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## Shared finance based on block-chain: Benefits and risks

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### ABSTRACT

The establishment and operation of the shared finance center, the main application of block-chain technology in finance, has brought great convenience to the finance sector. Various enterprises in the group can share financial information in real time through the shared finance center, and the function of finance for daily business support and strategic decision-making is increasingly strengthened. This paper shows that the characteristics and advantages of distributed ledgers, such as decentralization, de-trusting and irreversible words, that block-chain has can fit the inherent requirements of shared finance, and these characteristics can also ensure the reliability of financial information sources, improve financial management efficiency and enterprise production quality, and reduce financial and production investment costs. In addition, this paper discusses some risks of block-chain in financial applications and how to balance the benefits and risks.

**KEYWORDS:** Block-chain, shared finance, financial management, business operation.

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## I. INTRODUCTION

Big data and modern information technology are profoundly influencing the production methods of enterprises and the lifestyles of people. In recent years, various industries have paid more and more attention to the use of modern information technology in the daily production activities of enterprises, and block-chain technology and big data have started to be applied in various fields of society. The research and application of block-chain technology in finance-related fields is also gaining attention, and block-chain technology is gradually integrated into the underlying technology of finance, which has a long-term impact on the development of finance.

The intensification of market competition has given rise to shared finance for enterprises. The financial sharing center can provide a higher level of efficient financial services for the normal production and operation by realizing the centralized management and monitoring of the financial affairs of enterprises or business groups. The features of block-chain technology fit the technical requirements of shared finance and provide new ideas and solutions to solve the above problems. Combining financial sharing services and block-chain to build a financial sharing system can optimize and improve the traditional financial sharing model to a certain extent.

However, while the application of block-chain technology to shared financial management can completely transform the traditional financial management model, improve the technical level and business capability of enterprises, and reduce the operating costs of enterprises to improve production and operation efficiency, it also brings some systematic risks of financial management. How to control and balance these risks and the resulting benefits has also become a focus of shared finance.

## II. FEATURES OF BLOCK-CHAIN: IN THE CONTEXT OF CORPORATE FINANCE

Block-chain is a new chain data structure composed of existing blocks of data and connected in a certain chronological sequence, using the principle of encryption and cryptography to ensure that the original data is tamper-proof, authentic and reliable distributed ledger. The essence of block-chain technology is to pack the collected data to form blocks, which are received by the nodes of the whole network and arranged in the corresponding chronological order to form a data chain, and then the data need to be encrypted by the computer algorithm to form a distributed ledger. Its basic features can be summarized as follows:

(1) Data de-centralization. Data distributed storage, meaning that it is impossible to have complete data information just by getting each individual node, because each node area of that data chain stores a part of the data separately. This feature can improve the fault tolerance and attack resistance of storage and data analysis capabilities.

(2) Authenticity and data transparency. Block-chain algorithm mechanism is unified, open and transparent in operation, each node can be executed individually, and each node area has data backup, so it does not need all nodes or multiple nodes to authenticate together.

(3) Data traceability and prevention of tampering. Block-chain technology, with its distributed data storage and algorithmic consensus, has created a situation where only the "correct" data can be recorded. The way of calculation is unique and each node data must be backed up, each node area encryption calculation regardless of which node problems can be tracked and traced, and timely reflect the existence of various problems.

(4) Uniform automatic execution, smart contracts. Block-chain technology digitizes relevant transaction and asset information, and each node and step is automatically recorded and strictly executed according to a pre-written script, which reduces human cost tied-up and greatly improves trust.

Block-chain combines multiple existing technologies to greatly eliminate the information asymmetry faced in the transaction process with decentralized credit mechanisms. Furthermore, It has double secret keys and the inerrability of records, which can prevent tampering with information and theft of business-related information to the greatest extent, thus enabling a high-quality solution to information security in the traditional sense and ensuring the authenticity and reliability of accounting information at a higher level.

## III. SHARING FINANCE BASED ON BLOCK-CHAIN

### 3.1 Features of shared finance

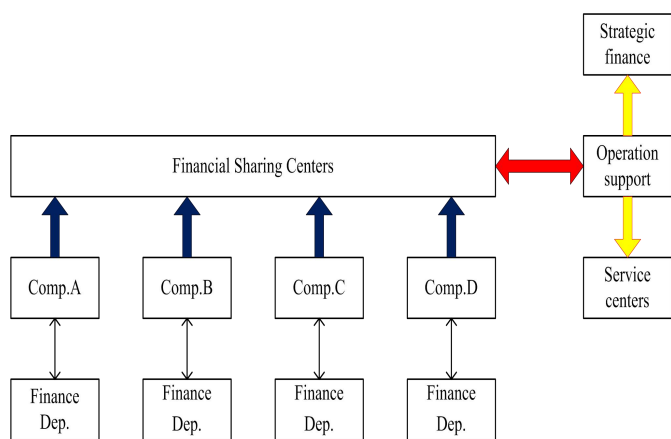
Shared finance service center is a further innovation and promotion of the traditional financial operation mode. Its main purpose is to enhance financial accounting integration and internal control, and ultimately improve the company's revenue and financial operation efficiency. The specific goal is to realize the shift from manual back-office operations to financial informationization, centralized management of group finance, integration of business and finance, and centralized management of funds to provide more reliable, realistic and lower-cost financial services.

It allows all departments of an enterprise to no longer have to complete tedious financial tasks, but only need to feed data to a professional financial center. It can be divided into three basic characteristics: a) professionalism. Professional talents are the cornerstone of financial sharing, and the data fed back from each department can be used for the next financial analysis and forecast. b) Technique. The financial sharing model must be supported by high-tech equipment in order to run steadily; c) Scalability. The financial sharing model is to aggregate and analyze data from all departments of the enterprise. Costs are programmed to be reduced, which is the benefit of economies of scale.

From the perspective of the current development of enterprises, the application of the financial shared service model is still at a preliminary stage. Financial sharing and operation have not yet been fully integrated, and the application of block-chain technology in financial shared services for effective management will inevitably have a long way to go.

### 3.2 Fundamental principles of sharing finance

The financial sharing center works by uploading financial information of several companies to the financial sharing center platform through the Internet, and finally realizing the integration of strategic, business and shared finance of the enterprise and improved efficiency of enterprise production and operation, strengthened internal related control, and increased enterprise revenue (Fig.3.1).



**Fig. 3.1 Framework of financial sharing centers**

As it is shown in Figure 3.1, the architecture of the financial sharing center is clearer than the traditional financial management system framework. Shared financial services are not just about reducing costs and centralizing the management of corporate funds, but also about improving the efficiency of financial decisions and reducing the risk of investments, and continuously increasing customer value. On the other

hand, within the enterprise, with the change of financial management model, the work content and role of financial personnel have changed. The financial personnel of the enterprise take the initiative to participate in the enterprise financial decision-making process through the information centralized by the shared financial center, and realize the function transformation.

### 3.3 Nexus and integration of finance and block chain

The elements of enterprise internal control consist of the following four components:

- (1) The internal environment, such as organizational structure and financial accounting methods, provides the conditions for internal control.
- (2) Risk assessment provides the reference and basis for determining strategies to address risks.
- (3) Control activities are the relevant risk response measures taken by management to control risks to the extent that the enterprise can afford them.
- (4) Internal oversight is the process of continually identifying deficiencies and continuous improvement of internal control.

As a distributed ledger, block-chain in the financial management sector can significantly reduce the risk of business-related transactions, and can also grasp the books of multiple parties of transactions and the corresponding accounting entries, thus improving efficiency, saving time, reducing costs, and helping to reduce the uncertainty of transactions and strengthening the timeliness of monitoring in real time.

From the above discussion, it can be seen that the internal control needs of shared finance have a clear vein, and technologies such as block-chain's unauthorized technology and symmetric encryption meet the needs of finance, thus providing the right ground for the integration of shared finance and block-chain technology.

As we have already discussed above, the prevailing block-chain technology in finance can increase transparency and reduce expenses while maintaining a high level of security. Many other advantages of incorporating this pragmatic technology include helping settle transactions instantly as there is no need to wait for confirmation from any central authority figure, and helping auditing, which is a very long and costly process, can be streamlined with the support of block-chain.

It is believed that block-chain technology continues to revolutionize how the real world transact and store information and supply benefits in finance.

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## IV. RISKS OF SHARING FINANCE BASED ON BLOCK CHAIN

The applicability issues of block-chain technology in shared finance include:

(1) Fund constraint. The application of block-chain technology and financial sharing center is not yet mature, and the financial sharing service model is still in its infancy. The cost of applying block-chain to shared finance is relatively high, and the capital required for applying block-chain to financial sharing center may far exceed that of the enterprise, and the new technology application poses a serious challenge to both employees and company structure.

(2) Overdependence on the network. Block-chain technology is dependent on the network for implementation at any given moment, which leads to increasing demands on the technology and network. Enterprises need to continuously develop and maintain block-chain technology to update it, as well as to prevent theft and fraud of enterprise information by external intrusion. In addition, the reliance of block-chain technology on the network also increases the intensity and difficulty of market regulation.

(3) Complicated auditing and monitoring process. Business-related transactions of the enterprise also become more complex, which is not conducive to the stability of financial systems.

The above possible risks partially offset the technical advantages of block-chain and somewhat hinder the path of technology development.

## V. ADJUSTMENTS AND STRATEGY OF SHARING FINANCE BASED ON BLOCK CHAIN

Faced with the above dilemma, enterprises should adjust at the application level in due course, the direction of adjustment usually includes:

### 5.1 Adjustment of strategic finance center

The strategic finance center should make full use of the decentralized features of block-chain to broaden the scope of enterprise services, use the de-trusted features to play its predictive function, use the autonomous features to analyze enterprise financial data more accurately, judge financial risks, provide early warning functions, and reduce unknown financial risks of enterprises

### 5.2 Adjustment of the business support center

Retaining the de-trusting of block-chain combined with the setting of smart contracts enables the business support center to reduce the reliance on manual labor and ensure intelligent internal control of the enterprise. At the same time, the automation of enterprise business support also improves the efficiency of financial decision making at different levels. The peer-to-peer feature of block-chain can enable enterprises or individuals at different nodes to establish direct connections quickly and reduce the additional costs caused by information asymmetry.

### 5.3 Adaptation of financial shared service center

The integration of block-chain technology into the financial shared service center is effective. The data block-chain, which is tamper-evident and irreversible, no longer requires manual approval of new pages, and can even automatically complete financial accounting, a process that greatly reduces labor costs, eliminates the possibility of malfeasance and fraudulence by financial personnel, and improves service quality and operational efficiency.

### 5.4 Adaptation of information center

The application of block-chain technology to the construction of information center can reflect the operation and financial position of the enterprise more intuitively, further understand the demand of the market and the services required by customers, improve the efficiency of enterprise operation, reduce the extra cost brought to the enterprise by information asymmetry, strengthen the information exchange between various departments within the enterprise, provide timely feedback on the problems of the enterprise and take preventive measures in a timely manner.

The implementation of the above adjustments and strategies can provide support for enterprises to reduce the difficulty of process re-engineering and ensure data security, in order to ultimately achieve the purpose of renewing the concept of finance staff and switching functions, and providing efficiency of shared services.

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