

# CryptoAudit and its inherent challenges

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## Abstract

CryptoAudit refers to the process of auditing cryptocurrencies and blockchain-based transactions. Auditing cryptocurrencies presents unique challenges due to the lack of a comprehensive regulatory framework, the complexity of blockchain technology, the absence of physical evidence, security and custody risks, limited audit trails, valuation difficulties, and the global nature of cryptocurrencies. These challenges require specialized knowledge and expertise from auditors. This Paper discusses the challenges faced in CryptoAudit and explores their implications. It highlights the need for auditors to stay updated on regulatory developments, deepen their understanding of blockchain technology, collaborate with experts, and develop specialized procedures to effectively audit cryptocurrency transactions and assets. The abstract also emphasizes the potential benefits of blockchain technology in enhancing auditability, transparency, and efficiency in financial transactions. This study concludes that it is important for auditors to adapt their skills and procedures to effectively audit cryptocurrencies. It highlights the increasing awareness and involvement of accountants and auditors in blockchain technology and its potential to shape the future of the accounting and auditing profession.

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## 1. Introduction

CryptoAudit refers to the process of auditing cryptocurrencies and blockchain-based transactions. As digital assets, cryptocurrencies have gained significant popularity and adoption, resulting in a growing need for assurance and accountability in this emerging space. However, auditing cryptocurrencies presents unique challenges that require specialized knowledge and expertise. Whenever there are significant developments, such as advances in technology, the auditing profession usually comes under more scrutiny, which raises questions about the efficiency of auditing (Kamau, Kavure & Lokuta, 2023). Unlike traditional financial systems, cryptocurrencies operate in a decentralized and relatively unregulated environment. The absence of established accounting standards and guidelines specific to cryptocurrencies makes it difficult for auditors to determine appropriate auditing procedures and principles.

Cryptocurrency is believed to have developed in the early 1980s as an attempt to develop a decentralized currency for online trading. Online currency was frequently known as "cyber currency" in the 1980s. The concept of online currency was refined further in the 1990s. However, the main worries back then were security and double spending. The term "double spending" refers to the practice of copying and reusing cash for subsequent transactions. This cryptocurrency company was spurred by the events of the 2007–2009 economic slump, which gave rise to

the global financial crisis. Several people lost faith in actual currency during this time period. The first cryptocurrency, known as Bitcoin, was created in 2008 (Kamau, 2022). Cryptocurrencies offer several potential advantages over traditional financial systems. They enable peer-to-peer transactions without intermediaries, reducing transaction costs and increasing efficiency. They can also provide greater financial inclusion by allowing individuals without access to traditional banking services to participate in the global economy.

The challenges in CryptoAudit are multifaceted, ranging from the lack of a comprehensive regulatory framework and the complexities of blockchain technology to issues related to security, valuation, and cross-border transactions. Auditors must navigate these challenges to effectively assess the risks associated with cryptocurrencies and provide reliable and accurate audit opinions. Understanding and addressing these challenges is crucial for auditors and stakeholders alike, as it helps foster confidence, mitigate risks, and enhance the overall trustworthiness of the cryptocurrency ecosystem. In the following sections, we will delve into the specific challenges faced in CryptoAudit, exploring their implications and discussing potential strategies and best practices to overcome them.

## 2. Literature on Audit of Crypto Based Transactions

The unique nature, uncertainty, and absence of clear guidelines regarding cryptocurrency transactions introduce extra audit risks that must be taken into account when evaluating clients for acceptance and retention, as well as when planning audit procedures (Vincent & Wilkins, 2020). A study by Broby and Paul (2017) examines the impact of the internet and digital money transfers on financial audits. It focuses on auditing assets stored in distributed ledgers, transmitted through blockchain technology, or held in cryptocurrency. The paper acknowledges the self-verifying nature of financial data in these contexts, which challenges the necessity of traditional audit methods. However, it also highlights the existing weaknesses in blockchain technology that hinder verification processes. The authors specifically address the auditing challenges posed by distributed transaction and custody records. They propose the use of smart contracts as a solution, which can not only address these challenges but also provide arbitration and oversight. The paper's main contribution is the introduction of a protocol to enhance the auditability and robustness of blockchain-based fund movements.

Blockchain is defined as a digital ledger that records real-time transactions among multiple parties in a decentralized manner, with each participant having an identical copy of the ledger. The key appeal of blockchain lies in its peer-to-peer network structure and cryptographic capabilities, which enable secure transactions without the need for a trusted intermediary. The study by Bonyuet (2020) highlights the significant implications of blockchain in the field of accounting, specifically in the form of a triple-entry accounting system where transactions are immutable, time-stamped, and encrypted. The main objective of the paper is to review existing research on blockchain and evaluate its impact on the audit profession, including potential risks, procedural changes, and additional opportunities.

Research by Abdennadher et al (2022) examines the perceptions of accountants and auditors in the UAE regarding the implementation of blockchain technology. Through qualitative interviews with 19 professionals, including accountants, auditors, internal auditors, and risk managers, the study explores the potential opportunities and challenges of blockchain in accounting and auditing practices. The findings reveal that blockchain impacts the accounting profession by enhancing transaction recording, evidence storage, and providing a secure business environment. For auditors, the blockchain necessitates changes in audit processes and strategies. It offers the potential for a decentralized and cost-effective audit process, as well as automated audit evidence. While the fundamental accounting principles remain intact, blockchain and cryptocurrency developments facilitate automation. The study suggests that blockchain will evolve within assurance services through increased awareness and involvement of accountants and auditors.

Despite the challenges that lie ahead, it is important to recognize the significant impact that blockchain technology can have on the fields of accounting and auditing. One area where this transformative potential is evident is in the concept of continuous accounting, auditing, and reporting. The introduction of blockchain has enabled the development of innovative approaches such as distributed consensual accounting records (DCAR), smart audit procedures, and blockchain-based triple-entry bookkeeping. These advancements have expanded the

possibilities for continuous accounting and auditing, bringing us closer to their practical implementation (Bonsón & Bednárová, 2019).

The blockchains referred to in the study by Appelbaum and Nehmer (2020), typically encompass business-to-business or business-to-consumer interactions and are of a private or semi-private nature, residing in private, semi-private, or public cloud environments. Each of these blockchains has its own unique design and operational procedures, which include validation mechanisms performed by miners. The study further investigates the audit considerations pertaining to data reliability, data security, and transaction transparency in accounting transactions that are well-suited for permissioned blockchains, as well as other contextual factors.

The findings of the study by Lombardi et al (2022) highlighted important implications for both practice and theory. In terms of practical implications, the study highlights that the disruption caused by blockchain in auditing is still in its early stages, calling for more empirical studies and involvement of practitioners. There is a need to reconsider audit procedures in light of digitalization and blockchain technology adoption. Additionally, standards, guidelines, and training should be developed to address the challenges that blockchain will pose to auditing. The study also emphasizes the dual nature of blockchain in auditing, with enthusiasm for its potential benefits and recognition of the risks associated with implementation. These practical implications provide a foundation for future research and help bridge the gap between theory and practice.

The study by Schmitz and Leoni (2019), examines the implications of blockchain technology on the accounting and auditing profession through a literature review. The research focuses on identifying major themes emerging from academic research and professional reports related to blockchain in the accounting and auditing context. The identified themes include governance, transparency, and trust in the blockchain ecosystem, continuous audits enabled by blockchain, applications of smart contracts, and the changing roles of accountants and auditors. The study provides practical implications for accountants and auditors in navigating blockchain development based on these themes. Additionally, suggestions for future research in accounting and auditing in the blockchain era are offered.

### 3. Challenges faced by CryptoAudit

The audit of cryptocurrencies presents several unique challenges compared to traditional financial audits. Auditing cryptocurrencies poses several unique challenges compared to traditional financial audits. One of the key challenges is the lack of a well-established regulatory framework. Cryptocurrencies operate in a relatively new and evolving regulatory environment, where clear guidelines and standards for auditing crypto assets are often lacking. This means auditors must constantly stay up to date with the latest regulatory developments and interpret how they apply to cryptocurrency audits. Here are some key challenges faced in the audit of cryptocurrencies:

- 1. Lack of Regulatory Framework** Cryptocurrencies operate in a relatively new and rapidly evolving regulatory environment. The lack of established accounting standards and guidelines specific to cryptocurrencies makes it difficult for auditors to determine appropriate auditing procedures and principles. Ensuring compliance with anti-money laundering (AML) and know your customer (KYC) regulations is crucial in crypto audits. Cryptocurrencies have been associated with money laundering and illicit activities. Auditors need to assess whether proper AML and KYC procedures are in place and whether the transactions comply with relevant regulations.
- 2. Complex and Evolving Technology:** The underlying technology behind cryptocurrencies, such as blockchain, can be complex and difficult to understand for auditors who may not have extensive experience in this field. Additionally, the technology is constantly evolving, requiring auditors to stay updated on the latest developments to effectively audit cryptocurrency transactions. These transactions can involve multiple parties, smart contracts, decentralized exchanges, and unique cryptographic protocols. Auditors need to have a deep understanding of these technical aspects and possess the necessary expertise to analyse and validate the accuracy of transactions.
- 3. Lack of Physical Evidence:** Cryptocurrencies are digital assets that exist only in the form of electronic records. Unlike traditional financial assets, there is no physical evidence, such as bank statements or physical currency, to support the existence and ownership of cryptocurrencies. Auditors must rely on blockchain records, digital wallets, and other electronic evidence to verify the ownership and existence of cryptocurrencies.

4. **Security and Custody Risks:** Cryptocurrencies are susceptible to security risks, including hacking, fraud, and theft. Auditors must assess the effectiveness of security controls and custody arrangements implemented by the audited entity to ensure the integrity and safeguarding of cryptocurrency assets. Cryptocurrencies are also prone to security breaches, hacks, and theft. Auditors need to consider the effectiveness of security measures implemented by cryptocurrency exchanges and wallets. They must assess the custody arrangements and verify the existence and ownership of crypto assets, which can be quite challenging.
5. **Limited Audit Trail:** While blockchain technology provides a transparent and immutable record of cryptocurrency transactions, it may not capture all relevant information needed for auditing purposes. Auditors may face challenges in tracing transactions, identifying the parties involved, and obtaining supporting documentation for certain cryptocurrency activities. Cryptocurrency issuers and exchanges may not provide sufficient information or disclosures required for a comprehensive audit. This lack of transparency makes it challenging for auditors to assess the fair value, ownership, and completeness of crypto assets.
6. **Valuation and Price Volatility:** Cryptocurrencies can experience significant price volatility, which poses challenges in determining the fair value of cryptocurrency assets for financial reporting purposes. Auditors must carefully consider the valuation methodologies and assess the reasonableness of the assumptions used by the entity in valuing their cryptocurrency holdings.
7. **Global Nature and Cross-Border Transactions:** Cryptocurrencies operate across borders, and transactions can occur between parties located in different jurisdictions. This introduces additional complexity in terms of legal and regulatory compliance, tax implications, and the need for auditors to have a deep understanding of international accounting and auditing standards.

To address these challenges, auditors specializing in cryptocurrency audits must possess a strong understanding of blockchain technology, stay updated on the evolving regulatory landscape, collaborate with experts in the field, and develop specialized procedures to effectively audit cryptocurrency transactions and assets.

## 4. Conclusion

The audit of cryptocurrencies and the adoption of blockchain technology present both challenges and opportunities for the accounting and auditing profession. The unique nature and uncertainty surrounding cryptocurrency transactions require auditors to consider additional risks and adapt their audit procedures accordingly. The absence of clear guidelines and the evolving regulatory landscape further complicate the audit process. However, research highlights the potential benefits of blockchain technology in enhancing auditability, transparency, and the efficiency of financial transactions. Smart contracts, distributed ledgers, and triple-entry accounting systems have the potential to revolutionize traditional audit methods. While challenges such as data reliability, security, and transaction transparency exist, efforts are being made to address these concerns and develop appropriate standards and guidelines. It is essential for auditors to stay informed about the latest developments in blockchain and cryptocurrencies, collaborate with experts, and adapt their skills and procedures to effectively audit these emerging assets. The increasing awareness and involvement of accountants and auditors in blockchain technology will shape the future of the accounting and auditing profession, opening up new opportunities for continuous accounting, smart audit procedures, and improved assurance services.

In conclusion, the audit of cryptocurrencies presents a multitude of challenges that auditors must navigate to ensure accurate and reliable financial reporting. The lack of a well-established regulatory framework, complex and evolving technology, the absence of physical evidence, security and custody risks, limited audit trails, valuation difficulties, and the global nature of cryptocurrencies all contribute to the unique challenges faced in conducting crypto audits. To overcome these challenges, auditors must stay updated on regulatory developments, deepen their understanding of blockchain technology, collaborate with experts, and develop specialized procedures to effectively audit cryptocurrency transactions and assets. With the right expertise and adaptability, auditors can provide valuable assurance in an increasingly digital and decentralized financial landscape.

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