

Current Commercial Banks and Blockchain Analysis

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Abstract

As the world enters the digital era, commercial banks begin to accelerate the digital construction. Blockchain finance, which takes blockchain as the underlying technology, has been widely used in the banking industry. It is an inevitable trend for commercial banks to carry out digital transformation based on the deep integration of block chain technology and banking business. Through the digital transformation of commercial bank based on financial area chain in ecological scene, "double chain" fusion, risk control system, the role of service quality, etc, and on the supply and demand, cost, safety and regulatory challenges facing the in-depth analysis, on the basis of the technology research and development and fall to the ground, privacy protection, improve service efficiency and profit space extend Angle put forward the corresponding countermeasures and Suggestions, which continued to the digital transformation of Chinese commercial Banks.

Keywords

Blockchain; Commercial Banks; Digital Finance.

1. Introduction

General Secretary Xi Jinping stressed in the 18th collective study of the Political Bureau of the CPC Central Committee that "the integrated application of blockchain technology plays an important role in the new technological innovation and industrial change. [1] We should take blockchain as an important breakthrough in independent innovation of core technology, clarify the main direction of attack, increase investment, focus on tackling a number of key core technologies, and accelerate the innovation and development of blockchain technology and industry." Blockchain, known as the "trust machine", has created a new paradigm of the digital economy. Linking various participants involved in financial services can improve efficiency, reduce transaction costs and enhance risk control ability, which is also the reason why Blockchain technology has attracted much attention. [2] China's blockchain industry is still in its early stages, but it shows a momentum of rapid development, especially in commercial banks and other financial fields. In view of the complexity of block chain technology, various departments of commercial banks will encounter many problems when applying block chain technology, and there are some potential risks. Therefore, internal audit of block chain application becomes inevitable and necessary. [3]

2. Development and Characteristics of Blockchain

2.1. Blockchain

blockchain is divided into public chain, private chain and alliance chain. Blockchain is created in a P2P network, there is no central processing node, each node in the blockchain has to record and store the same data, and any node can realize information exchange and transaction. This distributed accounting technology enables each node in the blockchain to retain complete data information. Any node exiting or tampering with information will not affect the stability and normal operation of the whole data chain. The data of each node in the blockchain is based on

the consensus mechanism, using asymmetric encryption technology and hash function encryption technology to achieve data information transparency and sharing. The data exchange is verified by algorithm endorsement and digital signature technology, without the participation of third-party intermediaries. It only needs to be carried out according to programmable intelligent contract rules, and each participating node does not need to participate in advance Build trust to complete the transaction. The operation rules of the blockchain system are open and transparent, and all transaction data are also open. First of all, the consensus algorithm followed by the blockchain is that the whole network is visible, each node is in an equal position, and the data writing premise is consistent. Secondly, transactions can only be written through consensus verification of each node, and they need to broadcast and transmit in all nodes. Each node receives and stores data, and each transaction information is visible to all nodes. The data writing of each node in the blockchain has the function of time stamp, so the data is written in chronological order. Any node can trace the whole process and ownership of the transaction according to the chronological data information, so as to realize the collection and verification of transaction details. Because the data in the blockchain has the function of time stamp, the data are arranged in chronological order, which is irreversible. No node can tamper with the data. At the same time, once the data in the blockchain is recorded, it is permanently saved and implemented through asymmetric encryption technology and hash function, so the encryption technology is very strict. Since its birth, blockchain technology has gone through three stages of development from bitcoin to Ethereum and then to super ledger. With its own advantages, it has extended specific applications to Internet, digital finance, asset trading, culture and education, supply chain management and other industries. Under the background of economic globalization in the 21st century, blockchain technology effectively solves the problem of lack of credit institutions and clearing centers between countries, which is of great significance to the development of financial institutions, especially commercial banks. Throughout the world, countries are paying close attention to the development of financial technology, and the United States has become a global leader in blockchain related work. China also keeps pace with the times. Beijing has taken the lead in the application of information sharing system based on blockchain technology in the fields of equity registration and Housing leasing, which has greatly shortened the business processing time. The field of commercial banks is also facing changes, Industrial Bank strives to build a blockchain anti-counterfeiting system, postal savings bank develops a new business model of blockchain asset custody, and further connects the integration channel of technology and financial services. It can be seen that China is taking advantage of the distributed chain application ecosystem. In response to general secretary Xi Jinping's call, we will vigorously develop the block chain economy in the national key development planning goals, and mark this as an important breakthrough in the core technology innovation, accelerate the development of the technology and industry innovation of the block chain, and achieve the high quality growth of the economy.

2.2. Application of Blockchain in China's Commercial Banks

In early 2017, at the call of the people's Bank of China, industrial and Commercial Bank of China In July 2017, Minsheng Bank and China CITIC Bank began to develop blockchain applications together for the purpose of win-win, and achieved great results. The main representative of their R & D results is the domestic letter of credit information transmission system. In August of the same year, CBB further developed blockchain applications to gain competitive advantages, and formally participated in the verification of blockchain concept.. In November 2017, Minsheng Bank announced to join the R3 blockchain alliance to develop blockchain applications. In order to make customers better experience the key functions and services of Zhangyin, Agricultural Bank of China built a digital credit system for Zhangyin customers based on blockchain technology in 2017. At the same time, BOC participated in the blockchain fund management system in xiong'an new area. In 2018, ABC launched the enterprise annuity

project based on blockchain technology. After the project links the enterprise annuity business process, all business participants can share information and improve the efficiency of data processing. In addition, ABC has also participated in the blockchain "battle group" of xiong'an new area. China Construction Bank set up xiong'an branch of China Construction Bank in xiong'an new area to better participate in the application of xiong'an blockchain rental. In September 2018, CCB set up the "blockchain financial targeted poverty alleviation platform", through the effective combination of blockchain and targeted poverty alleviation, in order to achieve the transparent use, accurate investment and efficient supervision of targeted poverty alleviation funds. On November 20, 2018, ICBC successfully issued the first digital credit voucher financing, created multi-level supplier factoring products by using blockchain technology, and provided factoring services for small and micro enterprises at the end of the industrial chain, thus effectively alleviating their financial pressure. In May 2019, ICBC cooperated with xiong'an New Area Management Committee on blockchain technology, and xiong'an capital management blockchain platform was officially launched. At present, the cumulative number of users involved in the system is close to 20 million. After that, BOC's blockchain application began to be officially recognized by the society. On this basis, Minsheng Bank continued to develop blockchain technology, increased the training of blockchain talents, and involved in smart contracts and decentralized applications. While Minsheng Bank develops blockchain application, China Everbright Bank also begins to lay out blockchain research. At present, its research results belong to the application scenario of alliance chain, specifically the trusted electronic signoff system supported by blockchain technology. [4] Everbright Bank said that it would expand more business on this platform, and the layout direction is mostly the hot spot of current banking business, such as supply chain finance, cross-border payment and bills. With the continuous improvement of customers' requirements for the quality of banking services and the intensification of interbank competition, the blockchain technology has been paid more and more attention by commercial banks. However, due to the differences in ownership structure, asset scale and management mode, the specific implementation of blockchain application of various commercial banks is different. Specifically, the development of blockchain application of state-owned commercial banks is slow, joint-stock commercial banks are very active in blockchain application, and urban commercial banks "scale diseconomy" have few attempts in blockchain application. From the perspective of policy, the state vigorously develops the blockchain industry, and encourages enterprises to carry out independent innovation and innovative application; from the perspective of technology, blockchain technology can greatly reduce transaction costs by virtue of decentralization, tamper proof and other characteristics, and bring a more secure and convenient environment for financial transactions. The application of blockchain technology naturally fits in the financial scenario. This paper focuses on the path of blockchain technology enabling commercial banks and its application in eight scenarios, including cross-border trade finance, supply chain finance and asset securitization. On the basis of summing up the application practice of domestic and foreign banks, the author proposes that the development of blockchain technology is still in the early stage, and the large-scale application in the financial industry still needs time. It is suggested that commercial banks should increase the research on blockchain technology, actively explore a new generation of financial service mode, improve service efficiency, and accelerate the digital transformation of commercial banks.

3. Application and Analysis of Commercial Bank Blockchain

3.1. Blockchain to Solve the Problems of Payment Management of Commercial Banks

first, the problems of payment settlement account and audit management lag: at this stage, China's commercial banks are allowed to open enterprise accounts in the process of public network management, and large enterprises, small and medium-sized enterprises can carry out capital activities through this account. Commercial banks lack a complete regulatory mechanism, when the grass-roots outlets complete the deposit task in a specific period; second, the reconciliation method and payment and settlement tools are backward: reconciliation is an important part of bank payment management, and regular reconciliation, as the key work of reconciliation, plays an important role in confirming whether the funds are legal. However, most of the information required for reconciliation comes from the statement of the grass-roots outlets, and the grass-roots outlets are prone to collusion between banks and enterprises, illegal misappropriation of funds and other problems, resulting in inaccurate statement information. Third, the supervision mechanism is not perfect, and the punishment is not enough: at present, China's commercial banks lack a complete supervision mechanism in terms of payment management, the bank payment management staff do not realize the importance of payment management, lack of good professional cognition, and the grass-roots outlets often deal with enterprise settlement information loosely in order to achieve the marketing task, thus laying a huge security risk. The application of blockchain and digital currency in payment management of commercial banks is conducive to improving payment efficiency, reducing payment fees, and improving Reconciliation Methods and bank payment management mechanism

3.2. Digital Transformation of Commercial Banks

with the continuous change of financial service demand, digital transformation of commercial banks is imminent. Digital transformation means that economic entities use digital technology to promote the change of their ecosystem, service mode, organizational structure, etc. With the increasing penetration of digital technologies such as big data, cloud computing and blockchain, various industries are accelerating digital construction, which brings new competition and challenges to commercial banks. [5] Digital transformation of banks is the general trend. The digital transformation of banks can be understood as taking data as the driving factor, using digital technology to make significant changes in the financial services and business processes of traditional banks, improving the service level and internal management ability of banks, and providing intelligent and personalized products and services for customers. How to effectively use digital channels to obtain customer demand information and enhance customer experience has become the key for commercial banks to gain a dominant position in the future competition. Digital transformation brings new ecological scene, double chain cooperation, risk control system and product services for commercial banks, which has far-reaching significance for the development of various business of banks. Blockchain finance is widely used in the banking industry is the trend of the times. Commercial banks should prepare for a rainy day, do a good job in technical reserve and response in advance, actively formulate development strategies, and strive to seize the opportunity in the future competition. The essence of digital transformation of banks is still banks, in which blockchain finance plays a fundamental and innovative role.

3.3. Blockchain Technology can Endow Commercial Banks with New Credit Mechanism, and Credit System is Very Important as the Core of Bank Operation

Under the traditional risk control mode, customer information involves a wide range, many links, long collection chain, high cost, incomplete information, long decision-making process and other problems. Although big data risk control has higher efficiency, more reliable information and stronger timeliness, it still faces the phenomenon of data island and doubt of data authority. Blockchain technology re creates credit by means of technical endorsement, which has the following characteristics: first, it has strong information reliability and can not be tampered with, which can ensure that the reliability of transaction information is higher than that of big data risk control mode, and at the same time, it can avoid the moral hazard problem caused by customer managers' subjective factors; second, it has low credit establishment cost and decentralization, which makes banks no longer rely on credit reference companies Third, the information is open and transparent. Blockchain technology relies on program algorithm to record and store massive data, which can be open and transparent in the process of information transmission, especially for consumer loans and micro loans below 3 million yuan. The other is the scenario value chain. As an innovative form of Internet finance, scenario finance subverts the traditional bank's counter service mode, integrates various financial services into the scene, such as social scene, online shopping scene, tourism scene, etc., enhances the customer's sense of experience, and forms a capital closed-loop and financial service ecosystem relying on the scene. Blockchain technology has a flexible architecture, which can create a relatively independent short path blockchain according to different application scenarios, user needs, customer structure and capital operation process, and further promote the integration of Finance and real economy in scenarios. The first is to further improve the stickiness and stability of customers, making them more dependent on scenario finance; the second is that customer business information is recorded, with high security and stronger falsification; the third is that the financial needs of scenario customers rely on blockchain to generate P2P credit operation mechanism, which no longer relies on traditional bank credit services, and customers no longer rely on big data center to generate credit status . New payment and settlement methods can avoid certain risks. Payment, clearing and settlement are relatively mature areas of blockchain technology in banks at this stage, especially cross-border payment and settlement and interbank clearing. Blockchain technology enabling related businesses can significantly improve business processing efficiency and reduce the cost of reconciliation and dispute resolution among financial institutions. Secondly, there is no need for a third party in the process of payment, clearing and settlement after using blockchain technology Participation can implement point-to-point value settlement, so as to reduce the cost of value transfer and shorten the time of clearing and settlement. In addition, the payment, clearing and settlement between the same industry generally follow the strong binding laws and regulations, industry practices and internal agreements, and implement automatic and intelligent payment and settlement by applying the characteristics of blockchain's intelligent contract, so as to reduce manual intervention and business operation risk. At present, there are three important institutional foundations for banking and financial institutions: the first is the trust rule under the legal framework established according to the commercial bank law and other laws and regulations; the second is the exchange and allocation of the customer's asset use right of credit intermediary; the third is the unified and centralized transaction clearing. The main pain points that affect the efficiency in the business chain of multi-party transactions of traditional commercial banks are: opaque information, easy to cheat; long trust transmission chain, difficult to form a joint force of multi-party trust; too much manual intervention, low degree of automation, long transaction cycle, which may breed moral hazard and operational risk. Blockchain technology can solidify the transaction rules and basic system into the underlying

protocol, and realize the standardization and automation of financial infrastructure. Through the optimization of the whole business chain, it can better solve the trust problems between banks, customers and third-party partners, as well as these pain points and stubborn diseases in the past transactions, and improve the business efficiency. So as to greatly reduce the complexity of bank operation and the difficulty of risk management and control, improve the operation efficiency and reduce the industry threshold.

4. Analysis of the Application Errors of Commercial Bank Blockchain

According to the statistics, more than 500 A-share listed companies have publicly indicated that they have a direct or indirect relationship with the blockchain. On the one hand, the reality of information asymmetry undoubtedly increases the cost of investors to identify the true and false information; on the other hand, the development of emerging technology often stresses preemptive, and the time cost has a huge impact. Therefore, in order to maximize the interests, investors prefer to invest first and then judge. Commercial banks need to develop blockchain technology, but commercial banks need to clarify the difference between the development of blockchain and the speculation of blockchain. Under the upsurge, banks should treat and rationally apply blockchain. [6] Blockchain is not absolutely secure, and anonymity brings risks to blockchain currency transactions. Once the key is lost, the risk of blockchain currency theft may occur. For example, on May 8, 2019, the coin security exchange was attacked by hackers and lost 7000 bitcoins. This event triggered users to sell bitcoins, which eventually led to a sharp drop in the price of bitcoins. The security of blockchain is based on cryptography, which can be guaranteed in the short term, but not in the long term. At the beginning of the establishment of the blockchain system, the cooperation between computer technology and cryptography did not reach the present level. At that time, it was generally believed that the security of the blockchain was reliable. Due to the heavy workload, it used to be considered that the "51% attack" problem of blockchain is almost impossible. However, with the development of computer technology, especially the growing maturity of quantum computer technology, once a large number of mine pools can be united, it will be possible to master 51% of the computing power of the system, which will inevitably pose a potential threat to the security of the blockchain. Blockchain can fully empower commercial banks, but it can not replace commercial banks. The operation mode of commercial banks is relatively mature with huge social value. After long-term development, commercial banks have accumulated good business philosophy, operation mode and practical experience. Under the Internet technology, commercial banks have made some progress in improving operational efficiency and saving operating costs. The efficiency, transparency and credit risk problems involved in the decentralization mechanism have been well solved. As a central credit mechanism, commercial banks operate well with relatively mature operation mode and huge social value. It is unrealistic to say that "blockchain technology will eliminate commercial banks" in the short term. Blockchain technology and regulatory level do not support the wide application of blockchain technology. However, the application time of blockchain technology is only about ten years. The development of blockchain technology is still immature, and the major technical problems such as poor flexibility, long transaction time and blockchain expansion have not been well solved. [7] At the same time, the current blockchain technology lacks a unified standard in the industry, the regulatory mechanism is not clear, and the blockchain rashly replaces commercial banks will not get the support of the existing policies. In short, the development and regulatory level of blockchain technology can not support blockchain to replace traditional commercial banks, and the common development of blockchain and commercial banks is the mainstream trend. Moreover, blockchain is a basic technology, but it is not omnipotent. Blockchain is an evolutionary version of database. It uses the database technology of "area" and "block". From the perspective of technology, blockchain has two

distinct evolutionary characteristics. One is the change of bookkeeping method, which changes the traditional central bookkeeping to distributed bookkeeping by blockchain technology; the other is the automation of database backup. Before the blockchain technology appeared, the database needed to be backed up manually, but after the blockchain, the backup was completed automatically without the participation of management intermediary. In the association of various economic entities, account book is the most important. The development of blockchain can change the basic accounting method, and then change the association mode of economic entities. In the establishment of blockchain system, the builder must choose between security, scalability and decentralization to achieve the optimization of the system. Specifically, blockchain technology pursues "security" and "decentralization". It not only ensures security by irreversible data, but also achieves decentralization by information synchronization in distributed mechanism. However, it will bring "scalability" [8].

5. Conclusion

Financial technology innovation is always the core driving force to promote the development of banking industry. The application of blockchain technology to the nature of credit business can improve the operation efficiency and user experience of banks, and strengthen the connection between customers and banks. Payment field is the field where blockchain technology was initially conceived and practiced. Commercial banks should seize this emerging technology to enable blockchain to better enable payment and settlement. To sum up, the combination of blockchain technology and finance is not accidental. "Blockchain +" is not a single platform and technology, but a kind of thinking. It takes blockchain as the center to build the infrastructure construction in the fields of multi-party security computing, artificial intelligence, cloud computing, Internet of things, etc., so as to improve the diversified ability of commercial banks. However, in the financial field, we must pay attention to the disadvantages of blockchain technology, such as the large waste of computing power, the difficulty in applying it to high concurrency links such as retail payment, and the lack of commercial information and privacy protection. Because the advantages of blockchain are multi-party cooperation, transaction traceability, high degree of information sharing, and easy to confirm the right of deposit, in the field of public services, such as trade and finance, where multi-party trust mechanism is difficult to form, information island can be broken through multi-party co construction system, so as to solve the problem of multi-party trust in a wider rangeRen and collaboration.

Acknowledgments

Hainan 2020 college students' innovation and entrepreneurship training project "supply chain financial system app of Hainan Commercial Bank Based on blockchain", Project No.: 202013892044.

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