The Impact of Blockchain Technology Usage by Audit Firms on Audit Fees: A Field Study in the Egyptian Environment

أثر استخدام شركات المراجعة لتقنية سلسلة الكتل (بلوكتشين) على أتعاب المراجعة: دراسة ميدانية في البيئة المصرية

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Abstract:

The adoption of Blockchain Technology (BCT) in auditing is revolutionizing the field by addressing issues of data security, transparency, and efficiency. This study examines how using BCT by audit firms impacts audit fees, focusing on the Egyptian auditing environment.

A combination of theoretical and empirical methodologies was employed, utilizing a deductive approach to develop the research hypothesis and an inductive approach for field data analysis. Data were collected through a structured questionnaire distributed to auditing professionals and academics. The results reveal a significant impact of using BCT by audit firms on increased audit fees, attributed to the enhanced accuracy in transaction verification and the complexities of decentralized ledger systems. Influential factors such as audit firm reputation, size, provision of non-audit services (NAS), industry specialization, and litigation risks were identified, illustrating how technological advancements reshape traditional determinants of audit fees.

The findings provide valuable insights for audit firms, clients, and regulators, highlighting the importance of adapting to technological advancements and refining audit fee structures. This research bridges a critical gap in the literature and informs strategic decisions in audit practices.

Keywords: Blockchain Technology, Audit Fees, Decentralized Ledger, Audit Practices, Technological Advancements, Egyptian Auditing Environment.

المستخلص:

إن تبني تقنية البلوكتشين في المراجعة يحدث ثورة في هذا المجال من خلال معالجة مشاكل أمن البيانات والشفافية والكفاءة. تبحث هذه الدراسة في أثر استخدام تقنية البلوكتشين من قبل شركات المراجعة على أتعاب المراجعة، وتحديداً في بيئة المراجعة المصرية.

تم استخدام مجموعة من المنهجيات النظرية والعملية، باستخدام نهج استنتاجي لتطوير الفرض البحثي ونهج استقرائي لتحليل البيانات الميدانية. تم جمع البيانات من خلال استبيان منظم تم توزيعه على المراجعين المهنيين والأكاديميين. تكشف النتائج عن وجود أثر معنوي لاستخدام تقنية البلوكتشين من قبل شركات المراجعة علي زيادة أتعاب المراجعة، والتي ترجع إلى الدقة المحسنة في التحقق من المعاملات وتعقيدات أنظمة الدفاتر اللامركزية. تم تحديد العوامل المؤثرة مثل سمعة شركة المراجعة وحجمها ومدي توفيرها لخدمات غير متعلقة بالمراجعة والتخصص الصناعي ومخاطر التقاضي، مما يوضح كيف تعمل التطورات التكنولوجية على إعادة تشكيل المحددات التقليدية لأتعاب المراجعة.

توفر النتائج رؤى قيّمة لشركات المراجعة والعملاء والجهات التنظيمية، وتسلط الضوء على أهمية التكيف مع التطورات التكنولوجية وتحسين هياكل أتعاب المراجعة. يسد هذا البحث فجوة هامة في الأدبيات، كما يزيد من القرارات الاستراتيجية في ممارسات المراجعة.

كلمات المفتاحية: تقنية سلسلة الكتل (البلوكتشين)، أتعاب المراجعة، دفتر أستاذ لامركزي، ممارسات المراجعة، التقدم التكنولوجي، بيئة المراجعة المصرية.

1- The General Framework:

1-1 Introduction:

Recent decades have seen a shift in global trade and traditional business processes due to technological breakthroughs. Among these developments, BCT provides a variety of dynamic features designed to enhance financial results and operational effectiveness for companies in a variety of industries (Austin & Williams, 2021).

In accounting, the accuracy and integrity of financial data are crucial for safeguarding stakeholder interests and ensuring economic stability. Accounting Information Systems (AIS) enhance data reliability and streamline processes, but traditional methods still struggle with issues related to data security, transparency, and the reliance on multiple intermediaries for transaction validation. BCT offers a promising solution by fundamentally transforming how transactions are recorded and verified. It establishes a decentralized and secure ledger system that minimizes the risks of data manipulation and unauthorized access, thereby enhancing data integrity and transparency (Akinadewo et al., 2023).

Therefore, it is now essential for auditors to comprehend BCT; it is no longer an option. The introduction of Blockchain (BC) forces auditors to reconsider their conventional audit evidence collection techniques and modify their methodologies to account for the intricacies of decentralized ledger systems. This change in perspective highlights how vital it is for auditors to become proficient in BCT and how it affects auditing procedures (Qadir & Mahmood, 2024).

1-2 Research Problem:

The advancement of technology is increasingly complicating the fields of accounting and auditing. Professionals are shifting from task-focused roles to advisory positions due to technological innovations, which require them to develop new skills such as professional skepticism, judgment, and critical thinking. The rise of BCT poses additional challenges for the accounting profession, with significant implications for auditing practices. BCT has the

potential to transform modern accounting by enabling substantial automation while ensuring adherence to regulatory requirements. This technology introduces both challenges and opportunities within the sector. While traditional audit and assurance services remain essential, the approaches auditors take may need to evolve in response to BCT. As this technology gains prominence globally, auditors must be ready to adapt and expand their expertise to meet the changing demands of the industry (Abdennadher et al., 2022).

Therefore, the integration of BCT into auditing processes raises an important question about the impact of using BCT by audit firms on audit fees, a topic that remains underexplored. While BCT enhances transaction verification, security, and transparency, the relationship between the use of BCT by audit firms and the resulting audit fees has not been fully examined.

Moreover, key gaps exist regarding how the adoption of BCT by audit firms influences audit firm characteristics such as reputation, size, and the efficiency of NAS. Additionally, the effects of industry specialization, the resources required by audit firms, and the potential of BCT to mitigate litigation risks remain inadequately understood.

As a result, this research aims to investigate how the use of BCT by audit firms impacts audit fees. Through both theoretical and empirical analysis, the study will provide valuable insights for auditing professionals, regulators, and academics, contributing to the understanding of how BCT adoption shapes audit practices and fees.

1-3 Research Questions:

The research problem can be framed as follows:

RQ_1: What is the impact of using BCT by audit firms on audit fees?

1-4 Research Objective:

This research seeks to achieve the following objective:

RO_1: To investigate how the use of BCT by audit firms impacts audit fees.

1-5 Research Importance:

This research adds value to the existing literature in both theoretical and practical dimensions.

Theoretical Importance:

1. This study investigates how BCT impacts key factors that influence audit fees, particularly those related to audit firms. By exploring these aspects, it enhances our understanding of how technology is reshaping traditional determinants of audit fees.
2. The research fills academic gaps by examining the effects of emerging technologies, specifically BCT, on audit practices and fee structures, with a particular focus on the Egyptian context, where such studies are scarce.

Practical Importance:

1. This research is expected to assist audit firms in understanding the implications of BCT on audit fees, thereby aiding in strategic planning, resource management, and adjustments in pricing.
2. Additionally, the research aims to increase clients' awareness of how BCT influences audit fees, empowering them to negotiate more favorable terms and manage their audit engagements more effectively.

1-6 Research Hypothesis:

In light of the research problem and objectives, the research hypothesis can be expressed as follows:

H_1: There is a significant impact of using BCT by audit firms on audit fees.

1-7 Research Model:

The research model demonstrating the relationship between the independent and dependent variables is illustrated in the following figure:

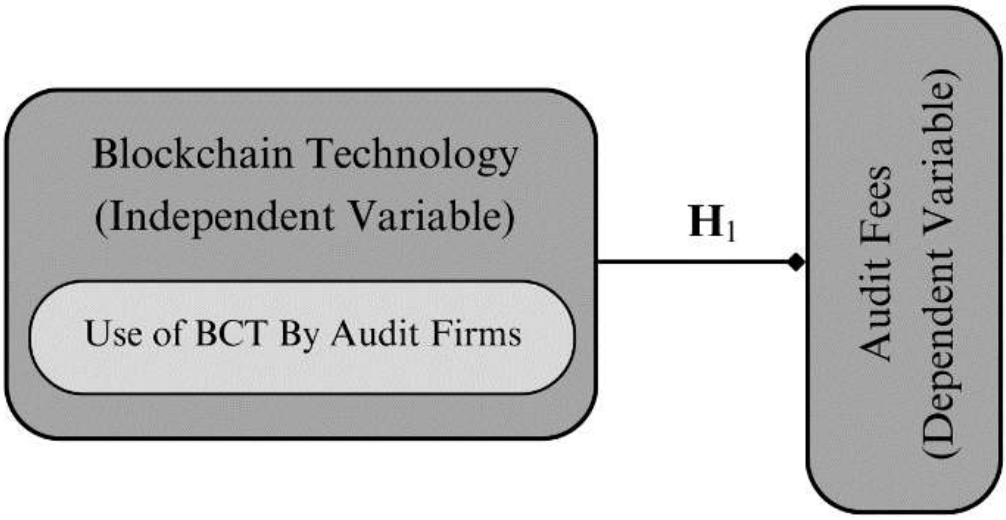

Figure (1.1): *Research Model*
Prepared By: *Researcher*

1-8 Research Methodology:

This research integrates both theoretical and empirical components.

The theoretical section employs a deductive approach to examine and analyze the use of BCT by audit firms in order to derive suitable audit fees for the Egyptian context. This deductive method has been utilized to formulate the research hypotheses that will be explored in the empirical study.

In contrast, the empirical section adopts an inductive approach to conduct a field study, utilizing a questionnaire to gather insights from auditing professionals and academics. This data collection is essential for testing the formulated hypotheses.

1-9 Research Limitations:

This research is limited to investigating the impact of using BCT by audit firms on audit fees through specific factors, including audit firm-related factors (such as reputation, size, NAS, industry specialization, and litigation risk) within the Egyptian environment.

2- Literature Review:

According to Supriadi et al. (2020), BCT introduces significant advancements in financial record management and ownership transfer. It enhances transparency for accountants, minimizes reconciliation expenses, and ensures asset ownership with absolute certainty. Although some traditional accounting roles may diminish, BCT bolsters due diligence during mergers and acquisitions, freeing accountants for deeper analysis and oversight tasks.

Abad-Segura et al. (2021) highlighted the transformative role of BCT in improving the reliability, transparency, and security of AIS. By decentralizing and cryptographically securing records, BC prevents falsification, alteration, or deletion. This transition supports a move from the Double-Entry Accounting (DEA) system to the Triple-Entry Accounting (TEA) system, underpinned by distributed ledger technology (DLT).

Olaru (2021) noted that BCT decentralizes control and eliminates intermediaries in transactions, increasing confidence in financial reporting. To adapt, sophisticated AIS and skilled accountants proficient in BCT are essential. Accounting bodies must establish guidelines and standards while prioritizing research into BC's role in accounting and auditing.

Abdennadher et al. (2022) observed that BCT introduces a cost-effective and decentralized approach to auditing by automating audit evidence gathering. Although the fundamentals of accounting remain unchanged, increased auditor awareness and engagement with BC will facilitate its adoption in assurance services.

Surana & Bhanawat (2022) predicted that BCT will automate administrative tasks in auditing, shifting the focus to Information Technology (IT)-based processes. Auditors will take on more consulting roles, requiring BCT and IT expertise. Simultaneously, industries and professionals must adopt digital skills to remain competitive in an evolving technological environment.

Singh et al. (2021) suggested that BCT would redefine auditors' roles, focusing on strategic guidance, analytics, and policymaking. However, while BCT addresses transparency and trust issues in DEA systems, it does not eliminate risks like off-book frauds.

Nakhal (2020) emphasized that BCT adoption increases auditors' responsibilities, such as verifying digital assets, evaluating internal controls, and disclosing critical system information in reports. This ensures compatibility between BC data and real-world records.

Markelevich & Rosner (2013) and Bakir (2021) found that larger audit firms with strong reputations charge higher fees due to their resources and expertise. This premium reflects enhanced audit quality and client trust.

Hoitash et al. (2007) revealed that fees for NAS could create economic dependencies that might impact auditor independence. Despite this, the study found no consistent negative effect on audit quality, though higher-risk clients required more intensive auditing, leading to increased fees.

Huang et al. (2007) and Ali et al. (2021) emphasized that auditors with specialized industry expertise command higher fees due to their ability to manage complex financial structures. Their expertise enhances client trust and satisfaction.

Seetharaman et al. (2002) demonstrated that companies facing higher litigation risks incur increased audit fees, as auditors mitigate potential legal liabilities. This trend is pronounced in litigious environments like the US market.

Zhang et al. (2022) examined Chinese corporations and found a strong link between BCT investment and higher audit fees. This correlation stems from risks associated with rapid growth, financial instability, and internal control weaknesses, increasing audit complexity.

The Research Gap: Key Differences between Current and Previous Studies:

Despite advancements in BCT and its widely recognized advantages in transaction verification, security, and transparency within auditing, notable gaps in research persist regarding its influence on audit fees. While prior studies emphasize the transformative potential of BCT, they often overlook a comprehensive exploration of its effects on audit fees across various dimensions.

Additionally, empirical research on how BCT affects audit firm characteristics is scarce. Specifically, the interplay between BCT and factors such as audit firm reputation, market demand, and the efficiency of NAS has not been thoroughly examined. Although BCT's contributions to industry specialization and its ability to reduce litigation risks are acknowledged, its impact on the additional resources and specialized knowledge required by audit firms remains insufficiently analyzed.

To bridge these gaps, this research undertakes a field study in Egypt, employing a questionnaire to empirically evaluate the impact of using BCT by audit firms on audit fees. This investigation aims to provide deeper insights into BCT's role in shaping audit fees, enhancing the understanding of its implications, and refining auditing practices in a BC-integrated framework.

3- The Theoretical Framework:

3-1 Key Terms and Concepts:

Given the diverse definitions and associated terminologies of BCT, it is essential to establish a practical definition before exploring its specific terms. This study incorporates both technical insights and user perspectives to outline the structure and terminology of BC. Although many terms are closely linked to Bitcoin, the foundational application of BCT, this research adopts a broader viewpoint.

3-1-1 DLT and BC:

DLT is a decentralized framework for recording transactions across multiple locations without relying on a central authority. BC, a subset of DLT,

organizes data into blocks that are cryptographically connected in chronological order (Singh et al., 2021).

3-1-2 Working Definition of BCT:

BCT is a decentralized system that records transactions on a peer-to-peer (P2P) network, storing them in data blocks validated through algorithms. This structure prevents unilateral alterations and ensures accurate, efficient data recording (Maffei et al., 2021).

3-1-3 Bitcoin:

Bitcoin (BTC), introduced by Satoshi Nakamoto in 2008, is the first and most prominent cryptocurrency. Operating without centralized control, its transactions are verified and secured via consensus mechanisms, with its foundation rooted in BCT (Mohamed, 2021).

3-1-4 Nodes:

Nodes are individual devices within a BC network that maintain an independent copy of the ledger. Utilizing BCT's decentralized and distributed design, nodes collectively safeguard data integrity by eliminating reliance on a single authority (Bakarich et al., 2020).

3-1-5 Miners and Mining:

Miners are participants in the BC who verify transactions by solving cryptographic puzzles, creating new transaction blocks in return for rewards. **Mining** enables decentralized cryptocurrency management within P2P networks (Tanwar, 2022; Yiu, 2021).

3-1-6 Block:

A BC is composed of blocks that store verified transactions and are linked by hash codes for consistency and immutability. Each block contains metadata (the block header) and transaction data (the block body) (Dhulavvagol et al., 2020; Jena & Dash, 2021). A generic block structure is presented in Figure (3.1).

3-1-6-1 Block Header:

The block header contains critical metadata, including version details, block height, previous block hash, timestamp, difficulty level, and nonce. These elements facilitate transaction validation and secure connections between blocks (Mukherjee & Pradhan, 2021; Zhang et al., 2021).

- **Block Version**: Defines the rules for validating blocks in the BC.
- **Block Height**: Represents the number of previous blocks, indicating the block's position in the chain.
- **Previous Block Hash**: A 256-bit hash linking the current block to its predecessor.
- **Timestamp**: Marks when the block was created within a specified timeframe.
- **Difficulty**: Measures the complexity of mining and hashing operations.

The block body contains transaction data organized as a Merkle tree, where nodes are hashed together iteratively until the root, stored in the block header, is obtained (Zhang et al., 2021).

3-1-6-2 Genesis Block:

The genesis block is the first block created in a BC system, serving as the foundation for all subsequent blocks. In Bitcoin, it is also referred to as block 0, created by Satoshi Nakamoto (Shrimali & Patel, 2022).

3-1-6-3 Nonce:

A nonce is a unique, one-time-use number included in the block header. It is a key component in mining, requiring miners to discover an appropriate value to validate transactions (Tanwar, 2022).

3-1-6-4 Transaction:

Transactions represent interactions between parties, such as the transfer of cryptocurrencies or digital assets. They rely on digital signatures to ensure authenticity and validity (Jena & Dash, 2021).

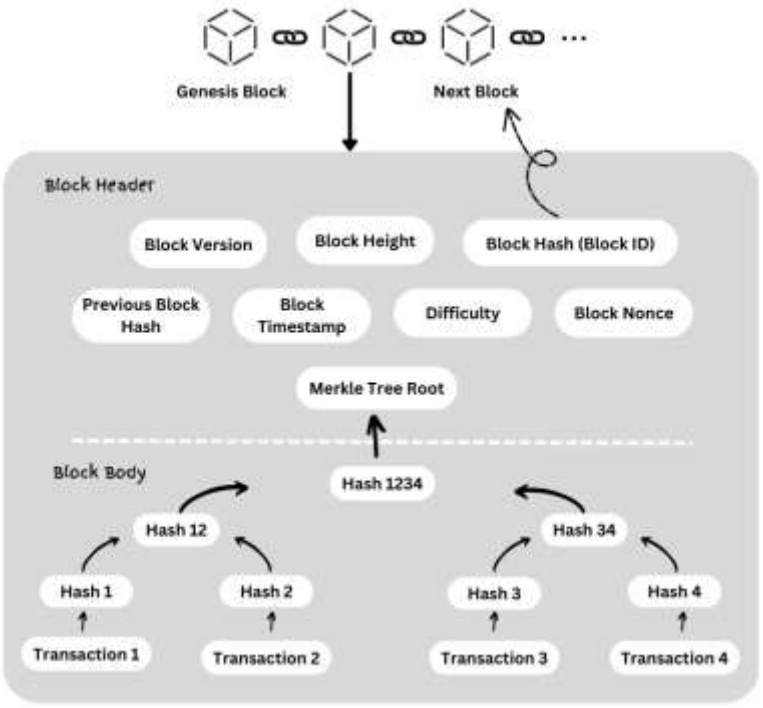

Figure (3.1): *Block Structure*
Prepared By: *Researcher*

3-1-7 Cryptography:

Cryptography involves techniques to secure data by converting plain text into encrypted formats. It supports confidentiality, integrity, and authentication through methods like hashing and asymmetric key encryption (Lokre et al., 2021).

3-1-7-1 Hashing:

Hashing uses algorithms to transform input data into a fixed-length hash value, ensuring data integrity in BC systems. For instance, SHA-256 generates a 64-character hash that secures information without the possibility of reversal (Tanwar, 2022).

3-1-7-2 Hash Function:

Hash algorithms convert transaction data into fixed-length hashes. For example, SHA-256 generates a 64-character hash, ensuring secure, one-way encryption to protect identities and data (Zhang et al., 2021).

3-1-7-3 Hash:

A block hash ensures data integrity by generating a unique identifier from block content using cryptographic algorithms like SHA-256 or Keccak-256 (Monica & Priya, 2022).

In essence, hashing involves applying a hash function to input data, generating a unique and consistent hash value. These processes are pivotal in fields like data integrity, password security, and BCT.

3-1-8 Asymmetric Key Cryptography:

This method employs a pair of keys: a public key for encryption and a private key for decryption. It is widely used in digital signatures and secure communication, ensuring that only the intended recipient can access encrypted information. For instance, when Tom needs to send a secure message to Susan, he encrypts it using Susan's public key, ensuring that only she can decrypt it with her private key. Alternatively, encrypting a message with a private key and decrypting it with a public key verifies its authenticity and integrity, which underpins digital signatures (Lee, 2019; Lokre et al., 2021; Zhang et al., 2021). A brief overview of Asymmetric Key Cryptography is illustrated in Figure (3.2).

3-1-8-1 Private Key:

A private key is a confidential 256-bit number enabling secure access to BC funds (Saxena et al., 2021).

3-1-8-2 Public Key:

Derived from the private key, it verifies signatures without exposing the private key. Bitcoin public keys may be uncompressed (65 bytes) or compressed (33 bytes) (Saxena et al., 2021).

3-1-8-3 Digital Signatures:

Digital signatures authenticate documents using private-public key pairs, timestamps, and hash functions like SHA-256. Verification ensures data integrity by matching hash values with the public key (Sathya et al., 2021).

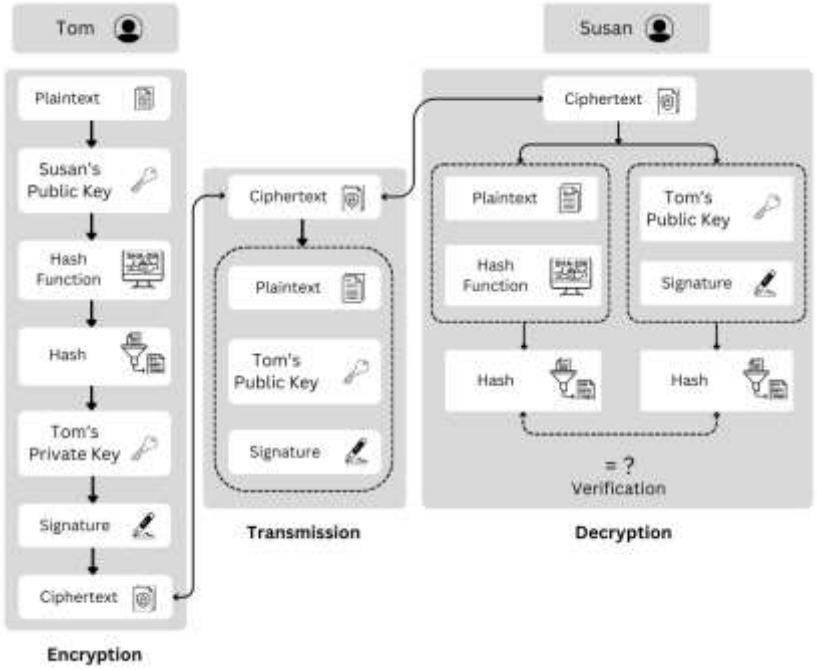

Figure (3.2): *Asymmetric Key Cryptography*
Prepared By: *Researcher*

3-1-9 Merkel Root:

In a BC, transactions are structured in a Merkle tree. Each leaf node represents a transaction hash, and non-leaf nodes store the hashes of their child nodes. The root of this tree, known as the Merkle root, is stored in the block header (Lee, 2019).

3-1-10 Chain:

Blocks in a BC are sequentially linked, forming an immutable chain. Proof-of-work mechanisms ensure the integrity of each block, with the longest chain being recognized as the most reliable (Komalavalli et al., 2020).

3-1-11 Smart Contracts:

Smart contracts, conceptualized by Nick Szabo in 1994, are self-executing programs on the BC that automatically enforce the terms of an agreement. They eliminate intermediaries and are widely supported in platforms like Ethereum (Jena & Dash, 2021).

3-1-12 Decentralized Applications (DApps):

DApps are P2P applications that use BC and smart contracts for decentralized data storage and processing. Unlike traditional centralized apps, DApps offer transparency, irreversible transactions, and decentralized governance, enhancing user trust and participation (Metcalfe, 2020).

3-2 BCT Consensus Models:

BCT assigns users to publish blocks, rewarding them with cryptocurrency. Consensus mechanisms coordinate competing nodes, ensuring trust among participants (Jena & Dash, 2021).

These mechanisms use algorithms to maintain data consistency without central authority. Public BCs utilize methods like Proof of Work (PoW), Proof of Stake (PoS), and Delegated Proof of Stake (DPoS) with a "write first, then reach consensus" approach. Private and consortium BCs rely on Practical Byzantine Fault Tolerance (PBFT) and Reliable, Adaptive, Fault-Tolerant (Raft), following a "consensus first, then write" method. Miners solve puzzles to add blocks, which are verified and recorded in the BC (Jena & Dash, 2021; Zhang et al., 2021).

3-2-1 Proof of Work (PoW):

Introduced in 1993 and adopted by Bitcoin in 2008, PoW requires miners to solve cryptographic puzzles to verify transactions and prevent double-spending. Validated blocks are added to the BC. Widely used in cryptocurrencies like Ethereum, PoW is criticized for its high energy use and slow speeds (Azbeg et al., 2021; Kim, 2021).

3-2-2 Proof of Stake (PoS):

Proposed by King and Nadal in 2012, PoS selects validators based on the cryptocurrency they stake rather than computational power. Selection depends on stake size and duration. Validators earn rewards from fees or incentives. PoS is more energy-efficient than PoW and improves privacy and security (Azbeg et al., 2021; Tanwar, 2022).

3-2-3 Delegated Proof of Stake (DPoS):

Created by Larimer, DPoS uses a voting system to elect delegates who create blocks for shareholders. Delegates' reputations depend on performance, and they can be replaced for poor results. DPoS is used in platforms like EOS and BitShares (Azbeg et al., 2021).

3-2-4 Practical Byzantine Fault Tolerance (PBFT):

PBFT addresses unreliable nodes by enabling consensus in distributed networks, even with faulty or malicious participants. It ensures efficiency and is used in permissioned BCs like Hyperledger IROHA (Kim, 2021).

3-2-5 Reliable, Adaptive, Fault-Tolerant (Raft):

Raft simplifies consensus by electing a leader to manage log replication for consistency. It is fault-tolerant and ideal for systems requiring simplicity but may be less efficient than more complex algorithms (Verma et al., 2021).

3-3 Working of BC:

As outlined by Tanwar (2022), the process of adding validated transactions in BC involves several key steps, as depicted in Figure (3.3).

Step (1): The process begins with a transaction example, where user A intends to send funds to user B's account.

Step (2): Prior to transferring the funds, the transaction is authenticated through digital signatures and encryption, using the sender’s private key.

Step (3): Once authenticated, the transaction, along with the associated transaction fee, is broadcast to all nodes in the P2P network.

Step (4): Next, the transaction undergoes verification by all nodes in the network, a procedure known as mining.

Step (5): Miners within the network compete to solve a complex mathematical puzzle. The first miner to solve the puzzle successfully validates the transaction and is rewarded with the transaction fee.

Step (6): After validation, all participants in the network must reach a consensus on which block to add to the BC. This process involves a consensus algorithm, ensuring agreement among all nodes on the next block to be added, as miners may create multiple blocks.

Step (7): Once the block is accepted by the BC, the transaction is confirmed, and user B securely receives the funds transferred by user A.

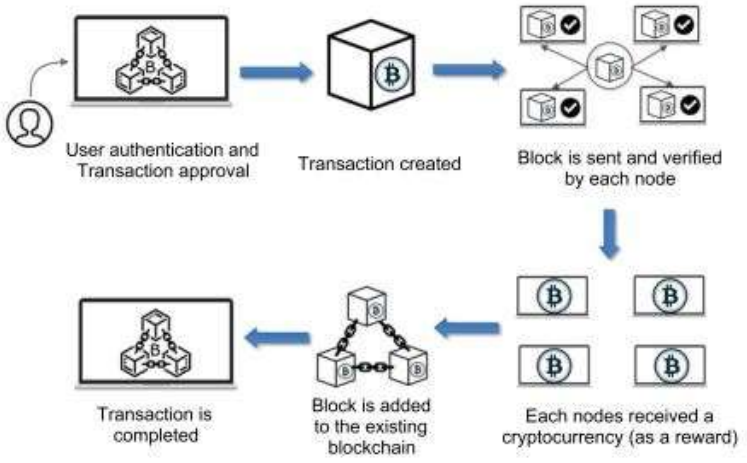

Figure (3.3): *Working of BC*
Source: *(Tanwar, 2022)*

3-3-1 Types of BC:

BC networks are typically classified into four types based on their access and control structures: public, private, consortium, and hybrid BCs (Vaigandla et al., 2023). As noted by Mukherjee & Pradhan (2021), the definitions of these types are as follows:

Public Blockchains: These include Bitcoin, Ethereum, and Litecoin. Public BCs use consensus algorithms to ensure both security and decentralization, allowing anyone to access and participate in the network without restrictions.

Private Blockchains: These are permissioned and centralized networks, where access is limited to authorized participants. A central authority manages permissions and updates. Private BCs are often used in scenarios demanding high security, such as in e-voting or supply chain management. Notable examples are Hyperledger and R3 Corda.

Consortium Blockchains: A subset of private BCs, consortium BCs are controlled by a group of organizations. This structure fosters collaboration and improves efficiency within the group. Consortium BCs are frequently applied in

industries like banking and government. Examples include the Energy Web Foundation and R3.

Hybrid Blockchains: These combine features of both public and private BCs, merging the privacy advantages of private systems with the openness of public ones. Participants have control over data access and authority. A well-known example is Dragonchain.

3-4 Characteristics of BCT:

According to Komalavalli et al. (2020), BCT is distinguished by several key features:

- **Trust:** Users authenticate data without intermediaries, ensuring integrity through digitally signed transactions.
- **Distributed:** All participants in the network maintain identical copies of the ledger.
- **Digital:** Data is stored digitally, reducing dependence on paper-based records.
- **Decentralization:** Each node holds a copy of the ledger, eliminating the need for central servers and enhancing transparency and security.
- **Chronological and Time-Stamped:** Transactions are recorded in chronological order within blocks, each of which is timestamped to preserve the sequence.
- **Robustness:** Data replication across all nodes minimizes the risk of failure from a single point.
- **Immutable:** Once transactions are verified and added to the BC, they are irreversible and resistant to tampering.
- **Auditability:** Timestamps and validations allow transactions to be traced and verified at any point in the BC.
- **Consensus-Driven:** Blocks are validated and added based on consensus among network nodes, utilizing various algorithms to ensure reliability.
- **Anonymity:** Users interact using cryptographically generated addresses, which protect their privacy and prevent centralized data storage.

3-5 Audit Fee Concept:

Audit fees are a broad concept with varying definitions depending on the perspective of different stakeholders, such as auditors, clients, and regulators.

From **a cost perspective**, audit fees represent the payment a company makes to an external auditor for reviewing its financial statements, covering both direct and indirect costs (Ye, 2020).

From **a service standpoint**, they reflect the compensation for professional services, including audits, tax consulting, and advisory roles, emphasizing the quality and assurance provided by the auditor (Hay et al., 2006).

From **a regulatory perspective**, audit fees should be sufficient to cover the costs of a thorough, independent audit without compromising auditor independence, with regulators ensuring fees align with standards of transparency and accountability (Agana et al., 2023).

Overall, audit fees are the compensation paid for a comprehensive review of financial statements and controls, ensuring the accuracy and transparency of financial reporting to stakeholders.

3-6 Audit Fee Structures:

Saleh & Ahmed (2019) explore different audit fee structures, fixed, variable, and contingent, each with unique implications for auditing practices and stakeholders:

Fixed fees are a set, agreed-upon amount for audit services, offering cost predictability and stability. However, changes in the audit scope can lead to disputes over adjustments.

Variable fees depend on the actual time and resources used, offering flexibility based on audit complexity. While transparent, they can introduce uncertainty if the audit exceeds initial estimates.

Contingent fees are based on specific outcomes, such as identifying misstatements, motivating high-quality audits but raising ethical concerns about auditor independence and objectivity.

In general, each fee structure presents distinct considerations for auditors, companies, investors, and regulators. Auditors must assess the audit's scope and complexity, ensuring adherence to ethical standards. Companies should weigh costs and audit quality, while regulators and investors oversee agreements to maintain the integrity of audits and financial reporting.

3-7 Phases of Establishing an Auditor's Fees:

According to Al-Attar (2003), the process of setting auditor fees consists of four key stages:

Stage One: Fee Determination. This is the most critical phase, where various factors influence the fee setting. These factors include both the auditor's considerations and those related to the client organization being audited.

Stage Two: Client Agreement on Fees. In this stage, the auditor should have an initial discussion with the client to outline the audit procedures. This conversation, typically documented in an engagement letter, aims to ensure the client understands the fees and services, promoting transparency and trust.

Stage Three: Billing. This phase involves invoicing the client, with the auditor and client agreeing on the timing and method of payment. Auditors typically use two billing methods: periodic billing or progress billing.

Stage Four: Fee Collection. This phase focuses on collecting payment according to the terms agreed upon in advance, particularly for initial audits. The agreement should clearly specify the payment timing and method.

3-8 Requisite Technical Skills for Accountants and Auditors in BCT Environment:

The increasing influence of BCT is transforming the roles of accountants and auditors, necessitating the acquisition of new technical skills to remain effective and relevant in their work (Garanina et al., 2022). As traditional accounting and auditing methods evolve, professionals must understand and adapt to this new technology.

A key skill for accountants and auditors working with BC is a deep understanding of DLT. Unlike traditional centralized systems, BC relies on a decentralized network, meaning data is securely stored across multiple nodes. Professionals in these fields must be able to manage the process of recording, validating, and safeguarding transactions on the BC to ensure accurate financial reporting and auditing (Bulyga & Safonova, 2022; Sheela et al., 2023).

In addition, accountants and auditors must grasp BC protocols and consensus mechanisms, such as PoW and PoS. These mechanisms impact how transactions are verified, making it essential for auditors to assess their reliability and how they influence auditing procedures (Desplebin et al., 2021).

Another important area is smart contracts, self-executing agreements with embedded terms. As these contracts automate processes like revenue recognition and compliance, accountants and auditors must be equipped to verify and assess them to ensure they meet legal and regulatory standards.

Beyond technical expertise, accountants and auditors must also remain adaptable and committed to ongoing learning. The fast-paced advancements in BCT and shifting regulatory environments require professionals to continuously update their skills (Bonyuet, 2020; Sastry et al., 2021; Silva et al., 2022).

In summary, incorporating BCT into accounting and auditing practices requires professionals to develop a range of new skills, including expertise in DLT, BC protocols, smart contracts, and regulatory compliance. By embracing these competencies and maintaining a focus on continuous learning, accountants and auditors can successfully navigate the complexities of BCT and enhance their roles in a digital-first world.

3-9 Determinants of Audit Fees in the BCT Environment & Hypothesis Development:

Audit fees are influenced by various factors, with studies identifying key variables that explain differences between firms. While reaching consensus on universal determinants is challenging due to regional and demographic

differences, some factors are more significant than others. Research often highlights certain factors as particularly important.

To better understand audit fee determinants, this section focuses on audit-firm-related factors, including firm reputation, size, NAS provision, industry specialization, and litigation risk, examining their significance in past studies and how the introduction of BCT may influence or modify these factors.

3-9-1 The Relationship between Reputation, Size, and BCT:

An audit firm's reputation, shaped by the quality of its services, expertise of its staff, and advanced technology, plays a critical role in its market position. Larger firms, like the Big Four Certified Public Accounting (CPA) firms, are often seen as more capable due to their skilled auditors, superior resources, adherence to international standards, and financial strength.

These factors enhance their reputation, driving higher demand for their services and allowing them to charge premium fees. Investments in training, specialized programs, and marketing further solidify their standing, enabling them to outpace competitors with less robust reputations (Mohamed et al., 2023; Badawy & Zaki, 2023).

Research highlights that both the size and reputation of audit firms are pivotal in determining audit quality. Larger and more reputable firms often deliver higher-quality audits due to their credibility and extensive resources, and their strong reputation is positively linked to higher fees (Niemi, 2004; Aronmwan et al., 2013).

BCT further enhances audit practices by offering transparent and unalterable records, minimizing the risk of manipulation, and fostering client trust. Reputable and large audit firms are better equipped to adopt BCT, leveraging their resources to maintain high operational standards (Indriyanto & Rosmalia, 2022). Additionally, the transparency enabled by BCT supports these firms' reputations by reducing audit delays and improving audit quality (Trilaksana & Fadjarenie, 2021).

In summary, the adoption of BCT strengthens the reputation and operational quality of larger audit firms, enhancing their reliability and effectiveness in delivering superior audit services.

3-9-2 The Relationship between NAS and BCT:

Audit firms often provide NAS like consulting and advisory services, which can create potential conflicts of interest or impact independence, necessitating additional effort to address these concerns and potentially leading to higher audit fees (Barsoum et al., 2022).

BCT enhances NAS by improving audit quality and efficiency through decentralization, transparency, and automation. It ensures reliable, real-time audit evidence and reduces costs and delays linked to traditional audits by enabling strong, decentralized verification systems (Dai & Vasarhelyi, 2017; Gokoglan et al., 2022).

This transformation shifts auditing from transaction-focused to continuous assurance models, allowing firms to offer real-time advisory services while emphasizing the need for auditors to upgrade their IT skills (Elommal & Manita, 2020).

3-9-3 The Relationship between Industry Specialization and BCT:

Audit firms specializing in industries like finance, healthcare, or technology leverage their expertise to address sector-specific complexities, often commanding higher fees for more effective and efficient audits (Al-Amin, 2017; Ali et al., 2021).

BCT enhances these firms' capabilities by ensuring reliable, transparent, and tamper-proof financial data, reducing risks and improving efficiency (Zhou et al., 2021). Through real-time, immutable records, BCT supports detailed audits tailored to industry-specific needs, cutting time and costs compared to traditional methods (Dyball & Seethamraju, 2021). It also enables continuous auditing for real-time compliance, enhancing service quality and competitive advantage (Cheng & Huang, 2020).

3-9-4 The Relationship between Litigation Risk and BCT:

Audit firms face litigation risks stemming from factors like client complexity, regulatory scrutiny, and prior litigation, prompting them to invest in rigorous audit procedures that often lead to higher fees for high-risk clients (El-Gammal & Gharzeddine, 2020).

BCT offers opportunities to reduce these risks through reliable, transparent, and immutable data, which strengthens evidence of due diligence and minimizes errors or fraud (Gokoglan et al., 2022). However, BCT's technical complexities can increase risks, such as uncertainties in audit methods and control issues, raising fees for firms with BC-related activities (Huang et al., 2023). Adapting to BCT requires skilled auditors and standardized procedures to mitigate potential inconsistencies and audit failures, which could elevate litigation risks (Dong & Pan, 2023).

Building on the previous discussion, audit fee determinants include auditor-related factors such as firm reputation, size, NAS provision, industry specialization, and litigation risk. Larger, reputable firms command higher fees due to their resources and advanced technologies like BCT, which enhance audit quality through transparency and risk reduction. BCT also improves NAS delivery by boosting service quality and cutting monitoring costs. In specialized industries, it enables more efficient audits but introduces complexities that may heighten litigation risks, potentially raising fees. Adapting to BCT is essential for maintaining standards and managing risks effectively, leading to the following hypothesis.

H_1: *There is a significant impact of using BCT by audit firms on audit fees.*

4- The Field Study:

4-1 Research Approach:

This study adopts deductive reasoning in the theoretical phase to develop hypotheses grounded in existing literature on BCT and audit fees. During the empirical phase, an inductive approach is utilized in the field study, gathering

data from auditing professionals and academics to examine and confirm the proposed hypothesis.

4-2 Research Method:

This study employs a quantitative approach to investigate the impact of BCT on audit fees within the Egyptian context. Data collection was conducted using a structured questionnaire designed with a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The questionnaire, developed through an extensive review of relevant literature, addresses using BCT by audit firms, and its potential influence on audit fees. It was distributed electronically via email to professionals and academics specializing in BCT and auditing, ensuring that responses were both relevant and credible.

Data analysis was performed using SPSS version 26. Descriptive statistics, such as frequencies, means, and standard deviations, were used to summarize the findings, while multiple regression analysis tested the research hypothesis. This approach provided valuable insights into how using BCT by audit firms impacts audit fees.

4-3 Research Hypotheses:

In light of the research problem and objectives, the research hypothesis can be expressed as follows:

H_1: There is a significant impact of using BCT by audit firms on audit fees.

4-4 Population and Sample:

4-4-1 Study Population:

The study sample includes auditors from Big Four firms, auditors from small/local firms, and academics, with the following justifications for each group:

- **Auditors from Big Four Firms:** These auditors are included due to the prominent role of the Big Four (Deloitte, EY, PwC, and KPMG)[1] in adopting new technologies and their significant influence within the auditing profession.
- **Auditors from Small/Local Firms:** This group is included to examine how BCT impacts audit fees in smaller firms, which may face different challenges and have more limited resources compared to larger firms.
- **Academics:** The inclusion of academics provides theoretical insights and research-driven perspectives on the impact of using BCT by audit firms on audit fees.

4-4-2 Study Sample:

4-4-2-1 Sampling Method:

A simple random sampling technique was utilized, ensuring that every individual in the population had an equal chance of selection. This approach minimizes selection bias and helps achieve a representative sample that accurately reflects the population's characteristics.

4-4-2-2 Sample Size:

The sample size for this research was calculated using the following parameters:

- **Confidence Level:** ***95% (Z = 1.96):*** This ensures a 95% likelihood that the sample estimate reflects the true population parameter. A Z-score of 1.96 is standard for this level of confidence, ensuring statistical reliability.
- **Margin of Error (E):** ***5% (0.05):*** A 5% margin strikes a balance between precision and practicality, providing reasonable accuracy without requiring an excessively large sample.
- **Estimated Proportion (P):** ***0.5:*** This value maximizes variability, offering a conservative estimate of the required sample size. By assuming

[1] Prominent auditing firms with international Big Four partnerships include Saleh, Barsoum, and Abdel Aziz (Deloitte), Emad Hafez Ragheb (EY), Farid Mansour (PwC), and Hazem Hassan (KPMG).

maximum variability, it ensures adequacy even if the actual proportion varies.

Using these values, the sample size was calculated as follows:

Using the sample size formula: $\mathbf{n = z^2 \cdot p \cdot (1 – p) / E^2}$

Plugging in the values:

$$n = 1.962 \cdot 0.5 \cdot (1 – 0.5) / 0.052 = 384.16$$

So, the sample size is approximately **384** (rounded to the nearest whole number). Out of **384** distributed questionnaires, **368** valid responses were received and analyzed, providing a comprehensive data set.

4-4-2-3 Sample Categories:

The study included participants from various categories to ensure diverse perspectives on the impact of using BCT by audit firms on audit fees. These groups included auditors from Big Four firms, auditors from small or local firms, and academics. Table (4.1) provides a detailed breakdown of the questionnaires distributed, received, and validated for each category.

Table (4.1): *Distribution of Questionnaires Sent, Received, and Validated Among Sample Categories*

Sample Category	Questionnaires					
	Sent		Received		Validated	
	No.	%	No.	%	No.	%
Auditor (Big Four Firm)	192	100	190	98.9	190	98.9
Auditor (Small/Local Firm)	115	100	112	97.3	106	92.1
Academic	77	100	72	93.5	72	93.5
Total	**384**	**100**	**374**	**97.3**	**368**	**95.8**

Prepared By: *Researcher*

The table shows a strong level of participation across all groups. Auditors from Big Four firms had the highest number of questionnaires sent (192), with an impressive response rate of 98.9% (190 returned) and a validity rate of 98.9% (190 valid). Auditors from small/local firms also showed notable engagement,

with 115 questionnaires sent, a response rate of 97.3% (112 returned), and a validity rate of 92.1% (106 valid). Academics participated at a high level as well, with 77 questionnaires sent, a 93.5% response rate (72 returned), and a 93.5% validity rate (72 valid). In total, 384 questionnaires were distributed, 374 were returned (97.3%), and 368 were valid (95.8%), providing a strong dataset for assessing the impact of using BCT by audit firms on audit fees.

4-4-2-4 Sample Demographics:

The sample consists of participants with varying levels of education and experience, ensuring a wide range of viewpoints on how using BCT by audit firms impacts audit fees.

4-4-2-4-1 Education Level:

An analysis of the sample's educational background was conducted to examine the distribution of qualifications across the different participant categories. This analysis provides insights into the diversity of educational levels within the sample, which could influence their views on the impact of BCT on audit fees. The categories examined include auditors from Big Four firms, auditors from small/local firms, and academics. Table (4.2) below outlines the educational qualifications, such as Bachelor's, Master's, PhD, and Professional Certification, for each category.

Table (4.2): *Distribution of Education Levels Among Sample Categories*

Sample Category	Education Level								Total	
	Bachelor		Master		PhD		Professional Certification			
	No.	%	No.	%	No.	%	No.	%	No.	%
Auditor (Big Four Firm)	33	17.4	38	20	33	17.4	86	45.2	190	100
Auditor (Small/Local Firm)	16	15	20	19	18	17	52	49	106	100
Academic	17	23.7	24	33.4	28	38.8	3	4.1	72	100
Total	**66**	**17.9**	**82**	**22.3**	**79**	**21.4**	**141**	**38.4**	**368**	**100**

Prepared By: *Researcher*

The table illustrates the educational diversity within the sample. Among auditors from Big Four firms, 17.4% hold Bachelor's degrees, 20% have Master's

degrees, 17.4% possess PhDs, and 45.2% have professional certifications. For auditors from small/local firms, 15% have Bachelor's degrees, 19% hold Master's degrees, 17% possess PhDs, and 49% have professional certifications. Academics are mostly advanced degree holders, with 23.7% holding Bachelor's degrees, 33.4% having Master's degrees, 38.8% with PhDs, and 4.1% holding professional certifications. In total, the sample consists of 17.9% Bachelor's degrees, 22.3% Master's degrees, 21.4% PhDs, and 38.4% professional certifications, offering a well-rounded expertise for examining the impact of using BCT by audit firms on audit fees.

4-4-2-4-2 Years of Experience:

The study also analyzed the participants' years of professional experience to assess the distribution of expertise across the different categories. This analysis is important for understanding the varying levels of experience within the sample, which may influence their views on the impact of using BCT by audit firms on audit fees. The categories analyzed include auditors from Big Four firms, auditors from small/local firms, and academics. Table (4.3) below provides details on the years of experience for each group.

Table (4.3): *Distribution of Years of Experience Among Sample Categories*

Sample Category	Years of Experience								Total	
	Under 5		5-Under 10		10-Under 15		Above 15			
	No.	%	No.	%	No.	%	No.	%	No.	%
Auditor (Big Four Firm)	54	28.5	46	24.2	39	20.5	51	26.8	190	100
Auditor (Small/Local Firm)	28	26.5	25	23.5	35	33	18	17	106	100
Academic	27	37.5	22	30.5	8	11.2	15	20.8	72	100
Total	**109**	**29.6**	**93**	**25.3**	**82**	**22.3**	**84**	**22.8**	**368**	**100**

Prepared By: *Researcher*

The table highlights a wide range of professional experiences among the participants. Among auditors from Big Four firms, the distribution is fairly balanced, with 28.5% having less than 5 years of experience, 24.2% with 5 to under 10 years, 20.5% with 10 to under 15 years, and 26.8% with more than 15 years. Auditors from small/local firms show a greater percentage (26.5%) with under 5 years of experience, 23.5% with 5 to under 10 years, 33% with 10 to under 15 years, and 17% with over 15 years. Academics generally have fewer

than 15 years of experience, with 37.5% having under 5 years, 30.5% with 5 to under 10 years, 11.2% with 10 to under 15 years, and 20.8% with more than 15 years. Overall, the sample consists of 29.6% with less than 5 years of experience, 25.3% with 5 to under 10 years, 22.3% with 10 to under 15 years, and 22.8% with more than 15 years, ensuring a diverse participant group with varied professional and academic backgrounds.

4-5 Data Collection:

4-5-1 Instruments:

Data collection was conducted through a structured questionnaire featuring a five-point Likert scale, as presented in Table (4.4). The purpose of the questionnaire was to evaluate participants' perceptions and the impact of using BCT by audit firms on audit fees.

Table (4.4): *A Five-Level Likert Scale*

Response	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Scale	(5)	(4)	(3)	(2)	(1)

Prepared By: *Researcher*

4-5-2 Questionnaire Design:

The questionnaire, outlined in *Appendix (A)*, was developed based on an extensive review of the literature and expert feedback to ensure its validity and reliability. It contained items that assess BCT and its use by audit firms, along with factors determining audit fees.

4-5-3 Questionnaire Sections:

The questionnaire was organized into seven main sections:

- **Section (1):** ***Demographic Data:*** Gathered information regarding participants' education level, current role, and years of experience.
- **Section (2):** ***Factors Determining Audit Fees (FAF):*** Measured participants' opinions on various elements that determine audit fees.

- **Section (3):** ***Using BCT by Audit Firms (ABCT):*** Assessed auditors' experience and skills in handling BCT-based transactions and related complexities.
- **Section (4):** ***Additional Comments:*** Provided respondents with space to offer any further insights.
- **Section (5):** ***Contact Information:*** Gave participants the option to provide their contact details for possible follow-up interviews or discussions.

4-5-4 Variables Measurement:

This section describes the key variables of the study and outlines how each is measured using specific items in the questionnaire.

- **Independent Variable (Using BCT by Audit Firms):**
  Section (3): Focuses on how audit firms utilize BCT, measured through items that evaluate auditors' technical expertise, specialized skills, and their ability to audit BCT-based transactions and handle associated risks.
- **Dependent Variable (Audit Fees):**
  Section (2): evaluates audit fees by examining how factors such as audit firm reputation, size, provision of NAS, industry specialization, and litigation risks influence fees. Respondents indicate their agreement with statements about the significance of these factors in determining audit fees.
- **Control Variables:**
  Section (1): collects demographic information, including education level, job position, and years of experience. These control variables are captured through items that categorize participants based on their professional background, allowing the study to isolate the effect of using BCT by audit firms on audit fees from other influencing factors.

4-6 Pilot Testing of the Questionnaire:

A pilot test was carried out with a sample of 30 participants from the target population. Feedback from the pilot was used to make minor revisions to the questionnaire's wording and format, enhancing its clarity and ease of

understanding. To maintain the validity and reliability of the research findings, the pilot study sample was excluded from the main study.

4-6-1 Validity Test:

Validity reflects the degree to which a questionnaire effectively measures what it is designed to assess, which is essential for producing credible and meaningful results (Nirmalan, 2021). This section outlines four types of validity: face validity, content validity, construct validity, and criterion-related validity.

4-6-1-1 Face Validity:

Face validity determines whether the questionnaire appears, at first glance, to measure the intended construct. While it is the simplest form of validity, it ensures that respondents find the questions clear and relevant (Mishra & Allen, 2023). In this study, face validity was established through a review by academic experts, who evaluated the clarity and relevance of the items.

4-6-1-2 Content Validity:

Content validity assesses whether the questionnaire adequately captures the full scope of the construct being measured. This is typically achieved through expert evaluations to confirm the comprehensiveness of the items (Shuttleworth, 2019). In this research, content validity was ensured by developing the questionnaire based on an extensive literature review and consulting experts in auditing and IT. Their feedback was used to confirm that all essential aspects of the construct were addressed.

4-6-1-3 Construct Validity:

Construct validity evaluates whether the questionnaire effectively measures the theoretical concept it is designed to assess. As detailed in *Appendix (B),* the questionnaire was translated into Arabic to ensure that Egyptian participants could fully comprehend its content. Careful attention was given to maintaining the original meaning and consistency with the theoretical constructs. High construct validity was established, confirming that the translated items accurately reflected the intended constructs (Agarwal, 2011).

4-6-1-4 Criterion-Related Validity:

Criterion-related validity evaluates how well the questionnaire correlates with an external standard (Ansari & Khan, 2023). Pearson correlation coefficients, shown in Table (4.5), assessed the relationship between questionnaire dimensions and external criteria. Coefficients above 0.7 indicate strong validity, confirming the dimensions effectively measure the intended constructs.

Table (4.5): *Pearson Correlation Coefficients for Criterion-Related Validity Analysis*

		FAF	ABCT	Average Total
FAF	**r**	1	0.988**	0.996**
	p	-	0.000	0.000
ABCT	**r**	0.988**	1	0.996**
	p	0.000	-	0.000
Average Total	**r**	0.996**	0.996**	1
	p	0.000	0.000	-

Pearson Correlation *is denoted by* ***(r) - Significance level*** *is denoted by* ***(p) - ** Correlation*** *is significant at* ***the 0.01 level (2-tailed)***.

Source: *SPSS Results*

Table (4.5) highlights Pearson correlation coefficients that strongly support the criterion-related validity of the FAF and ABCT dimensions. The correlations between these dimensions and the overall score are exceptionally high, ranging from 0.984 to 0.996, and are statistically significant at the 0.01 level. These results confirm a strong relationship between FAF, ABCT, and the overall construct, demonstrating that these dimensions effectively measure their intended aspects and contribute to the questionnaire's reliability and validity.

4-6-2 Reliability Test:

Reliability pertains to the consistency and stability of the responses a questionnaire produces over time. To evaluate the internal consistency and reliability of the study's questionnaire, the Cronbach's Alpha test was applied. This test determines how well the items in the questionnaire are interrelated, offering insight into the scale's reliability. Higher Cronbach's Alpha values indicate stronger reliability, with values exceeding 0.70 typically deemed acceptable in social science research.

Table (4.6): *Summary of Cronbach's Alpha Test Results*

Dimensions	Number of Items	Cronbach's Alpha
FAF	4	0.900
ABCT	10	0.887
Questionnaire as a Whole	**14**	**0.965**

Source: *SPSS Results*

Table (4.6) presents the reliability analysis results for the FAF and ABCT dimensions. The Cronbach's Alpha values are 0.900 for FAF and 0.887 for ABCT, both exceeding the accepted threshold of 0.70. These values indicate strong internal consistency, with items within each dimension effectively measuring the same underlying construct. The high-reliability scores affirm the questionnaire's effectiveness in providing consistent and reliable responses for these dimensions.

4-7 Data Analysis:

4-7-1 Normality Distribution Test:

Normality tests determine if data follow a normal distribution, which is crucial for selecting appropriate statistical methods. Parametric tests are used for normal data, while nonparametric tests are applied to non-normal data. This study employs the Kolmogorov-Smirnov (K-S) test with the following hypotheses:

H_0: Data follow a normal distribution.
H_1: Data do not follow a normal distribution.

A p-value less than 0.05 rejects H_0, indicating non-normality. Table (4.8) presents the K-S test results, highlighting significant deviations from normality.

Table (4.7): *Kolmogorov-Smirnov (K-S) Test Results*

Items	K-S	p-value	Items	K-S	p-value

FAF_1	0.186	0.000	$ABCT_4$	0.170	0.000
FAF_2	0.207	0.000	$ABCT_5$	0.180	0.000
FAF_3	0.200	0.000	$ABCT_6$	0.199	0.000
FAF_4	0.191	0.000	$ABCT_7$	0.200	0.000
$ABCT_1$	0.183	0.000	$ABCT_8$	0.209	0.000
$ABCT_2$	0.227	0.000	$ABCT_9$	0.185	0.000
$ABCT_3$	0.214	0.000	$ABCT_{10}$	0.211	0.000

Source: *SPSS Results*

The results in Table (4.7) demonstrate that all items exhibit K-S statistic values ranging from 0.170 to 0.227, with corresponding p-values uniformly at 0.000. This confirms significant deviations from normality at the 0.05 level for every item. For instance, $ABCT_2$ has the highest K-S statistic of 0.227, while $ABCT_4$ records one of the lowest at 0.170, both indicating substantial departures from normal distribution. Given the consistent non-normality across all items, data transformation is necessary to achieve normality, ensuring the reliability of the subsequent analysis and clarifying the impacts.

4-7-2 Statistical Analysis Techniques:

The data were analyzed using SPSS version 26, and the statistical methods applied are outlined below:

- **Descriptive Statistics:** Descriptive statistics were utilized to summarize the data, including:
  - **Frequency (F) Distribution:** Displays the frequency of each response, helping identify patterns and outliers in participants' views on the impact of using BCT by audit firms on audit fees.
  - **Mean:** Represents the average response, offering an overview of participants' opinions regarding using BCT by audit firms and audit fees.
  - **Standard Deviation:** Measures the variation in responses, helping assess the consistency and reliability of the data.

- **Inferential Statistics:** Inferential statistics were used to investigate relationships and test hypotheses, including:
  - **Multiple Regression Analysis:** Employed to explore the relationships between multiple independent variables and a

dependent variable. It assessed the effect of BCT-related factors on audit fees. The following conditions were checked:

- **Variance Inflation Factor (VIF):** Assesses multicollinearity. A VIF below 10 indicates no multicollinearity issues.
- **Durbin-Watson Statistic (DW):** Checks for autocorrelation in regression residuals. A value near 2 suggests no autocorrelation.
- **Multiple Correlation Coefficient (R):** Measures the strength and direction of relationships between the independent and dependent variables. Higher values indicate stronger correlations.
- **Coefficient of Determination (R^2):** Reflects the proportion of variation in the dependent variable explained by the independent variables.
- **Adjusted R^2:** Adjusts the R^2 value for the number of independent variables, providing a more accurate measure of explanatory power.
- **F-value:** Tests the overall significance of the model, showing whether the independent variables significantly explain the variance in the dependent variable.
- **t-value:** Indicates the significance of each independent variable's effect. A higher absolute t-value signifies a stronger influence on the dependent variable.
- **p-value:** Assesses statistical significance. A p-value below 0.05 leads to rejection of the null hypothesis, indicating a significant impact of the independent variable on the dependent variable.

4-7-3 Factors Determining Audit Fees:

4-7-3-1 Descriptive Statistics:

Table (4.8) illustrates the frequency and percentage distribution of responses for each factor affecting audit fees (FAF), categorized by agreement levels: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly

Disagree (1). This table highlights the degree of consensus among respondents on each factor.

Table (4.8): *F Distribution of The FAF Items*

Items		Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
FAF_1	F	265	103	-	-	-
	%	72	28	-	-	-
FAF_2	F	130	114	124	-	-
	%	35.3	31	33.7	-	-
FAF_3	F	246	122	-	-	-
	%	66.8	33.2	-	-	-
FAF_4	F	121	112	135	-	-
	%	32.9	30.4	36.7	-	-
Total	F	**762**	**451**	**259**	-	-
	%	**51.8**	**30.6**	**17.6**	-	-

Source: *SPSS Results*

According to Table (4.8), FAF_1 is the most supported factor, with 72% of respondents strongly agreeing. FAF_3 follows closely, with 66.8% of participants expressing strong agreement. FAF_2 displays a more varied distribution, with 35.3% strongly agreeing, 31% agreeing, and 33.7% remaining neutral. Similarly, FAF_4 demonstrates a balance, with 32.9% strongly agreeing, 30.4% agreeing, and 36.7% neutral.

Overall, 51.8% of respondents strongly agree, while 30.6% agree on the significance of these factors in determining audit fees, with 17.6% expressing a neutral stance. This distribution underscores a predominant consensus on the importance of these factors, despite some variability in specific items.

Table (4.9) complements this analysis by providing the mean and standard deviation for each factor, offering insights into the average level of agreement and the consistency of responses, respectively.

Table (4.9): *Mean and Standard Deviation of The FAF Items*

Items	Mean	Standard Deviation
FAF_1	4.72	0.450
FAF_2	4.02	0.832

FAF_3	4.67	0.471
FAF_4	3.96	0.834
Total	**4.34**	**0.670**

Source: *SPSS Results*

According to Table (4.9), FAF_1 has the highest mean of 4.72, with a standard deviation of 0.450, reflecting strong consensus among respondents. FAF_3 closely follows with a mean of 4.67 and a standard deviation of 0.471, indicating similar agreement levels. FAF_2 and FAF_4 have lower means of 4.02 and 3.96, respectively, with standard deviations of 0.832 and 0.834, suggesting moderate agreement but greater variability in responses.

The overall mean of 4.34 and a standard deviation of 0.670 emphasize a significant level of agreement across all factors, despite some variability within specific items. This consistency underscores the importance of these factors in determining audit fees.

4-7-3-2 Inferential Statistics:

Since the K-S test revealed that the data distribution is non-normal, as illustrated in Table (4.7), it is necessary to apply transformations to meet the assumptions required for conducting multiple regression analysis to test the research hypothesis. Table (4.10) displays the K-S test results, emphasizing the p-values for each variable both before and after transformation. The Rv.Normal function in SPSS is utilized to efficiently normalize the variables.

Table (4.10): *K-S Test Results Before and After Transformation for The FAF Items*

Items	K-S	p-value		Items	K-S	p-value	
		Before	After			Before	After
FAF_1	0.042	0.000	0.180	FAF_3	0.028	0.000	0.200
FAF_2	0.030	0.000	0.200	FAF_4	0.035	0.000	0.200

Source: *SPSS Results*

4-7-4 Hypothesis Testing:

The research hypothesis is presented in both null and alternative forms as follows:

H_0: There is no significant impact of using BCT by audit firms on audit fees.
H_1: There is a significant impact of using BCT by audit firms on audit fees.

4-7-4-1 Descriptive Statistics:

Table (4.11) outlines the frequency and percentage distribution of responses for each item under the research hypothesis, divided into five categories: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1). It illustrates the extent to which respondents agree or disagree with the research hypothesis.

Table (4.11): *F Distribution of The ABCT Items*

Items		Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
$ABCT_1$	F	108	151	109	-	-
	%	29.4	41	29.6	-	-
$ABCT_2$	F	101	132	135	-	-
	%	27.4	35.9	36.7	-	-
$ABCT_3$	F	95	113	160	-	-
	%	25.8	30.7	43.5	-	-
$ABCT_4$	F	252	116	-	-	-
	%	68.5	31.5	-	-	-
$ABCT_5$	F	121	138	109	-	-
	%	32.9	37.5	29.6	-	-
$ABCT_6$	F	244	124	-	-	-
	%	66.3	33.7	-	-	-
$ABCT_7$	F	239	129	-	-	-
	%	64.9	35.1	-	-	-
$ABCT_8$	F	103	147	118	-	-
	%	28	39.9	32.1	-	-
$ABCT_9$	F	259	109	-	-	-
	%	70.4	29.6	-	-	-
$ABCT_{10}$	F	254	114	-	-	-
	%	69	31	-	-	-
Total	F	**1776**	**1273**	**631**	-	-
	%	**48.3**	**34.6**	**17.1**	-	-

Source: *SPSS Results*

Table (4.11) presents a range of responses concerning auditor experience in auditing BCT transactions. For $ABCT_1$, 29.4% strongly agree, 41% agree, and 29.6% are neutral. $ABCT_2$ and $ABCT_3$ show higher neutrality rates, at 36.7% and 43.5%, respectively. Items such as $ABCT_4$, $ABCT_6$, $ABCT_7$, $ABCT_9$, and $ABCT_{10}$ demonstrate strong agreement, with over 60% of respondents expressing this view. In contrast, $ABCT_5$ and $ABCT_8$ reflect a more balanced distribution, with notable levels of both strong agreement and neutrality. Overall, the results indicate a predominantly positive perception, though certain items display a more varied response pattern.

Table (4.12) outlines the mean and standard deviation for each item related to the research hypothesis. The mean reflects the average agreement level, and the standard deviation highlights the degree of response variation.

Table (4.12): *Mean and Standard Deviation of The ABCT Items*

Items	Mean	Standard Deviation
$ABCT_1$	4.00	0.769
$ABCT_2$	3.91	0.797
$ABCT_3$	3.82	0.815
$ABCT_4$	4.68	0.465
$ABCT_5$	4.03	0.791
$ABCT_6$	4.66	0.473
$ABCT_7$	4.65	0.478
$ABCT_8$	3.96	0.775
$ABCT_9$	4.70	0.457
$ABCT_{10}$	4.69	0.463
Total	**4.31**	**0.650**

Source: *SPSS Results*

In Table (4.12), the mean values for ABCT items range from 3.82 to 4.70, reflecting a moderate to high agreement regarding auditor experience with BCT. $ABCT_9$ has the highest mean at 4.70, followed closely by $ABCT_{10}$ at 4.69 and $ABCT_4$ at 4.68. The lowest mean, 3.82, is observed for $ABCT_3$. Standard deviations remain relatively consistent, with $ABCT_9$ exhibiting the lowest at 0.457, while $ABCT_3$ shows the highest at 0.815. These findings indicate strong agreement on $ABCT_4$, $ABCT_6$, $ABCT_7$, $ABCT_9$, and $ABCT_{10}$, while $ABCT_3$ reflects greater variability in responses.

4-7-4-2 Inferential Statistics:

As shown in Table (4.7), the K-S test results revealed that the data does not follow a normal distribution. To meet the assumptions necessary for conducting multiple regression analysis for the first hypothesis, data transformations are required. Table (4.13) illustrates the K-S test results, emphasizing the significance of the p-values for each variable both before and after transformation. The variables were successfully normalized using the *Rv.Normal* function in SPSS.

Table (4.13): *K-S Test Results Before and After Transformation for The ABCT Items*

Items	K-S	p-value		Items	K-S	p-value	
		Before	After			Before	After
$ABCT_1$	0.030	0.000	0.200	$ABCT_6$	0.030	0.000	0.200
$ABCT_2$	0.026	0.000	0.200	$ABCT_7$	0.042	0.000	0.164
$ABCT_3$	0.033	0.000	0.200	$ABCT_8$	0.027	0.000	0.200
$ABCT_4$	0.040	0.000	0.200	$ABCT_9$	0.033	0.000	0.200
$ABCT_5$	0.033	0.000	0.200	$ABCT_{10}$	0.035	0.000	0.200

Source: *SPSS Results*

After transforming the data, multiple regression analysis was performed to examine the effect of auditor experience (independent variable) on audit fees (dependent variable), while considering potential confounding factors. Table (4.14) summarizes the findings of this analysis.

Table (4.14): *Multiple Linear Regression Analysis Results*

Independent Variable	FAF			
	Unstandardized Coefficients (β)	Significance		VIF
		t-value	p-value	
Constant	2.620	15.527	0.000	-
ABCT	0.274	6.776	0.000	1.000
Indicator			**Value**	
R			0.334	
R^2			0.111	
Adjusted R^2			0.109	
F-value			45.919	
DW Statistic			2.156	

Source: *SPSS Results*

Analysis of Results:

The VIF for the use of BCT by audit firms is 1.000, indicating no significant multicollinearity in the model. Additionally, the DW statistic is 2.156, suggesting the absence of autocorrelation among the variables, further supporting the reliability of the regression model. The multiple regression equation derived from the analysis is as follows:

$$AF = 2.620 + 0.274 \cdot ABCT$$

This equation implies that for every one-unit increase in the use of BCT by audit firms (ABCT), audit fees (AF) increase by 0.274, assuming all other factors remain constant.

In terms of model interpretation, the R-value is 0.334, and the R^2 value is 0.111, indicating that 11.1% of the variance in AF is explained by ABCT, with the remaining variance attributed to random error or other excluded variables.

The independent variable ABCT demonstrates a significant positive impact on AF, with a beta coefficient (β) of 0.274 and a p-value below 0.001. This highlights the critical role of BCT usage by audit firms in determining audit fees.

The overall model is statistically significant, evidenced by an F-value of 45.919. The t-value of 6.776 ($p = 0.000$) further confirms the strong and significant effect of ABCT on AF.

Based on these findings, the null hypothesis is rejected in favor of the alternative hypothesis, establishing that **there is a significant impact of using BCT by audit firms on audit fees.**

4-8 Remarks on the Key Findings:

The statistical analysis of the data reveals a significant impact of using BCT by audit firms on audit fees. Auditors with advanced experience in BCT auditing demonstrated higher accuracy in validating BC-based transactions,

which directly influenced audit costs. As auditors become more skilled in managing the complexities of BCT, they can provide higher-quality audits, thereby increasing fees. The regression results confirm that BCT experience is a crucial determinant of audit fees, with the statistical significance of the model further emphasizing its importance in shaping audit fees.

5- Conclusion, Recommendations, and Avenues for Future Research:

5-1 Conclusion:

The study highlights that using BCT by audit firms has a significant impact on audit fees. Firms that use BCT achieve greater accuracy in validating BC transactions, thereby improving audit quality. However, the complexities associated with managing BCT require additional resources, which leads to higher fees.

This finding aligns with previous research on auditor-related factors such as Reputation and Size, NAS, Industry Specialization, and Litigation Risk. Niemi (2004) observed that larger firms, like the Big Four, charge higher fees due to their ability to handle complex audits, and BCT further supports this by offering transparent, immutable records that enhance firm reputations and justify higher fees. Gokoglan et al. (2022) noted that integrating BCT into NAS improves audit accuracy and efficiency, enabling firms to provide valuable advisory services that justify higher fees. Zhou et al. (2021) emphasized that BCT enhances audit efficiency and quality for industry-specialized auditors, allowing them to command higher fees. Additionally, Huang et al. (2023) noted that while BCT reduces litigation risks through greater transparency, its complexity increases inherent and control risks, leading to higher audit fees to address these challenges.

5-2 Recommendations:

Develop Specialized BCT Auditing Programs: Audit firms should provide ongoing training in BCT, focusing on smart contracts, decentralized ledgers, and real-time auditing.

Integration of Continuous Auditing Systems: Firms should adopt technologies for continuous auditing, enabling real-time verification and reducing reliance on periodic audits.

Audit Fee Adjustment Strategies: Firms should create fee structures that reflect both the efficiencies and complexities introduced by BCT, ensuring fair compensation for specialized expertise.

Promote BCT-Driven Innovation in Auditing: Firms should explore BCT-enabled innovations like automated data verification and AI-assisted audits to enhance quality and offer additional services.

5-3 Avenues for Future Research:

Future studies could explore the following areas to expand on the results of this research:

- The Impact of Blockchain Technology on Audit Timeliness and Reporting Deadlines.
- The Impact of Blockchain Technology on the Reliability of Financial Audits.
- The Impact of Blockchain Technology on Audit Report Accuracy.
- The Impact of Blockchain Technology on Audit Firms' Ability to Manage Client Expectations.
- The Impact of Blockchain Technology on Audit Quality Assurance Practices.

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7- Appendices:

7-1 English Questionnaire:

Kafr El-Sheikh University
Faculty of Commerce
Accounting Department

Dear …….,

I am currently conducting a study titled **"The Impact of Blockchain Technology Usage by Audit Firms on Audit Fees: A Field Study in the Egyptian Environment"** as part of my master's thesis. As an expert in the field of auditing, your insights and experiences are crucial to understanding how emerging technologies are reshaping the industry. The questionnaire is designed to gather perspectives on how using blockchain technology by audit firms impacts audit fees. Participation is entirely voluntary, and all responses will be kept confidential and used solely for academic purposes. The survey will take approximately 10-20 minutes to complete.

Thank you for your time and contribution to this research.

Sincerely,

Ahmed Salah Mohamed Abo El-Ezz
Teaching Assistant at Accounting Department - Faculty of Business Administration - Horus University in Egypt

Supervised By:

Professor
Reda Ibrahim Saleh
Professor of Accounting, Former Vice President of Community Service & Environmental Affairs, Kafr El-Sheikh University

Doctor
Abdou Ahmed Ettish
Assistant Professor of Accounting, Faculty of Commerce, Kafr El-Sheikh University

Terms Used in The Questionnaire

Blockchain Technology (BCT): A decentralized digital ledger that records transactions across multiple computers, ensuring transparency, security, and immutability of data.

Section ① - Demographic Data

Please select the most appropriate option.

1. **Education Level:**
   - ☐ Bachelor's Degree.
   - ☐ Master's Degree.
   - ☐ PhD or Equivalent.
   - ☐ Professional Certification (e.g., CMA, CPA).
   - ☐ Other (Please Specify). ……

2. **Current Position:**
   - ☐ Auditor (Big Four Firm).
   - ☐ Auditor (Small/Local Firm).
   - ☐ Academic.

3. **Years of Experience:**
   - ☐ Under 5.
   - ☐ 5-Under 10.
   - ☐ 10-Under 15.
   - ☐ Above 15.

Section ② - Factors Determining Audit Fees

Measurement Items	Scale				
Instructions: Please indicate your level of agreement with the following statements regarding factors determining audit fees (FAF).	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
FAF_1 Audit firm reputation and size.					
FAF_2 Provision of non-audit services (NAS) by the firm.					
FAF_3 Industry specialization.					
FAF_4 Litigation risk.					

Section ③ - Using BCT By Audit Firms

Measurement Items		Scale				
Instructions: Please indicate your level of agreement with the following statements regarding using BCT by audit firms (ABCT).		**Strongly Agree (5)**	**Agree (4)**	**Neutral (3)**	**Disagree (2)**	**Strongly Disagree (1)**
$ABCT_1$	Auditing BC transactions requires a comprehensive understanding of Information Technology systems.					
$ABCT_2$	Auditors develop specialized skills to address the complexities of auditing BC-based transactions.					
$ABCT_3$	Auditors with experience in BCT auditing manage risks associated with its transactions effectively.					
$ABCT_4$	Auditors need continuous training to stay current with evolving methods for auditing BC transactions.					
$ABCT_5$	Auditors with experience in BCT are equipped to navigate the complexities introduced by smart contracts.					
$ABCT_6$	Auditors with BCT experience handle complex BC transactions with greater accuracy.					
$ABCT_7$	Auditors with experience in BCT systems validate the authenticity of audit evidence effectively.					
$ABCT_8$	Experience in BCT auditing allows auditors to review all transactions in real time, enabling fewer sampling requirements.					
$ABCT_9$	Auditors with BCT experience exhibit sound judgment in evaluating BC-based financial records.					
$ABCT_{10}$	Auditors with BCT experience contribute to audit quality through their understanding of BC systems.					

Section ④ - Additional Comments (Optional)

Please provide any additional comments or insights you have regarding the impact of using BCT by audit firms on audit fees:

……
……
……

Section ⑤ - Contact Information (Optional)

If you are willing to participate in a follow-up interview or provide further insights, please leave your contact information below:

- Name: ……
- Email: ……
- Phone Number: …….

Thank You

7-2 Statistical Tables:

Pearson Correlation Coefficients for Criterion-Related Validity Analysis

		FAF	ABCT	AverageTotal
FAF	Pearson Correlation	1	.988**	.996**
	Sig. (2-tailed)		.000	.000
	N	30	30	30
ABCT	Pearson Correlation	.988**	1	.996**
	Sig. (2-tailed)	.000		.000
	N	30	30	30
AverageTotal	Pearson Correlation	.996**	.996**	1
	Sig. (2-tailed)	.000	.000	
	N	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

Cronbach's Alpha Test Results

Factors Determining Audit Fees (FAF)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.900	4

Using BCT By Audit Firms (ABCT)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.887	10

Questionnaire as a Whole

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.965	14

Kolmogorov-Smirnov (K-S) Test Results

FAF Before Transformation

		FAF1	FAF2	FAF3	FAF4
N		368	368	368	368
Normal Parameters[a,b]	Mean	3.50	3.49	3.47	3.53
	Std. Deviation	1.298	1.343	1.306	1.291
Most Extreme Differences	Absolute	.186	.207	.200	.191
	Positive	.134	.141	.175	.129
	Negative	-.186	-.207	-.200	-.191
Test Statistic		.186	.207	.200	.191
Asymp. Sig. (2-tailed)		.000[c]	.000[c]	.000[c]	.000[c]

FAF After Transformation

		FAF1[n]	FAF2[n]	FAF3[n]	FAF4[n]
N		368	368	368	368
Normal Parameters[a,b]	Mean	3.3631	3.6150	3.5319	3.7970
	Std. Deviation	4.37483	2.41631	3.30153	4.14089
Most Extreme Differences	Absolute	.042	.030	.028	.035
	Positive	.029	.030	.028	.019
	Negative	-.042	-.023	-.024	-.035
Test Statistic		.042	.030	.028	.035
Asymp. Sig. (2-tailed)		.180[c]	.200[c, d]	.200[c, d]	.200[c, d]

ABCT Before Transformation

		ABCT1	ABCT2	ABCT3	ABCT4	ABCT5	ABCT6	ABCT7	ABCT8
N		368	368	368	368	368	368	368	368
Normal Parameters[a,b]	Mean	3.54	3.61	3.49	3.42	3.41	3.54	3.52	3.50
	Std. Deviation	1.254	1.284	1.343	1.307	1.334	1.270	1.320	1.337
Most Extreme Differences	Absolute	.183	.227	.214	.170	.180	.199	.200	.209
	Positive	.127	.161	.155	.136	.139	.147	.135	.149
	Negative	-.183	-.227	-.214	-.170	-.180	-.199	-.200	-.209
Test Statistic		.183	.227	.214	.170	.180	.199	.200	.209
Asymp. Sig. (2-tailed)		.000[c]	.000[c]	.000[c]	.000[c]	.000[c]	.000[c]	.000[c]	.000[c]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

		ABCT9	ABCT10
N		368	368
Normal Parameters[a,b]	Mean	3.46	3.58
	Std. Deviation	1.272	1.194
Most Extreme Differences	Absolute	.185	.211
	Positive	.164	.196
	Negative	-.185	-.211
Test Statistic		.185	.211
Asymp. Sig. (2-tailed)		.000[c]	.000[c]

ABCT After Transformation

		ABCT1[n]	ABCT2[n]	ABCT3[n]	ABCT4[n]	ABCT5[n]	ABCT6[n]	ABCT7[n]	ABCT8[n]
N		368	368	368	368	368	368	368	368
Normal Parameters[a,b]	Mean	3.4981	3.5216	3.5873	3.4491	3.3363	3.4047	3.8691	3.1407
	Std. Deviation	1.51428	2.33958	3.39575	4.23224	5.10705	6.17821	6.95268	7.75532
Most Extreme Differences	Absolute	.030	.026	.033	.040	.033	.030	.042	.027
	Positive	.027	.026	.026	.040	.033	.025	.025	.027
	Negative	-.030	-.023	-.033	-.027	-.028	-.030	-.042	-.015
Test Statistic		.030	.026	.033	.040	.033	.030	.042	.027
Asymp. Sig. (2-tailed)		.200[c, d]	.200[c, d]	.200[c, d]	.200[c, d]	.200[c, d]	.200[c, d]	.164[c, d]	.200[c, d]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

		ABCT9[n]	ABCT10[n]
N		368	368
Normal Parameters[a,b]	Mean	2.8303	3.5983
	Std. Deviation	8.90410	9.72204
Most Extreme Differences	Absolute	.033	.035
	Positive	.033	.035
	Negative	-.025	-.020
Test Statistic		.033	.035
Asymp. Sig. (2-tailed)		.200[c, d]	.200[c, d]

Descriptive Statistics Results

FAF Items

		FAF1	FAF2	FAF3	FAF4
N	Valid	368	368	368	368
	Missing	0	0	0	0
Mean		4.72	4.02	4.67	3.96
Std. Deviation		.450	.832	.471	.834

FAF1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	103	28.0	28.0	28.0
	5	265	72.0	72.0	100.0
	Total	368	100.0	100.0	

FAF2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	124	33.7	33.7	33.7
	4	114	31.0	31.0	64.7
	5	130	35.3	35.3	100.0
	Total	368	100.0	100.0	

FAF3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	122	33.2	33.2	33.2
	5	246	66.8	66.8	100.0
	Total	368	100.0	100.0	

FAF4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	135	36.7	36.7	36.7
	4	112	30.4	30.4	67.1
	5	121	32.9	32.9	100.0
	Total	368	100.0	100.0	

ABCT Items

Statistics

		ABCT1	ABCT2	ABCT3	ABCT4	ABCT5	ABCT6	ABCT7	ABCT8	ABCT9	ABCT10
N	Valid	368	368	368	368	368	368	368	368	368	368
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		4.00	3.91	3.82	4.68	4.03	4.66	4.65	3.96	4.70	4.69
Std. Deviation		.769	.797	.815	.465	.791	.473	.478	.775	.457	.463

ABCT1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	109	29.6	29.6	29.6
	4	151	41.0	41.0	70.7
	5	108	29.3	29.3	100.0
	Total	368	100.0	100.0	

ABCT2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	135	36.7	36.7	36.7
	4	132	35.9	35.9	72.6
	5	101	27.4	27.4	100.0
	Total	368	100.0	100.0	

ABCT3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	160	43.5	43.5	43.5
	4	113	30.7	30.7	74.2
	5	95	25.8	25.8	100.0
	Total	368	100.0	100.0	

ABCT4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	116	31.5	31.5	31.5
	5	252	68.5	68.5	100.0
	Total	368	100.0	100.0	

ABCT5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	109	29.6	29.6	29.6
	4	138	37.5	37.5	67.1
	5	121	32.9	32.9	100.0
	Total	368	100.0	100.0	

ABCT6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	124	33.7	33.7	33.7
	5	244	66.3	66.3	100.0
	Total	368	100.0	100.0	

ABCT7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	129	35.1	35.1	35.1
	5	239	64.9	64.9	100.0
	Total	368	100.0	100.0	

ABCT8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	118	32.1	32.1	32.1
	4	147	39.9	39.9	72.0
	5	103	28.0	28.0	100.0
	Total	368	100.0	100.0	

ABCT9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	109	29.6	29.6	29.6
	5	259	70.4	70.4	100.0
	Total	368	100.0	100.0	

ABCT10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4	114	31.0	31.0	31.0
	5	254	69.0	69.0	100.0
	Total	368	100.0	100.0	

Regression Analysis Results

The Impact of Using BCT by Audit Firms on Audit Fees

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.334[a]	.111	.109	1.85316	2.156

a. Predictors: (Constant), ABCT

b. Dependent Variable: FAF

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	157.695	1	157.695	45.919	.000[b]
	Residual	1256.912	366	3.434		
	Total	1414.607	367			

a. Dependent Variable: FAF

b. Predictors: (Constant), ABCT

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	2.620	.169		15.527	.000		
	ABCT	.274	.040	.334	6.776	.000	1.000	1.000

a. Dependent Variable: FAF