Research on Impact of Blockchain on Financial Audits

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ABSTRACT

The fast expansion of society and the economy has resulted in an explosion of information and data, making financial auditing more complex and laborious than ever before. The explosive growth of business data of the auditees poses significant challenges for data collection, storage, and statistical analysis of financial audits. The traditional methods and approaches of audit can no longer satisfy the needs of financial audit work. The introduction, rapid growth, steady development and widespread application of blockchain in various industries have injected momentum and impetus into traditional financial audits. The characteristics of blockchain ensure the security, integrity and traceability of audit data, hence eliminating data fraud and tampering with financial auditing. This research discussed the application of blockchain in financial audits and concluded that it can promote the improvement of financial audits in terms of audit tools, methods and approaches, thus increasing the quality and efficiency of financial audits.

Keywords: *Blockchain,Financial audit,Impact.*

1. INTRODUCTION

The popularity of Bitcoins exposes blockchain, its underlying technology, to the public, which gradually develops into one of the world's rising technologies. Diverse businesses and areas have actively engaged in blockchain-related theoretical research and application development, which has propelled its use. The financial audit has become an integral aspect of post-event oversight in financial management, highlighting its significance. The rise in data volume and complexity of both businesses and processes, however, results in lengthier audit cycles, more laborious procedures, and greater expenses. The aforementioned challenges have long plagued both auditors and audit work. Faced with these issues, we tried to introduce blockchain into the financial audit. By utilizing its exceptional and distinctive features in financial audit, it is expected that blockchain can optimize audit tools, methods and approaches, thus further enhancing audit quality and efficiency.

2. OVERVIEW OF BLOCKCHAIN AND ITS APPLICATION AT HOME AND ABROAD

As its name suggests, blockchain structures data into "blocks" that are chained together; it is a technology involving several fields, including mathematics, cryptography, the internet, and computer programming [1]. Blockchain is an immutable distributed ledger where data is generated and stored in units of blocks and is connected end-to-end in chronological order to form a chain structure [2]. Today, with the rapid development of Internet technology, blockchain characteristics such as decentralization, openness, independence, security and anonymity of blockchain ensure that the process is open and transparent, devoid of human intervention and tampering. What's more, peer-to-peer transactions eradicate the reliance on the third party. These benefits have attracted the attention of many scholars and auditors. Blockchain technology can be seen as a public ledger to which "all people" can contribute. Blocks are data blocks, and "all people" here refers to the nodes that comprise the chain, thus constituting the blockchain, a fundamental structure built on an encrypted block structure, nodes and smart contracts [3]. Blockchain is widely applied in digital identity, sharing economy, Internet of Things, finance and other fields.

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Governments and enterprises of various countries have started strategic planning, basic technology research, application development in various fields and other activities of blockchain. In order to promote and stimulate the development vitality of the financial industry, the British government first applied blockchain technology to the traditional financial industry. In the exploration of blockchain application technology, the "R3 blockchain alliance" composed of Citibank, Commerzbank of Germany, Societe Generale and other world-class banks invested heavily to establish a laboratory. The ledger connect platform launched by IBM, the sawtooth Lake platform launched by Intel, and the azure platform launched by Microsoft are all blockchain based service platforms. The above-mentioned governments, financial institutions and computer giant companies have all paid attention to and invested heavily in blockchain, and their strong capital and technical strength have greatly supported and improved the basic technology research of blockchain, It provides technical basis and solutions for the promotion and application of blockchain technology. At present, the price of bitcoin in the market has fluctuated greatly. The blockchain applications such as Ethereum and DogCoin have once again pushed the market application of blockchain to the forefront. Blockchain also shows diversified application prospects in other fields.

In China, the national functional departments have keenly captured the importance of blockchain and put forward guidance on blockchain very early. From October 2016 to June 2021, national functional departments issued a number of guidelines and industry specifications for blockchain, such as white paper on blockchain technology and application development, regulations on blockchain information service management, guidance on accelerating the promotion of blockchain technology application and industry development, which also explained the definition and concept of blockchain and included blockchain technology in the national information planning level, It standardizes the development of China's blockchain industry and means the arrival of an era of formal national supervision of blockchain information services. The state provides support at the policy level of blockchain. Domestic companies involved in blockchain technology and application development are springing up like mushrooms. Among them, the representative companies are Alibaba, Tencent, Huawei and other Internet and high-tech enterprises, such as Alibaba cloud blockchain service, Tencent cloud blockchain, Huawei cloud blockchain service and other blockchain based service platforms, These companies have long started the industrial layout and application development of blockchain.

After studying the features and applications of blockchain, it is feasible to implement this technology in financial audits, and it will undoubtedly improve the quality of financial audit work.

3. ANALYSIS OF BLOCKCHAIN'S EFFECT ON FINANCIAL AUDIT

Blockchain's distributed, open, and transparent ledger enables the decentralized storage of financial data, peer-to-peer transactions, and real-time updates, while ensuring the safety of data storage and editing. For financial audit that involves huge amounts of data storage and processing, blockchain is a highly beneficial tool for expanding the audit approach.

First, obtaining audit data is challenging, resulting in high audit expenses. Due to scattered audit data, a lack of a regular collection mechanism and insufficient audit resources, the gathering and analysis of evidence by auditors is frequently time-consuming, difficult, burdensome, and inefficient. Added to data tampering, fraud and counterfeiting, the essential facts are insufficiently exhaustive, their authenticity is questionable, and their validity is inadequate. In addition, audit work is highly dependent on human labor because it often requires a substantial amount of labor and time to review, proofread, and organize the accounting documents, which unquestionably lengthens the audit cycle and adds expenses.

The second problem lies with the difficulty of carrying out an audit, resulting in inaccurate audit results. From the start of the audit project to the end of the audit report, the audit job must undergo extremely complicated and laborious procedures. A minor mistake during the process can sway the final result. In the traditional audit process, numerous auditable areas are frequently limited or neglected. Due to the limits and complexity of the auditee's environment, resources, and subjects, it is impossible to gather adequate data and materials in a timely manner. As a result, auditors may be unable to undertake a full and objective assessment of the auditee, leading to a reduction in the scope of audit work and inaccurate audit results.

The third issue is inept auditors, who may reduce the quality of audit work. A competent auditor must have extensive knowledge and work experience. In comparison to other industries, auditors should be required to possess not only audit expertise but also a higher standard of professional ethics. Currently, some auditors have issues such as an inability to conduct cross-industry audits independently, a lack of a diverse knowledge structure, inadequate comprehensive analysis skills, and a shortage of creativity. These issues will significantly impact audit quality and efficiency.

4. RECOMMENDATIONS FOR INTEGRATING BLOCKCHAIN INTO FINANCIAL AUDIT

Due to the decentralization, openness, transparency and immutability of blockchain, the conventional audit has undergone profound changes [4]. Integrating blockchain into the financial audit process or enhancing audit tools, methods and approaches can better the management, quality and efficiency of financial audits.

The first step is to update audit tools and develop a blockchain-based financial audit platform. The old saying goes: "If you want to do a good job, you must first sharpen your tools." The same applies to financial audits. Exceptional audit tools and effective methods of informatization are essential for enhancing productivity and assuring quality. The core of blockchain technology is the distributed ledger, which is a decentralized distributed database. The distributed ledger, a decentralized distributed database, is the foundation of blockchain technology. It does not rely on a central server or management organization, which ensures that the blockchain platform is robust and can be collectively maintained and trusted. The platform's data collection and processing are overseen to protect the security and confidentiality of the data using blockchain smart contracts. Auditors use big data technology to retrieve, analyze and find clues in audit data. Auditors collect data via the blockchain system to give informational assistance for audit work. Then big data technologies can be employed to evaluate the auditee's information and audit clues [5].

The second objective is to modernize audit methods and approaches in order to enhance the effectiveness of financial audits and minimize audit expenses. Due to the vast volume of audit data, limitations in staff, time, and work mode, audit sampling is frequently employed in financial audits. This strategy can surely boost productivity, but it is difficult to guarantee accuracy and quality. The audit method and working mode need to be revised. The audit platform of blockchains is the fundamental support. By utilizing blockchain technology to upload financial data to the blockchain distributed ledger, the data on the blockchain can only be viewed by the two parties engaged in the transaction. Audit users with special permission should be set up on the blockchain so that data can be tracked and protected from manipulation. When an undertaking audit, special permission is granted to auditors to automate financial audit operations. Under the same manpower and time requirements, the automated blockchain audit platform will unquestionably replace the current approach and deliver results that are more precise, efficient, of higher quality, and less expensive.

The third is to update the structure of auditors and promote the development of compound skills. With the advancement of science, technology and the Internet, financial auditors are expected to develop comprehensively, otherwise, they will soon be ousted. As professionals in financial audit, they must gradually enhance and expand their own knowledge framework. With the rapid expansion of the information era, the demand for multitalented professionals in numerous industries is intensifying. The same may be said of audits, where there is a dire need for individuals who are skilled in both audit and information technology. Consequently, future auditors must not only acquire the theoretical knowledge and practical experience of audit but also the fundamental knowledge of computers and the operation of applied information systems in artificial intelligence, big data analysis, blockchain, etc. To adapt to the evolution of the new era, auditors' professional training and skill improvement should emphasize computer training and introduce advanced Internet thought.

5. PROSPECT OF BLOCKCHAIN FOR THE IMPROVEMENT OF FINANCIAL AUDIT

First, improve the accuracy of the original data of financial audit. The accuracy of the original financial data has always been an important factor affecting the financial audit results. Some audited units have the occurrence of financial data fraud and financial data fraud. The time stamp and tamper proof characteristics of the blockchain are integrated into the financial data processing process, and the dynamic changes of the financial data are recorded throughout the process. The data on the chain cannot be changed after being verified, which effectively prevents the tampering and disclosure of the financial data and ensures the authenticity and reliability of the financial data. The blockchain adopts the distributed ledger technology and the distributed and decentralized data storage method to ensure the security of the financial data and the accuracy of the original data. For the financial audit, such data undoubtedly provides a guarantee for the authenticity, effectiveness, fairness and impartiality of the follow-up audit results. Moreover, the combination of blockchain technology and financial audit can not only enable auditors to better obtain and inspect audit evidence, carry out work more efficiently, but also improve the effectiveness of accounting information data. This is because the enterprise accounting information data formed based on blockchain technology cannot be tampered with, which makes financial bookkeeping very important and can prevent accounting fraud [6].

The second is to improve the efficiency of financial audit. The current audit networking system has the characteristics of many intermediate links and long links. Once one or several nodes fail, the whole system will collapse, affecting the audit quality and audit efficiency

[7]. If the blockchain technology is used to complete the collection of financial audit data, relying on the distributed and centralized data storage method will greatly improve the collection efficiency, reliability and integrity of financial audit data, and the accuracy of the data is also greatly guaranteed. Through the blockchain's distributed ledger technology, financial audit data can be directly obtained through permission control, and all nodes on the blockchain are publicly visible to them, with clear time traces. According to the needs of auditors, if you need to view the data in the future, you can directly see whether the generation time of the data is consistent with the actual situation through the time nodes, eliminating many unnecessary processes, The traceability of data is continuously strengthened. The security, non tamperability, timestamp and other characteristics of blockchain are highly integrated with audit work. Such an audit method will not only reduce the corresponding audit cost, but also reduce some complex and changeable audit processes and improve the overall audit efficiency. Moreover, all data are stored in various nodes of the blockchain and can be accessed at any time, eliminating the time to read paper materials, spot check vouchers and letters. External audit does not need to spend a lot of time on substantive tests. As mentioned above, the authenticity of the data can be roughly judged by comparing the hash values of the data, which greatly improves accounting The efficiency of transaction data extraction in the audit business has been greatly improved [7].

The third is to enhance the independence of financial audit. Blockchain's distributed ledger technology, timestamp and other features effectively improve audit efficiency and enhance audit independence. From the perspective of process reengineering, in the traditional audit process, auditors need to fully study the auditee, analyze and verify relevant financial data, and make an audit plan during the audit, especially in the audit plan stage, For auditors, whether in terms of time or audit risk, there is a great dependence on the integrity, security and reliability of the auditee's data. The emergence of blockchain has completely changed this situation. Auditors directly obtain the relevant data uploaded by the auditee through the blockchain audit platform and public key networking, Due to the technical characteristics of blockchain timestamp and de trust, auditors can obtain the most original and authentic data without going through the auditee, which not only ensures the safety and reliability of the data, but also improves the independence of the audit, thus ensuring the quality of financial audit. In addition, the audit and the auditee are under the same blockchain, and the relevant information is open and transparent. In the case of transactions and asset accounting treatment of the auditee, communication and consultation between the audit and the auditee are no longer required, and the practices of other units and institutions under the same blockchain should also be taken into account. This objectively reduces the opportunity for the audit and the auditee to negotiate and change the audit data, Better guarantee the independence and objectivity of financial audit [8].

6.CONCLUSION

This study examines the characteristics, benefits, and applications of blockchain technology in the industry, as well as some of the inadequacies and ambiguities in the current financial audit and the viability of adopting blockchain technology in financial audits. This study concludes with relevant recommendations. By incorporating blockchain technology into the financial audit, we want to improve the financial audit’s tools, techniques, and approaches, as well as its quality and efficiency. Currently, blockchain technology is undergoing fast development and widespread use. With the ongoing development and maturation of this technology, it is anticipated that the blockchain will significantly enhance financial audits from all aspects.

AUTHORS’ CONTRIBUTIONS

Xiaoguang Su wrote the manuscript,Lei Ren contributed significantly to analysis and manuscript preparation, Bin Wang contributed to revising and editing.

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