

Zheshang Bank's "Blockchain + Supply Chain Finance" Accounts Receivable Financing Model of Research

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Abstract. Because small and medium-sized enterprises have problems such as high operating risks and a small proportion of real estate, they are facing difficulties in financing. Commercial bank supply chain finance provides an effective way for small and medium-sized enterprises to finance, and to a certain extent solves the problem of corporate financing difficulties. However, some of its existing problems have restricted its innovation and development. The "blockchain + supply chain finance" dual-chain model has effectively overcome the shortcomings of the banking industry in developing supply chain financial services. This article takes Zheshang Bank's accounts receivable chain platform as the research object, explores the advantages and related risks brought by the application of blockchain technology, and puts forward the optimization suggestions of Zheshang Bank's accounts receivable chain in supply chain finance.

1 INTRODUCTION

Small and medium-sized enterprises constitute an important part of the modern national economy. However, due to insufficient credit standing, it is difficult for small and medium enterprises to obtain bank loans, which has caused the difficulty of financing and expensive financing. In September 2019, the China Banking and Insurance Regulatory Commission jointly drafted the "Notice on Deepening the Development of "Xinyi Loan" Supporting Financing of Small and Micro Enterprises" and "Fin Tech Development Plan (2019-2021)" to help commercial banks innovate supply chain financing model. With the strong support of policies and systems, the scale of my country's supply chain financial market has expanded rapidly. Although supply chain financial financing can solve the problem of financing difficulties for small and medium-sized enterprises, it is difficult to transfer the credit of core enterprises to secondary suppliers or distributors. There are still many pain points in the business process, mainly in: information asymmetry restricts credit objects and business security affect business realization, and core enterprises' independent portals restrict the development of supply chain finance.

At present, the banking industry has been implementing projects related to blockchain distributed ledgers since 2017. Blockchain technology is a kind of open distributed ledger. Because of its features such as consensus algorithm, immutability, and smart contracts, it makes up for the shortcomings of supply chain finance^[1]. It can efficiently record the transaction process of buyers and sellers, support verification and can be stored permanently. At present, the academic circles have formed two views. One is that in the actual application of supply

chain finance, blockchain technology can integrate the real background and transaction information of upper and lower supply chain enterprises, which is conducive to improving the efficiency of industry supervision and safety auditing. Reduce industry supervision costs^[2]. Second, it is believed that data traceability and non-tamperability are not the core demands of supply chain finance, and blockchain technology is not the best method, and it is difficult to solve the core pain points of supply chain and supply chain finance, that is, risk issues^[3]. Therefore, this article takes the account receivable financing model based on blockchain technology as an entry point to study the Zheshang Bank receivable chain platform, and analyzes the advantages and risks of blockchain in the application of supply chain finance. And put forward executable recommendations in this regard.

2 the Integration of Supply Chain Finance and Blockchain

Supply chain financial financing business models include accounts receivable financing, inventory or warehouse receipt pledge financing, and prepaid account financing. This article mainly studies the accounts receivable financing model.

2.1. Accounts receivable financing model

Accounts receivable financing means that in order to meet the needs of its own liquidity, the core company failed to pay the price required by the contract when the upstream company fulfilled its contractual obligations. For the upstream company, this part of the accounts receivable cannot be used for In the daily business activities of

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enterprises, upstream companies use unexpired accounts receivable as collateral to obtain cash flow to support the continued operation of the company. Financial institutions make loans to upstream companies based on the subject rating plus debt rating. The essence of accounts receivable financing is actually the transfer of accounts receivable claims by upstream companies to financial institutions, and financial institutions make loans based on the authenticity of trade and the credit of core enterprises.

However, the development of supply chain finance is relatively late, and a series of problems have appeared in the specific implementation: First, the information transmission in the supply chain is blocked and the cost is high, and the credit of core enterprises is difficult to transmit to multi-level suppliers, which makes such enterprises suffer financing is difficult and expensive; second, it is difficult to verify the authenticity of the trade background, and business efficiency is low; third, it is difficult to guarantee the data security, authenticity and reliability of the supply chain platform, and it needs to be verified by a third-party authority; It is the centralized architecture of the supply chain system, which has potential safety hazards.

2.2. The account receivable financing model with the introduction of blockchain technology

Building a supply chain financial platform through the blockchain can solve the above problems and increase the credit of small and micro enterprises at the more end, so that they can also gain the trust of banks. The application of blockchain has enabled traditional supply chain finance to break through the narrow scope that exists only between core enterprises and first-tier suppliers or distributors and benefit the entire chain.

2.2.1, Traceability and Consensus

Because the blockchain is a technology that can be trusted, and the data on it has a timestamp. Therefore, it can provide a completely credible environment, effectively reduce the cost of capital risk control, and eliminate the need for banks to review the authenticity of data. On the platform, core companies issue and generate vouchers within the bank's credit line based on their accounts payable; real trade between suppliers can be settled with core corporate vouchers, and they can also use the core corporate vouchers they hold to obtain payment from the bank. Relevant statistics show that the traditional financial model can only provide services for 15% of supply chain companies, and the use of blockchain technology can increase this proportion to 85%.

2.2.2, Automated Settlement Using Smart Contracts

In supply chain finance, due to the large number of participants and asymmetric information, it is easy to cause financial institution losses due to human factors. The essence of smart contracts is to automatically execute contract terms. In a smart contract, a triggerable condition needs to be set in advance. When the condition is triggered, the smart contract will execute the contract terms set by the condition.

3 Introduction to Zheshang Bank Accounts Receivable Chain Platform

On August 16, 2017, Zheshang Bank launched the industry's first corporate "receivables chain platform" based on blockchain technology to solve the problems of authenticity confirmation and capital turnover of corporate accounts receivable. Based on blockchain technology, Zheshang Bank has developed an accounts receivable chain platform between enterprises and banks that is specifically used for the issuance, acceptance, payment, pledge, performance and other module uses of enterprise accounts receivable, and finally realizes no funds transactions and reduces the cost of the overall supply chain and industrial chain. Figure 1 shows the operating model of Zheshang Bank's "Receivable Chain Platform". The core enterprise of the supply chain can issue accounts receivable with a specific payment period within the accounts receivable issuance limit. The accounts receivable chain platform supports three modes: the payer issues and accepts the accounts receivable, the payee issues and accepts the accounts receivable, the payee issues and the payer accepts the accounts receivable. Accounts receivable can only handle other accounts receivable business after acceptance. Take the core enterprise and upstream enterprise operation process (issued by the payee and accepted by the payer) as an example. The core enterprise of the supply chain purchases items from supplier A. Due to the lack of sufficient cash flow to issue accounts receivable to supplier A, Zheshang Bank provides credit enhancement for core enterprises and confirms and redempts core enterprises on this platform. As the payee of the accounts receivable, supplier A can transfer part or all of its payment to the assignee, or part or all of the discount bank, or pool pledge financing. If company B obtains this account receivable, it can be transferred to company C, and the extension will continue to build a supply chain business circle together.

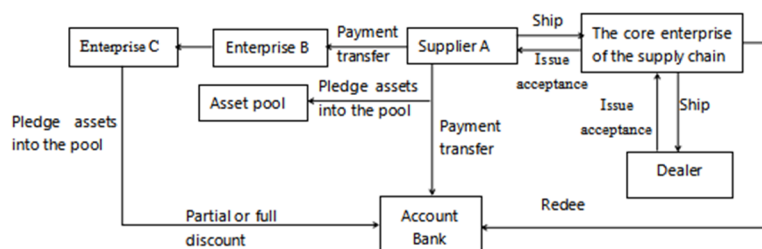


Fig. 1. Receivable Chain Platform Operation Process Table

The transaction data in the accounts receivable chain platform of Zheshang Bank cannot be changed once the key is generated on the blockchain, and any third party cannot tamper with the transaction information of the accounts receivable, and the blockchain uses distributed ledger technology to record receivables change the traditional receivables' reliance on paper or electronic data, so as to ensure the security of receivables information to the greatest extent. In this model, for banks, through the blockchain platform, penetrating credit can be achieved, enabling them to explore small and micro enterprise customers with a lower due diligence cost, and solve the pain points of small and micro enterprises in credit granting. For core companies, the platform can not only provide a certain amount of income from spreads, but also effectively optimize the financing ecology of upstream and downstream companies in their supply chain, improve the financial efficiency of the supply chain, and help the entire supply chain to form a virtuous circle. For small and micro enterprises, through the supply chain financial platform, financing channels can be expanded, corporate cash flow can be stabilized, and normal operations can be ensured.

4 Existing risks and suggestions

4.1. Existing risks

4.1.1, Technical risk

Blockchain technology is in the early stage of development, and there is still a certain gap in terms of computing performance, resource occupation, algorithm flexibility, and position settlement^[4]. At the same time, financial institutions themselves have uneven applications of blockchain, and most of them have low subjective intentions. At the same time, they also need to invest a lot of funds and personnel to reshape the existing IT system architecture, change business processes, and restrict blockchain in the short term popularization and application of technology.

4.1.2, Security and privacy risks

Distributed shared ledgers will create new security risks. For example, the private key is the only certificate of asset ownership. If lost, the ownership of the asset will be lost. In fact, it is difficult for enterprises and individuals to keep the private key foolproof. Another example is that the transparency of the blockchain itself deviates from the confidentiality and closedness of privacy, and it is difficult to balance the relationship between privacy and confidentiality and transparent verification by other parties.

4.1.3, High cost

Blockchain, as an emerging technology, should be applied to the business of financial institutions. It is necessary to consider whether the new technology complies with

regulatory policies, and it also needs to invest a lot of capital and personnel to transform the bank's infrastructure, but whether it can bring obvious economic benefits to the bank. It is difficult to determine. If the migration cost is too large, two systems will inevitably be formed in the system, which will increase the operating cost of the bank.

4.2. Suggest

4.2.1, Strengthen technological innovation and build a perfect industrial ecosystem.

The practice of supply chain finance in the field of blockchain technology requires a comprehensive layout, including technical research, business model exploration, standardization work, supporting facilities, supervision and management, etc. At present, my country's blockchain standard system is still in a state of lack, especially in the aspect of supply chain finance. The establishment of a unified application standardization system can not only improve the efficiency of information communication and capital flow between enterprises, but also expand the application of blockchain technology in other areas.

4.2.2, Standardize services for small and medium-sized enterprises and promote the healthy development of the market.

Build a credit system in the database, and conduct credit management for small and medium-sized enterprises, which mainly include functions such as credit change, collection management, data statistics, and data analysis^[5]. Core enterprises and banks or other capital terminals provide credit through platforms such as bills of exchange and movable assets. Once a new real transaction is generated, relevant data and information will be uploaded to the blockchain platform for retention. After confirmation by the consensus layer, banks and other capital parties will raise funds for the company, and at the same time reduce the company's credit line, and upload it to the platform.

4.2.3, Assist regulatory agencies to build a blockchain ecosystem in the banking industry.

Within the banking blockchain ecosystem, assist regulatory agencies such as the People's Bank of China and the China Banking and Insurance Regulatory Commission to control the authority of the blockchain and formulate relevant rules that meet the development requirements of the national banking industry, and use financial institutions as nodes in the ecosystem to conduct accounts record business information, conduct business in accordance with regulatory regulations and business rules formulated by regulatory agencies, and form a distributed accounting and decentralized ecological chain system.

5 Conclusion

The combination of blockchain technology and supply chain finance effectively overcomes the shortcomings of traditional supply chain finance in terms of credit mechanisms, forming a new form of competitive blockchain + supply chain finance, and effectively alleviating the financing of small, medium and micro enterprises problem. This paper analyzes the accounts receivable chain platform of Zheshang Bank and finds that in practice, blockchain + supply chain finance still faces challenges such as technical risks, security and privacy risks. To cope with the challenges and further promote the development of blockchain + supply chain finance, it is necessary to build an open supply chain finance platform, build an interconnected platform ecology; improve the laws and regulations of the supply chain platform, and promote the healthy development of supply chain finance.

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