

# Research on the Inhibition Path of Blockchain Technology to Related Party Transactions

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**Abstract:** With the rapid development of China's economy, related party transactions of listed companies have attracted much attention. Related party transactions are not only a legal means of earnings management of listed companies, but also a way for listed companies to cover up illegal behaviors such as tax evasion, profit transfer and profit delivery to major shareholders. How to identify and suppress related party transactions of listed companies and guarantee investors' profits? It is particularly important to promote the healthy development of financial markets. Blockchain technology has the characteristics of immutability, encryption, permanent tracking and decentralization, so that enterprises can achieve accounting tracking through the application of the technology, eliminating stakeholders' doubts about the authenticity of related party transactions. This paper introduces blockchain technology from three aspects, such as information sharing system, supervisory organization and mechanism, and demonstrates the feasibility of this technology to enhance the management level of enterprises, which is conducive to inhibiting the related party transactions of enterprises and improving the management level of enterprises.

**Keywords:** Blockchain; Related Party Transaction; Earnings Management; Related Party Transaction Suppression

## 1. Blockchain Features

### 1.1 Immutability

Blockchain technology is a new distributed infrastructure and computing paradigm that uses block chain data structure to verify and store data, uses distributed node consensus algorithm to generate and update data, uses cryptography to ensure the security of data

transmission and access, and uses smart contracts composed of automated script code to program and operate data [1]. In a narrow sense, blockchain is a distributed ledger that combines blocks of data in a chronological manner and is cryptographically guaranteed to be immutable and imforgerable. Distributed has two meanings: First, the data is recorded by all nodes of the system, all nodes do not need to belong to the same organization, and do not need to trust each other; The second is that the data is stored by all nodes, and each participating node can copy and obtain a copy of the complete record. Once the data is recorded and verified on the blockchain, the information will be immutable [2]. In addition, the implementation and recording process of transactions on the blockchain is not separated from each other, but is unified, which effectively prevents fraud.

The immutable feature is the fundamental reason for the blockchain to build a trusted Internet, which is also the main difference between the blockchain and the traditional database. If you want to tamper with the transaction data of the NTH block in the blockchain, then the header hash on the current block will also change. Because of the collision resistance of the hash function, the changed head hash and the parent hash of block N+1 cannot match each other. This requires that the tamper must continue to modify the parent hash of block N+1, and continue to modify each block. This requires that the tamper must simultaneously invade all the relevant nodes in the world participating in this record and tamper with the data. Only after all the blocks after the tampered block have been recalculated and traced to the same progress as the legitimate block, and then the fork is submitted to the other nodes of the network, it may be accepted and recognized. In most cases, the generation of new blocks is not easy, and the computational difficulty can be imagined if multiple new blocks are

successively generated and new forks are formed. In the context of the huge computing power of the whole network, a malicious node needs to have at least 51% of the computing power base of the whole network to do this. Because of the distributed structure of the blockchain, most nodes are independent of each other. Therefore, the "51% attack" is very difficult to happen in reality.

### 1.2 Permanent Tracking

Based on the permanent tracking and immutable characteristics of the blockchain, the behavior of all transaction participants will be permanently recorded and can be reviewed and tracked by the blockchain members at any time, and the blockchain members will therefore restrict their own behavior. In addition, enterprises can also use smart contracts to write the contents of the contract into the system, such as the automatic payment of the customer at a specified time after the supplier's product is issued, and the automatic payment of liquidated damages according to the contract agreement when the parties breach the contract, reducing the time and cost of dispute settlement. Therefore, the use of blockchain technology can reduce corporate defaults, promote timely payment of funds, timely delivery of inventories, and improve the turnover efficiency of working assets [3]. Blockchain technology reduces manual data entry, reduces human error and manipulation, and reduces uncertainty and potential losses from grey market transactions.

### 1.3 Encryption Technology

The use of blockchain can increase the transparency of information between enterprises, while the information transfer process between the original suppliers, enterprises and customers is difficult, and each enterprise is reluctant to establish an information system to share data. By means of distributed ledger and encryption technology, only authorized individuals can see the complete information, and other enterprises can only see anonymous information, which ensures the privacy of enterprises to a certain extent, makes data sharing more convenient, and the product transaction and circulation process more transparent and traceable. Businesses can view product prices, transaction dates, locations, quality,

certification materials, customs documents, bills of lading and other types of data in their logistics in real time. This will help stakeholders to carry out real-time enterprise lean planning, meet the requirements of supervision, avoid repeated operations by different individuals in the group due to information asymmetry, promote the improvement of capital utilization efficiency, and prevent shareholders from illegally seizing corporate assets [4]. At the same time, when there are problems with goods or funds in the transaction process, there is no need to confirm information with the parent company, and it can be directly viewed through the blockchain information system, reducing the cost of communication and dispute settlement. Financial information has changed from the original only official way to broadcast, released at any time, and all stakeholders of the company can log in to the system at any time through their own keys and exclusive accounts, and timely understand the company's financial information and business conditions.

### 1.4 Decentralization

The information release mode of listed companies in China is generally "centralized" mode. The only way for stakeholders to obtain financial information is the financial information officially released by the company, and its authenticity, accuracy, completeness and timeliness cannot be verified. Taking this information as the decision basis of stakeholders will inevitably affect the efficiency and effect of their decisions. The "decentralized" mode of blockchain adopts distributed storage and computing power to ensure the authenticity, accuracy and integrity of the company's financial information to the maximum extent, and reduce the possibility of financial fraud due to information asymmetry, which can be described as a weapon to kill financial fraud at the source [5].

## 2. The Harm of Earnings Management of Enterprise Related Party Transactions

In order to reduce risks and improve returns, many listed companies tend to diversify different types of business, and generally use related purchase and sales business to regulate the accrued earnings management of enterprises. In addition, due to the particularity of connected transaction itself, enterprise

managers can obtain greater profits through less costs and thus facilitate transactions. The essence of this transaction is to transfer the assets or inventories lower or higher than the market price of the enterprise to the related party through related purchase and sale, so as to whitewash the statement and regulate the accrued earnings management, so that the enterprise can carry out downward or upward real earnings management. Enterprises transfer profits of assets or contract assets to related parties through related party transactions to achieve positive real earnings management. Most of these phenomena occur between parent and subsidiary companies and subsidiaries. Under traditional management methods, stakeholders of enterprises cannot timely discover the transfer of benefits between related parties.

Related party transactions have become the main operating means of earnings management. Such related party transactions mainly include the purchase and sale of commodities between enterprises, transfer of assets or equity, guarantee and pledge, provision of funds and leasing <sup>[6]</sup>. It will also lead to audit failures caused by the transaction motivation of non-fair related party transactions between enterprises, as well as the fund occupation caused by operating and non-operating related parties in related party transactions <sup>[7]</sup>

### **3. The Inhibition of Blockchain Technology on Accrual Earnings Management of Related Parties**

The application of blockchain technology can prevent major shareholders from encroaching on the company's resources by means of current payments with subsidiaries, transmit information in real time, prevent the leakage of core information of enterprises, and meet the reasonable capital needs of the group.

A separate key is set for each stakeholder in the blockchain model, which can query all accounts and related data during the cooperation period, modify the name or account information once it is changed, and notify the parent company and the relevant responsible person of the regulatory department, so as to avoid the accrued earnings management by the parent company through the change of accounting policies <sup>[8]</sup>. At the same time, the model sets accurate accounting items for current and current payments. For

subsidiaries, when there is a need to borrow money, the system will notify the manager and leader, play a role in real-time dynamic monitoring and payment collection, and improve the efficiency of the use of funds. For each subsidiary, a node is also established on the blockchain, which can be used to query the various economic businesses handled by them at any time in this way, return the loans as soon as possible, and check the payment time and related bills for the company's business, effectively improving the clearing of current funds and efficiency.

Using the unique characteristics of blockchain technology, a current account management model based on blockchain technology is built, including data layer, network layer, consensus layer, contract layer and application layer.

The current account management model based on blockchain technology takes the parent company itself as the starting point and links subsidiaries, customers, suppliers, audit units, investors and tax authorities that have business dealings with the parent company. On the blockchain chain, a node is set up according to the business transaction, and the data authority of the node is set up according to the nature of the transaction. For example, companies that have business dealings with the parent company can query business-related data, and can input invoices, bank statements, contracts, etc., in the process of business, both parties can query all information about each transaction on the system to achieve transparency and authenticity of information.

The use of blockchain can increase the transparency of information between enterprises and stakeholders, while the information transfer process between the original suppliers, enterprises and customers is difficult, and each enterprise is reluctant to establish an information system to share data. By means of distributed ledger and encryption technology, only authorized individuals can see the complete information, and other enterprises can only see anonymous information, which ensures the privacy of enterprises to a certain extent, makes data sharing more convenient, and the product transaction and circulation process more transparent and traceable. Businesses can view product prices, transaction dates, locations, quality, certification materials, customs documents, bills of lading and other types of

data in their logistics in real time. This will facilitate the coordination and planning of the flow of goods and documents in the supply chain, prevent different individuals from performing repeated operations due to information asymmetry in the supply chain, and promote the improvement of operational efficiency<sup>[9]</sup>. At the same time, when there are problems with goods or funds in the transaction process, there is no need to confirm information with upstream and downstream enterprises, and it can be directly viewed through the blockchain information system, reducing the cost of communication and dispute settlement. Financial information has changed from the original only official way to broadcast, released at any time, and all stakeholders of the company can log in to the system at any time through their own keys and exclusive accounts, and timely understand the company's financial information and business conditions.

For the dealing company, the relevant information on the blockchain is no longer simple bills and numbers, but all contract data, company details and invoice data related to the business can be queried on the system, and the unique immutable property of the blockchain technology fundamentally eliminates the distrust caused by data inconsistency between the two sides, thus greatly reducing the workload of financial personnel<sup>[10]</sup>. For the supervision and management departments such as customers, suppliers, audit units, investors and tax bureaus, all financial data of the parent company can be viewed at any time for real-time supervision, thus forming a chain closed-loop structure of internal and external cooperation.

For the supervisory organization, it is necessary to track some operations and conditions related to the enterprise and understand the information among related parties of the enterprise. The traditional way of supervision is through regular audit and inspection, which is difficult to control in advance and in the process. Only after the formation of relatively serious consequences can we find out that the trust is difficult to establish and will be destroyed at any time by the earnings management behavior of enterprises. At the same time, most inspection agencies can only obtain the information of the company directly dealing with the parent

company, and rarely know the transactions between the parent company and suppliers, between the parent company and subsidiaries, and between subsidiaries. Blockchain technology will achieve data commonality through distributed ledger, and all stakeholders will understand each other's transaction information and payment status, which will improve the trust of transaction parties, increase information transparency, help improve the efficiency of supervision, and avoid the occurrence of financial fraud.

#### 4. Conclusion

Blockchain technology can solve data security problems, ensure the authenticity and reliability of accounting information, improve the transparency of corporate information, better contact internal and external stakeholders of enterprises, inhibit internal transactions of related parties, strengthen management and control, and promote the healthy development of the capital market. Based on the current blockchain technology restrictions, establish a unified data caliber and data standards, improve the legal requirements for the use of blockchain, and improve the quality of financial data, in order to better use blockchain technology to strengthen enterprise management and control, and build a healthier capital market.

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