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The application of blockchain with a comparative approach and its impact on risk, flexibility and internal control evaluation

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Abstract

The purpose of the current research is the application of blockchain with a comparative approach of its effect on risk, flexibility and evaluation of internal control. This research is applicable in terms of purpose, and descriptive-analytical in terms of method and data collection method. The statistical population includes managers, senior experts, and employees of the Iranian Auditing Association and audit institutions, among which 306 people were obtained based on Cochran's formula. The validity of the questionnaire was confirmed using the content validity method. Cronbach's alpha coefficient was calculated to evaluate the reliability of the questionnaire; it was more than 0.7, which indicates the reliability of the questionnaire; and SPSS and Smart-PLS software were used for the relationships between research variables. The results of the research show that the lack of a specific protective framework in blockchain has a negative and significant effect on the management of internal audit control; internal audit control management has a positive and significant effect on improving risk management and financial performance of the company; internal audit control management has a positive and significant effect on increasing the financial flexibility of internal audit; and internal audit control management has a positive and significant effect on the improvement of internal control evaluation.

Keywords:
financial technology, blockchain, internal control assessment, financial flexibility

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Extended Abstract

Introduction

Today, one of the most popular and controversial topics of discussion in accounting and auditing is blockchain technology. Blockchain is a newly emerging technology that the programs compatible with it are produced, and also a set of codified regulations must be regulated for the use of this technology to prove its efficiency and be widely used (Abdennadher et al, 2022). Blockchain is essentially a public ledger, where groups of transactions or events are recorded and stored in a chain-like data structure; this approach creates a fast yet secure way to transfer funds. Blockchain technology is being used in ways that have implications for various financial institutions and affect all of their operations (Mantelaers et al, 2019). One of the application areas of blockchain is auditing and internal control. Internal audit is an independent, realistic assurance and advisory activity designed to add value and improve the organization's operations. Internal audit helps the organization in achieving its goals by providing a methodical approach to evaluate and improve the effectiveness of management processes, risk management and control (Soh et al, 2011). Blockchain in accounting and auditing is only the first stage of the application of the distributed ledger platform, which in the not-so-distant future will enable the creation of a programmable economy (Amri et al, 2021) and plays an effective role in improving accounting and audit practices, and thus increases the financial management capabilities of the company (Zhang et al, 2018); because blockchain provides users with a triple-entry accounting system where all transactions are immutable and time-stamped, real-time recorded and encrypted (Barzegar et al, 2019), so that it can be used to monitor the financial health of the organization and help decision makers to design new control mechanisms (Chitsaz et al, 2019). The necessity of using blockchain in the field of auditing shows that it has the ability to create a transformation in the common auditing approach and to launch the automatic auditing system with more accuracy, and it can be a suitable and safe alternative for the current accounting and auditing systems. Due to its security and speed, this technology can become the main choice of accounting companies and accounting units in the near future (Selimoglu et al, 2023). Considering such a high potential, conducting field research in the field of blockchain technology applications can be of great practical importance because it provides a clear map to audit managers to better plan for the use of this technology in the accounting and auditing field by knowing the features and advantages of blockchain. On the other hand, not many researches have been done inside the country regarding the applications of blockchain in the field of risk management and internal audit. In general, the main existing gap, which is the main motivation for conducting the present research, is that despite the numerous articles that have pointed to the applications of blockchain as a new field in financial affairs, accounting considerations related to the use of blockchain have not been comprehensively and accurately investigated so far. This has caused many questions to remain unanswered regarding the safe and effective use of blockchain technology in auditing and accounting activities; therefore, the current research has been considered with the aim of investigating the effects of blockchain on risk and flexibility and evaluating internal control. In fact, this research is an attempt to find an answer to the question: what effect does blockchain have on risk and flexibility and internal control evaluation?

Theoretical Literature

Blockchain is considered an emerging technology that has the potential to significantly change the way financial transactions are conducted. The creation of new types of assets and trading models to replace conventional payment and settlement platforms is one of the consequences of blockchain in the field of financial services. Transparency and elimination of

maintenance is the major advantage offered by blockchain (Oluoch et al, 2021). With distributed trust and decentralized platforms enabled by blockchain technology, entrepreneurs and innovators are able to create an open financial system with limited or no involvement of financial institutions. By doing so, they aim to reduce transaction costs, expand financial inclusion, foster open access, encourage license-free innovation, and create new business opportunities (Catalini & Gans et al, 2020).

Research Methodology

The current research is applicable in terms of purpose, and descriptive-analytical in terms of data collection. Necessary data has been collected by referring to reliable library, document and electronic sources and reliable articles. The statistical population includes all managers and senior experts and employees of the Iranian Auditing Association, which is a total of 1142 people. The sampling method was cluster-stratified random method of sampling. Cochran's formula for limited communities has been used to calculate the sample size, and the statistical sample size reached 288 samples, and 320 questionnaires were distributed among them for greater certainty. In this research, the number of questionnaires distributed among the statistical sample, which was 306 questionnaires, became the basis of the statistical work. The research questionnaire was created by the researcher and all of them were designed based on the five-option Likert scale. The apparent validity was confirmed by the researcher, 2 members of the sample members, and the supervisor. In this research, in order to measure the reliability, the Cronbach's alpha method was used. To check the reliability, the questionnaire was first distributed among 30 people, and the Cronbach's alpha was calculated by the SPSS software. In the following, using partial least squares technique and SMART PLS software, the resulting model has been validated.

Research Findings

Blockchain is a new technology that is used to store and transfer information in a safe and transparent manner. The application of blockchain has been expanded in many industries and fields such as banking, logistics, supply chain, real estate, health and... The comparative approach in examining the effect of blockchain on risk, flexibility and internal control evaluation can compare these factors before and after the use of blockchain in a specific organization or industry. In general, the use of blockchain can affect the following: Risk: Blockchain minimizes the possibility of changing and falsifying information by using strong encryption and security algorithms. Also, by using distributed technology, the reliability of data access and visibility increases. These features can reduce the risks associated with fraud, theft and unauthorized changes. Flexibility: Due to its distinctive method and technology, blockchain provides high flexibility against changes and organizational needs. The structure of blockchain smart contracts makes it possible to adjust and plan the rules and conditions of the competition based on new needs and conditions. This flexibility feature helps organizations to implement changes quickly and optimally in processes and contracts. Evaluation of internal control: using blockchain, changes and any operations on data are recorded and visible. This allows organizations to easily improve their internal control by observing and evaluating transactions and activities on the blockchain. Also, with the use of blockchain smart contracts, the automatic execution of rules and checks provides an opportunity to improve internal control and reduce the possibility of errors and fraud. Overall, the use of blockchain can bring significant improvements in risk management, flexibility and internal control evaluation. Of course, as with any technology, thorough investigation and identification of potential challenges and issues is essential.

Conclusion

The current research was conducted with the aim of using blockchain with a comparative approach of its effect on risk, flexibility and internal control evaluation. The test results are in line with the research findings of Abdennadher (2022), Grima, et al., (2021), Lončarević et al., (2023), Sandner (2020), and Garanti et al, (2019).

With the use of smart contracts, business operations can be performed automatically without the need for direct information participation. This issue can provide the basis for facilitating processes and increasing the speed of e-commerce. Blockchain can help in evaluating the internal control of organizations. By using blockchain, organizations can record their processes and transactions transparently and without intermediaries. This helps organizations to make a more accurate assessment of their internal control and ensure the flow of data and transactions. Overall, blockchain can help improve risk, flexibility and internal control assessment. However, attention to technical, security and legal aspects related to the use of blockchain is necessary and should be carefully addressed.