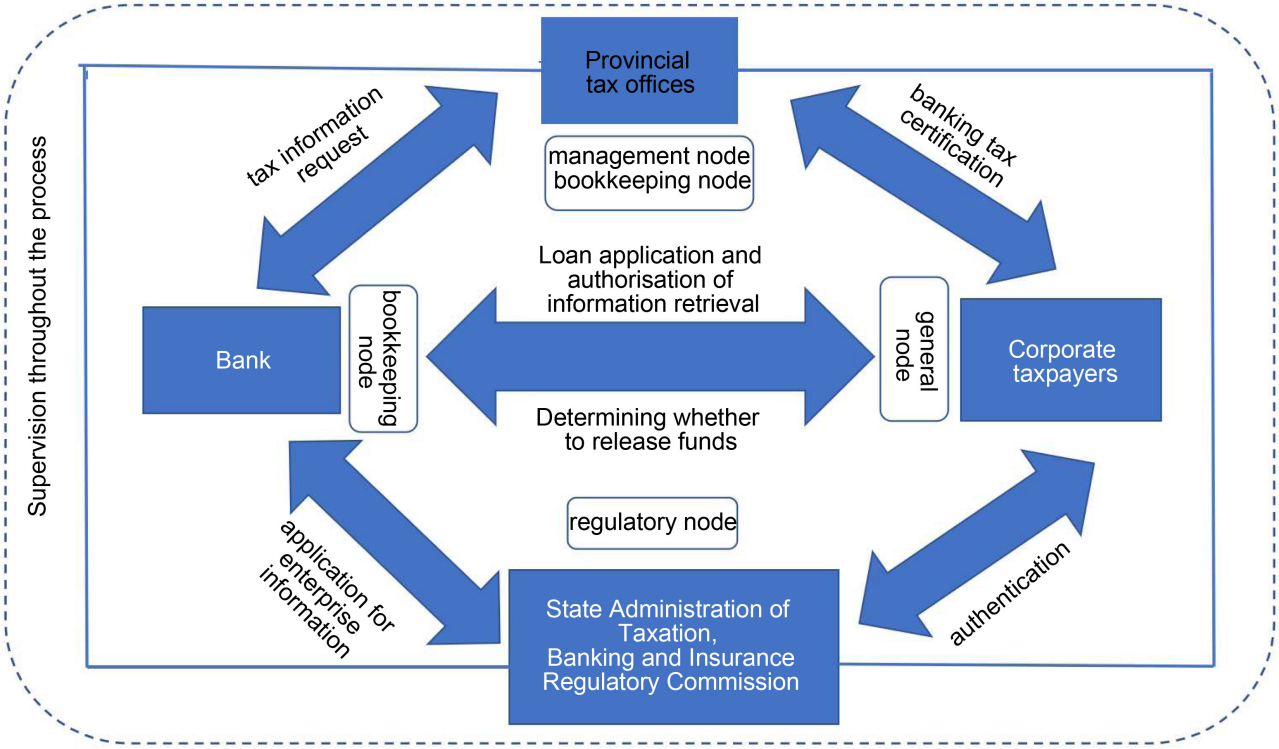

Figure 3. The logical architecture of the "blockchain + bank-tax interaction" system based on the Alliance Chain. Source: An and Yang (2021).

Table 1. The working principle of "blockchain + bank-tax interaction" mode.

Department	Role	Function
State Administration of Taxation, Banking and Insurance Regulatory Commission	Regulatory nodes	Approve the addition of provincial tax bureau and bank nodes, and manage and monitor the overall compliance of system operation.
Provincial Tax Bureau	Manage nodes and bookkeeping nodes	Approve the taxpayer node to join and manage the tax information ledger.
Banks	Accounting nodes	Responsible for the management of loan approval and release and post-loan information account.
Small and micro business taxpayers	Ordinary nodes	It is approved by the management node and then added to the Bank-Tax Interaction blockchain.

Source: An and Yang (2021).

(Fellenz, Cara, & Brady, 2009). Wuttke, Blome, Foerstl, and Henke (2013) suggest that SCF enables real-time monitoring, control and resource optimisation of cash flows. Hofmann (2005) also argues that SCFs can facilitate value creation by internal and external actors in the supply chain by planning, operating and controlling financial resources across organisations. Popa (2013) also argues that SCFs can further enable a win-win situation for both buyers and suppliers by improving liquidity and capital allocation throughout the value chain.

He (2022) believes that through the convergence model of "digital supply chain finance + BTI", financial institutions can not only solve the problem of raising funds for micro and small enterprises, but also innovatively expand the industrial ecosystem through micro and small financial blocks, which can more quickly respond to the financial management, risk management and financing needs of upstream and downstream enterprises in the industrial chain, and consciously identify risks and avoid greater hidden dangers, ultimately achieving the objective of ensuring the healthy operation of every flowing link. At the same time, the scientific integration of resources allows micro and small enterprises to break away from traditional business models, enabling them to explore more business opportunities. This paper draws up a working principle diagram of "Digital Supply Chain Finance + Tax Interaction" based on this model theory (see **Figure 4**).

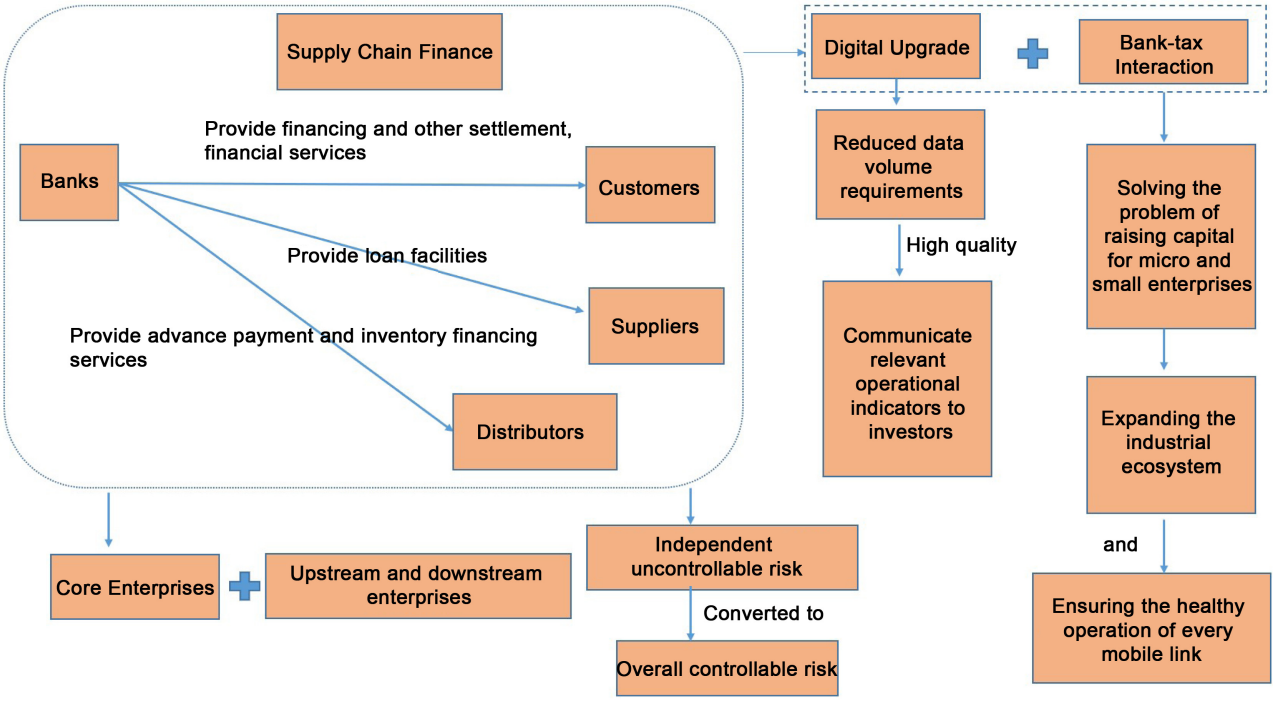

Figure 4. Working principle of "digital supply chain finance + bank-tax interaction". Source: He (2022).

6. Cross-Border Payment Industry, Blockchain Technology and Cryptocurrency

6.1. Cross-Border Payment

Currently, improving the timeliness of cross-border payments is an important issue in accelerating change in the financial sector and contributing to the development of the world economy (Feng, Zhang, & Xie, 2022). The cross-border payment clearing industry is a high value-added chain that includes end-users, payment service providers, correspondent banks, central banks, financial market infrastructure providers and many other institutions in multiple countries (Zhu, 2021). Cross-border payments generally refer to the action of transferring funds across borders and regions between two or more countries or regions for international trade, international investment and other intercreditorial debts that occur with the help of certain settlement instruments and payment systems (Lu & Ge, 2018). Wan and Wu (2022) suggest that digital currency cross-border payments can reduce transaction costs, reduce cross-border payment frictions and break the current monopoly of the cross-border financial payment system. However, Lu and Ge (2018) argue that currently, due to the long cycle time of traditional cross-border payments, the amount of funds in transit is extremely high. For customers, to conduct relevant business in different banks, they need to open corresponding margin accounts in these banks, thus reducing the efficiency of using funds. For banks, they need to hold multiple countries' currencies in their bank accounts in order to maintain liquidity, and if more funds are kept in the current account, the greater the hedging and opportunity costs for the bank. Meanwhile, Jesse and Bruno (2016) found that by combining the business processes

of traditional cross-border payments, current cross-border payments have corresponding challenges in the origination phase, the funds transfer phase, the funds delivery phase and the post-payment phase respectively.

6.2. Blockchain

Blockchain is an emerging information technology that integrates not only peer-to-peer networks, but also encryption algorithms and decentralized storage. Blockchain cross-border payments are characterized by reliability, speed, greater market access and transparency. Yao (2019) believes that blockchain technology provides a feasible solution to solve the pain points of cross-border payment and clearing industry, and is regarded as the technical prototype of a new generation of financial market infrastructure. Blockchain cross-border payment systems use smart contracts for trading in tokened, anonymous assets based on distributed ledger technology, thus reducing the number of steps throughout the process. The efficiency of distributed accounting technology is reflected in peer-to-peer payment, which has advantages in credit and liquidity cost savings, speed and transparency of reconciliation, and efficiency of automatic processing, which can augment the accessibility of financial services and expand new business opportunities. Li and Wan (2021) used the data of listed companies from 2012 to 2018 to study the impact of blockchain technology on operational efficiency in practical application. They found that the extension of blockchain technology can furtherance the trust between the two parties, restrict opportunistic behavior, improve information transparency, and smart contracts can also avoid the problem of breach of contract. Thus improve the operation efficiency of enterprises; For enterprises with higher liquidity risk, business risk and financial risk, the better the effect of blockchain application on the improvement of operation efficiency; For enterprises with poor earnings quality and weak external legal and security environment, blockchain has a better effect on improving operational efficiency. From 2014 to 2019, the amount of investment and financing of newly registered blockchain enterprises in China has been increasing, showing an upward trend. By December 2019, there were more than 33,000 blockchain enterprises on record in China, among which 1006 blockchain enterprises with input and output were engaged in providing blockchain industry underlying technology platform services, application products, industrial technology solutions and other businesses. Among them, start-ups account for 57%, relevant Internet companies account for 23%, and financial institutions account for 12%. By 2019, 36 domestic banking institutions have participated in the exploration of blockchain application, and Chinese blockchain enterprises are mainly clustered in Beijing, Shanghai, Guangdong and other places. Among them, Beijing has the most, with 338, accounting for 33.6 percent of the country.

6.3. Application of Blockchain in Cross-Border Payment and Settlement Systems

Yao (2019) argues that blockchain technology provides a viable solution to the

challenges of the cross-border payment clearing industry, and Zhang (2016) points out that the impact of blockchain technology on China's payment system is reflected in the processing of transactions through a peer-to-peer approach with a distributed structure that allows for transaction recording and transaction settlement without the involvement of a trusted third party, thus removing the need to rely on a central authority. Yao and Zhu (2017) found that blockchain technology will not become the core system for cross-border payments, but can be used to develop products based on certain scenarios. In the medium to long term, blockchain may change the underlying architecture of traditional cross-border payments, but the shape of the upper layer applications may not change significantly.

Xu (2017) proposes a new model of "blockchain + cross-border payments", using virtual currencies as intermediaries, first converting the remitter's local currency into virtual currencies on the remittance side, and then converting digital assets or tokens into the recipient's local currency on the receipt side, thus transforming the traditional cross-border payment process. Compared to the previous traditional model, Qiao and Xie (2017) suggest that blockchain technology in this new model can remove intermediaries, eliminate transit bank fees, reduce foreign exchange remittance, compliance and error investigations, and effectively reduce transaction costs. Xu (2017) feels that blockchain technology using virtual currencies as intermediaries for currency exchange in different regions can reduce the tying up of bank capital positions and greatly improve liquidity Zhou Lin. Ren and Meng (2017) and Ren and Hu (2016) argue that blockchain technology makes the process of cross-border payment transactions more transparent and the distributed ledger database ensures traceability and traceability of transaction history, significantly improving transaction security and reducing capital risk.

Zhu (2021) refers to blockchain theoretical literature and technical documents of blockchain cross-border payment clearing companies to compile and map the technical roadmap of blockchain cross-border payment solutions. The technical route of blockchain cross-border payment solutions includes four levels from the inside out, 1) the core underlying technology layer of blockchain, 2) the technical solutions to solve the problems of information transfer, cross-border, cross-currency and cross-time zone of cross-border payment services, 3) the economic problems in cross-border payment, 4) the efficiency performance in terms of speed, cost and security. Based on this research, this paper draws a working principle diagram (see **Figure 5**) of blockchain technology to improve the efficiency of cross-border payment.

6.4. Cryptocurrency

Encryption currency is a kind of cryptography theory was used to ensure transaction security and control unit created by the medium of exchange, technology allows users to blockchain in the absence of any financial intermediaries to complete point-to-point transaction, and the equipment to the communication

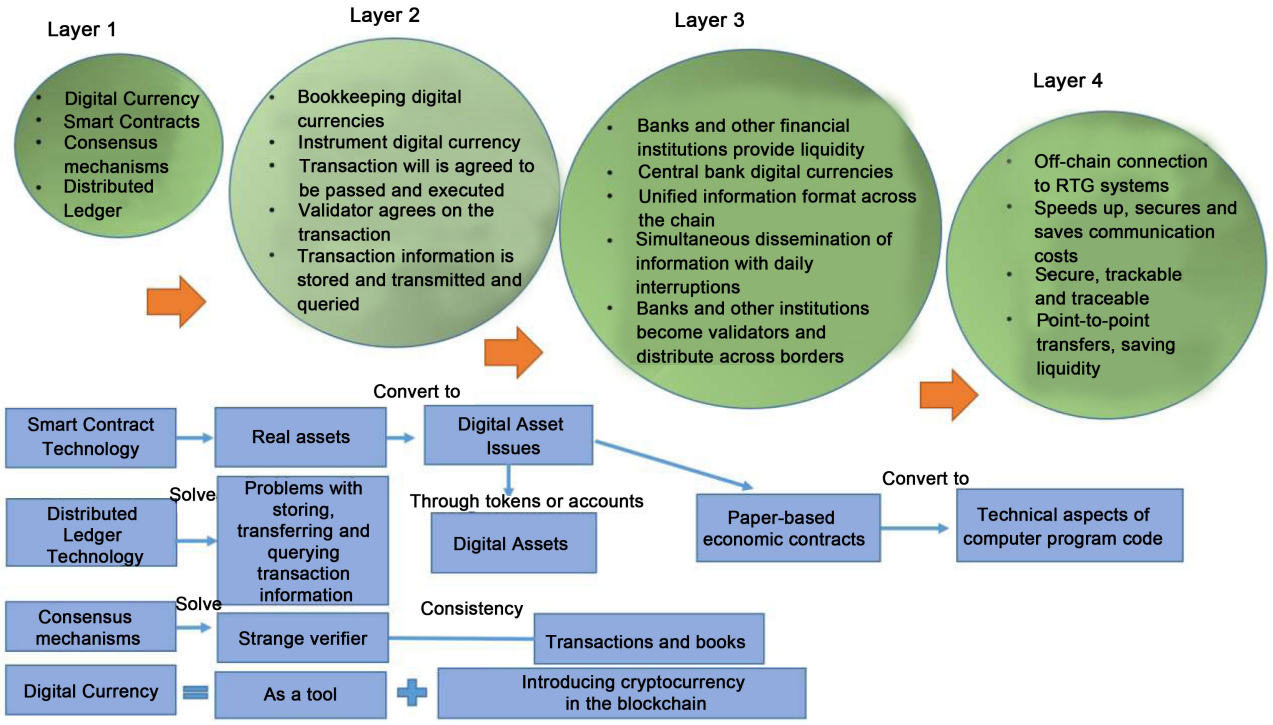

Figure 5. Technical route of blockchain cross-border payment solution. Source: Zhu (2021).

between the is done through encryption, so the technology successfully reduce the security problems of the existing financial system faces. At present, the cryptocurrency platform supported by blockchain technology can fully realize the global transfer application system. Cryptocurrency networks, as the primary means of global digital payments and transfers, can provide optimal convenience, transparency, accuracy, and efficiency, redefining traditional banking practices. According to Finbold data, the number of cryptocurrency categories globally was 8153 on January 1, 2021, and 16,223 as of December 31, 2021, an increase of about 98.98% from January. Meanwhile, Finbold data shows that 8070 new tokens were created in the crypto industry in 2021, with an average of about 21 new cryptocurrencies being launched on the market every day. In total, about 5000 crypto currencies were added to the crypto market during January-October 2021, compared with over 3000 crypto currencies entering the market in November and December, and the number of crypto users worldwide had reached 221 million as of June 2021.

Cryptocurrencies have some advantages over conventional currencies: cryptocurrencies have built-in inflation safeguard procedures; Digital transfers can pay lower transaction fees than traditional methods, and in many cases charge no fees at all. These faster, higher efficiency transactions can be achieved by processing them in the network using blockchain technology. Payments with cryptocurrency are processed and settled faster than with other payment methods, including traditional digital payments; Transfers and payments using cryptocurrencies do not require exchange or settlement of transactions through financial

Intermediaries or Transfer Operators (MTOs) that provide services such as money. According to Demirguc-Kunt, Klapper, Singer, Ansar, and Hess (2018) in the World Bank's 2017 Global Findex database, only 34% of the population in the Philippines and 37% in Mexico have an account with a bank, microfinance institution or regulated financial institution, respectively.

While cryptocurrencies have some encouraging advantages, they also have some challenges: blockchain technology currently lacks specific laws and regulations, which can cause investors and users to worry about the security and privacy provided by the technology, thereby preventing people from enjoying the advantageous system; cryptocurrencies offer opportunities for money laundering or black market use; Because rapid technological improvements have enabled users to access digital currencies more easily, this has promoted to the recent tremendous development in the market, leading to more speculators participating in the market. As a result, the cryptocurrency market is already more astatic.

7. Conclusion

As a new product of the combination of traditional finance and science and technology, FinTech can, to a certain extent, enhance the ability of enterprises to obtain financing from internal and external sources, alleviate the financing constraints faced by their innovation, and thus enhance their innovation capacity. Today, the development force of the national economy, represented by micro and small enterprises, has become an important support for the continuous improvement and enhancement of the Chinese economy. Micro and small enterprises are diverse in content and can develop flexibly according to the needs of society, and are extremely adaptable to economic as well as social development.

This paper focuses on the highly relevant phenomenon of the significant impact of Chinese FinTech on the operation of Chinese micro and small enterprises, and chooses the impact of Chinese FinTech on the credit business of Chinese micro and small enterprises as one of the research questions. This paper first examines the application and development of FinTech in the credit services of Chinese micro and small enterprises, and also focuses on the inclusive micro and small enterprise loans of Chinese banking financial institutions from 2015 to 2021. The paper also focuses on the situation of inclusive micro and small enterprise lending by Chinese banking financial institutions from 2015 to 2021. In order to improve the financing environment for MSMEs, the State Administration of Taxation (SAT) and the CBIRC jointly launched Bank-Tax Interaction (BTI). Although this programme has been more effective in helping MSMEs to raise funds by converting their tax credits into financing credits, it still faces many challenges.

At the same time, the development of micro and small enterprises has greatly contributed to the development of China's economy, but their survival has always faced problems such as difficulty in financing and uncertainty. The sudden outbreak of the new crown pneumonia has put their development to an even

more severe test, and it is urgent to enhance financial support for micro and small enterprises. To solve this problem, this paper explores 2 convergence innovation models: "Blockchain + BTI" and "Digital Economy + BTI", which provide new ideas for future financing development. Finally, by studying the development of blockchain technology, cryptocurrencies and the cross-border payment industry, the working principle of blockchain technology to enhance the efficiency of cross-border payments is analysed and mapped out based on relevant literature and data.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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