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The impact of using blockchain for audit on the credibility of accounting information

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Abstract
This research aims to examine the impact of using block chain technology to audit the credibility of financial information in Iraqi commercial banks. The study focuses on the banking sector, specifically the commercial banks listed on the Iraq Stock Exchange, which numbered 25 banks at the end of 2023. The research community includes managers, deputy managers, accountants, and internal auditors working in these commercial banks. Arithmetic means and relative weights were analyzed using SPSS to derive the results. One of the research's main findings is the existence of a statistically significant positive correlation between block chain technology for auditing and the credibility of accounting information, with a correlation coefficient of (0.680). This indicates a strong positive correlation between block chain technology for auditing and the credibility of accounting information. The study recommends highlighting the importance of block chain technology for auditing and its role in the credibility of accounting information through lectures, conferences, seminars, and training courses.

Keywords: Block chain, internal audit, accounting information

Introduction
Today's world is experiencing a rapid technological revolution, where information technology and electronic technologies have become crucial resources comparable in importance to human and material resources. The emphasis on information technology and the extent to which some institutions keep up with technological advancements have become competitive advantages. These advancements are extensively utilized to achieve institutional goals. The use of block chain technology for auditing has emerged as a contemporary issue, driven by the recognition among auditors of its significance and its benefits in the auditing process, ultimately enhancing the credibility of audit findings**.** Electronic data processing has become essential for both large and small institutions, aiming primarily to increase the efficiency of their activities. The importance of auditing has also significantly increased for these institutions due to the emergence of a new regulatory environment, which differs from traditional oversight methods. Challenges that auditors face with conventional methods, making their work challenging and strenuous, have diminished with the advent of computer usage. This shift has enabled comprehensive oversight of institutional accounts, thereby serving the interests of users of accounting information, including shareholders, investors, and stakeholders who rely on the accuracy of the information provided in financial statements.

Chapter One: Research Methodology
Research Problem
Information and communication technology developments have impacted the business environment in general and the accounting environment. The spread of electronic technologies and significant advancements across most economic sectors have created a need for auditors to provide their services with the highest efficiency and effectiveness. This, in turn, can influence the quality and reliability of the accounting information obtained from financial reports issued by auditors, illustrating the financial status of economic entities and aiding users and shareholders in making informed decisions.

This research needs to answer the primary question: Does using blockchain technology for auditing impact the credibility of accounting information in the studied banks?

This primary question leads to several sub-questions

- Does the use of block chain technology for auditing affect the integrity of information in the studied banks?
- Does the use of block chain technology for auditing affect information neutrality in the studied banks?
- Does the use of block chain technology for auditing impact the overall credibility of accounting information in the studied banks?

Research Importance

This research is important because it focuses on block chain technology for auditing and its significance to users who rely on information obtained from audited financial reports of economic units. This information is essential for users to make various decisions. Additionally, there is a scarcity of studies exploring the relationship between the variables of block chain for auditing and the credibility of financial information.

Research Objectives

The primary objective of this research is to understand the impact of using block chain technology for auditing on the credibility of financial information in Iraqi commercial banks. This objective is pursued through a series of sub-goals, as follows:

- Identifying the importance and advantages of using block chain technology for auditing.
- Exploring the risks associated with the use of block chain technology for auditing.
- Examining the degree of credibility of financial information applied in Iraqi commercial banks.

Research Hypothesis

This research is based on the following hypothesis:

- **(H1):** The primary hypothesis states that using block chain for auditing impacts the overall credibility of accounting information and its dimensions in the studied banks.
- This primary hypothesis is divided into three sub-hypotheses:
- **(H1.1):** The first sub-hypothesis states that the use of block chain for auditing impacts the integrity of information in the studied banks.
- **(H1.2):** The second sub-hypothesis states that the use of block chain for auditing impacts information neutrality in the studied banks.
- **(H1.3):** The third sub-hypothesis states that using block chain for auditing impacts the overall credibility of accounting information in the studied banks.

Chapter Two: Theoretical Framework

Concept and Importance of Block chain

There are various definitions of block chain technology. According to Soon duck (2017: 4) [12], it is a distributed ledger shared among all members participating in the network, documenting all transactions within it. It is also defined as a technology through which all parties can reach an agreement using shared digital ledgers or wallets without relying on an intermediary. Digital wallets are essential because digital assets and transactions can easily be falsified (Stratopolos & Calderon, 2018: 23) [13]. (Al-Ruhaili, 2020: 23) [6] Explained that each transaction is linked to a chain, allowing participants to access data about all events in the system with clarity and transparency. Block chain technology contributes to managing and storing information in a decentralized manner, making it possible to retrieve information about a piece of land from the issuance of its deed to its most recent owner in a connected, sequential manner, focusing on information from its inception.

From reviewing these definitions, the researcher sees block chain as an encrypted program for recording transactions in a unified ledger on the Internet.

Block chain offers significant benefits to economic entities by solving problems and maintaining coordinated records (George *et al*., 2019: 14) [14], as well as improving coordination and information exchange between related parties. This reduces the time required and accelerates processes in economic entities (Suda *et al*., 2017:13) [15]. Trust among users increases as it becomes harder to modify previous blocks, and block chain can reduce errors during data entry, as these entries are immutable. Any attempt at fraud can be easily detected, thereby increasing trust among users. Block chain also allows for error tracking within the chain. Additionally, a database owned and managed by a single party is a key aspect of blockchain technology, summarized as follows:

Programming: Block chain can store programming codes and inputs made to the ledger. Daily entries, known as smart contracts, are generated automatically during operation.

- **Immutability:** Each participant holds a copy of the general ledger, where transactions cannot be changed but only added. Each member retains a complete record that consensus algorithms can review and verify.
- **Distribution:** In block chain technology, multiple copies of the general ledger exist, accessible to all participants. All copies are identical and uncontrollable by any single entity. Transactions are processed quickly and shared with all network participants.

Accounting Applications of Block chain

Public and Private Block chain

- **Public (Open) Block chain:** This type of block chain is open and accessible to everyone, meaning anyone can access and conduct transactions. It allows participants in the network to contribute to the process by accessing and passing transactions.
- **Private Block chain:** Unlike the public type, private block chain has a specific structure with restricted access, allowing only a set list of participants. It restricts network nodes, permitting only those who can verify transaction validity and participant identity. This type of block chain is used for applications such as company profit listings, government financial records, armed forces, and national defence (Smith, 2020: 10; O'Leary, 2017:140) [16, 17].

Crypto currency

There are numerous crypto currencies, each with unique features that may vary from one currency to another. Some are tied to a commodity or service to maintain value. Crypto currencies are used for payments and transfers. One of these currencies is Bitcoin, a decentralized payment system that operates over the internet (Swan, 2019) [18].

Smart Contracts

Smart contracts are self-executing contracts that enable reliable transactions without needing a third party. They build trust between parties by enforcing transactions based on predefined terms and conditions. Smart contracts have several features, including impartiality and independence from intermediaries, as agreements are stored on the block chain network.

In summary, many block chain applications exist to explore, including its use in banks, crypto currencies, and smart contracts.

Concept of Internal Auditing

Several definitions of internal auditing have been provided by researchers and professional organizations. The American Institute of Auditors first defined internal auditing 1947 as an independent activity for monitoring an organization's accounting and financial operations, providing preventive and corrective support to management. This type of oversight aims to examine and evaluate the effectiveness of internal controls (Yusuf & Othman, 2017: 13) [1]. Additionally, the Arab Institute of Accountants defines it as an independent activity that monitors management and accounting, working to improve resource use to ensure productivity efficiency (Abu Watafa & Helis, 2016: 15) [4]. (Enofe *et al*. 2013: 163) [11] view internal control as part of a system implemented by management to ensure adherence to established procedures.

(Abdelrahman and Banasser 2022: 62) [5] describe internal auditing as a comprehensive system containing various monitoring methods and procedures to set standards designed by management and implemented across all employees. It aims to establish reasonable confidence, achieve organizational goals, enhance operational efficiency and effectiveness, and ensure the accuracy and reliability of financial reports.

The researcher concludes from these definitions that internal auditing is an independent, objective activity aimed at adding value to the organization, improving its processes, and monitoring activities to assist individuals in performing their tasks effectively through recommendations and feedback.

Objectives of Internal Auditing

One of the main objectives of internal auditing is to ensure the accuracy of accounting data, verify the integrity of records, and safeguard the institution's assets from fraud and errors. Internal auditing plays a role in increasing the organization's value and enhancing its operations by improving internal audit procedures. The objectives of internal auditing can be summarized as follows (Ali & Zidan, 2012: 99) [3] (Suleiman & Hassan, 2015: 49) [2] (Yusuf & Othman, 2017:16) [1]:

- Ensuring the efficient use of economic resources.
- Verifying that accounting data and information are accurate and reliable.
- Protecting the organization's assets from fraud, error, and embezzlement through stringent controls over operations.
- Conducting regular reviews of activities and submitting reports to senior management that include results and recommendations.
- Monitoring the implementation and evaluation of plans and policies by identifying weaknesses or deficiencies in procedures and systems for improvement and adjustment.
- The researcher views internal auditing as a service providing advisory and oversight functions covering administrative and financial activities. Its objectives extend beyond traditional auditing to include constructive goals to assist management in achieving its objectives, executing plans, and enhancing policies.

Block chain from an Auditing Perspective

International auditing standards require auditors to provide reasonable assurance that financial statements are free from errors, whether due to fraud or omission. When auditors obtain reasonable assurance, they apply professional judgment throughout the audit process, considering that audit procedures must detect errors and fraud effectively. The auditor's objective is to provide an impartial opinion on the fairness and credibility of the financial reports, ensuring that they have been prepared following generally accepted accounting principles (Al-Nakhal, 2019: 14-16) [9].

The parties that fall under the auditor's responsibility include the first party (the client), with whom the contract defines the auditor's relationship. The auditor is responsible for compliance with the contractual terms. The second part consists of users, such as current and prospective investors, banks, and other entities with access to the economic entity's financial reports. Auditors face several opportunities and challenges when applying block chain technology.

Opportunities

One significant opportunity for auditors using block chain is that stored data is immutable, transparent, and verifiable. Accessing this information directly within reports allows auditors to verify all transactions throughout a period, making traditional sampling methods less necessary. Additionally, block chain enables auditors to review transactions over the Internet, enhancing efficiency.

Challenges

Despite the integrity of block chain transactions, errors and fraud cannot be eliminated. For instance, if hackers attack a block chain, there is no central authority to report the breach, potentially increasing the risks of fraud and deception (Farcane & Deliu, 2020:19) [19].

Block chain technology offers auditors a robust tool for verifying the integrity of financial data. Still, it also introduces new complexities and risks that must be managed to maintain trust in the audit process.

Characteristics of the credibility of accounting information

- **Understandability:** Refers to the ability of information to be comprehensible to relevant parties and users, with no ambiguity or lack of clarity (Lakhder, 2014: 25-26) [10].
- **Relevance:** Information should meet the needs and preferences of decision-makers, enabling them to make decisions that provide the most significant benefit and the best possible outcomes.
- **Reliability:** Information should be free from errors, bias, and lack of credibility.
- **Comparability:** Information should allow for comparisons across different years, enhancing its usefulness for analysis.

- **Conservatism:** Accounting information should include a degree of conservatism balanced with credibility and relevance in financial statements.

Chapter Three: Analytical Aspect of the Research

This chapter focuses on conducting an analytical review of the data collected from the research field using a survey tool designed for this research.

Research Methodology

The researcher adopted an analytical survey approach, utilizing a questionnaire and following a descriptive-analytical method, which is most suitable for the research style. The contingency theory was applied in this study to assess the influence of contemporary trends, represented by adopting and using block chain technology for auditing, on the credibility of accounting information. Various statistical methods were used for descriptive and inferential analysis, including central tendency measures, Pearson's correlation coefficient, and linear regression equation, using the statistical software SPSS Ver. 22.

Data Collection

The research field comprises the banking sector, specifically the 25 commercial banks listed on the Iraq Stock Exchange at the end of 2023. This sector was chosen due to its relevance to the research topic, focusing on the impact of various information technology methods on accounting information outputs in these banks. The Iraqi banking sector is among the sectors striving to keep pace with modern technological approaches.

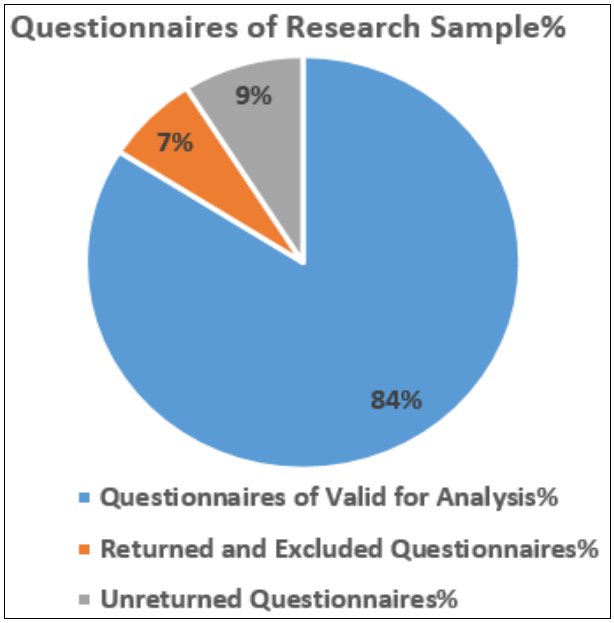
The research population includes managers, deputy managers, accountants, and internal auditors in these commercial banks. The researcher used Green's (1991) formula to determine the minimum sample size for analysis:

$$n > 50 + 8(P)$$

where $P = 1$, thus:

$$n = 50 + 8(1) = 58$$

Therefore, the minimum required sample is 58 questionnaires. The researcher distributed 100 electronic and paper questionnaires as the primary data collection tool to meet this requirement. Of these, 91 were returned, with seven questionnaires excluded due to incomplete data. This left 84 valid questionnaires for analysis, representing 84% of the distributed forms, covering the required minimum. Figure (1) displays the distribution and recovery rate of the questionnaires.



Source: Prepared by the researcher.

Fig 1: Percentage of Questionnaires Valid for Analysis

3. Measurement of Variables

The research includes two types of variables (independent and dependent), measured using a questionnaire designed by the researcher. The questionnaire consists of two sections: the first is dedicated to measuring the independent variable, blockchain technology for auditing, represented by 20 statements in this part of the questionnaire. The second section is focused on measuring the dependent variable, the credibility of accounting information, represented by two dimensions (proxies): (A) information integrity and (B) information neutrality. This variable is measured through 9 statements, with five statements for the first dimension and 4 for the second. Table (1) presents the structure of the questionnaire.

Table 1: Structure of the Questionnaire

Section	Variable Type	Variables and Dimensions	Code	Count
First	Independent	Block chain for Auditing	BC	20 (X1-X20)
Second	Dependent	A. Information Integrity	II	5 (Y1-Y5)
	Dependent	B. Information Neutrality	IN	4 (Y6-Y9)
	Dependent	Credibility of Accounting Information	RAI	9 (Y1-Y9)

Source: Prepared by the researcher.

The responses of the surveyed individuals were expressed using a five-point Likert scale (Strongly Agree = 5, Agree = 4, Somewhat Agree = 3, Disagree = 2, strongly Disagree = 1) to quantify the data and convert qualitative responses into quantitative values. The researcher divided the mean of participants' responses into five categories, using a category width of (0.8), calculated by the formula (Highest Value - Lowest Value / Number of Categories). The categories for the mean agreement intensity are as follows:

- **Very Weak:** 1 to less than 1.8
- **Weak:** 1.8 to less than 2.6
- **Acceptable:** 2.6 to less than 3.4
- **High:** 3.4 to less than 4.2
- **Very High:** 4.2 to 5

Testing the Research Tool

The research tool, represented by the questionnaire, was tested for internal validity and reliability. The validity of the questionnaire was measured using the square root of Cranach's alpha coefficient to ensure that the statements accurately represent the variables intended for measurement. Table (2) shows that the computed validity coefficients ranged from 0.836 to 0.907, indicating high values that reflect internal validity within the questionnaire. The reliability of the questionnaire was tested using Cranach's alpha, which assesses the consistency of the questionnaire if it were redistributed to the same individuals under similar conditions, aiming for similar results. The acceptable Cranach's alpha coefficient value is 60%. Reviewing Table (2), it can be observed that the coefficients range from 0.699 to 0.823, which are high values exceeding the minimum acceptable threshold. This confirms the questionnaire data's dependability and reliability for further statistical analysis.

Table 2: Validity and Reliability of the Questionnaire

Variables and Dimensions	Code	Validity Coefficient	Cronbach's Alpha Coefficient
Blockchain for Auditing	BC	0.889	0.791
A. Information Integrity	II	0.907	0.823
B. Information Neutrality	IN	0.836	0.699
Credibility of Accounting Information	RAI	0.877	0.769

***Source*:** Table prepared by the researcher using SPSS.

Description of the Trends in Participants' Responses to Questionnaire Statements

Table (4) describes the trends in the sample participants' responses to the questionnaire statements for the variables of block chain for auditing and the credibility of accounting information. This is based on the mean, standard deviation, relative importance, and level of agreement intensity.

Table 4: Description of the Trends in Participants' Responses

#	Statement	Mean	Standard Deviation	Relative Importance	Agreement Intensity
X1	Block chain technology helps in improving efficiency and the ability to achieve different activities in economic units accurately and effectively.	4.333	0.474	86.67%	Very High
X2	Block chain technology facilitates accurate and reliable auditing processes.	4.452	0.524	89.05%	Very High
X3	Using block chain technology in accounting information systems provides reliable financial audit information.	4.405	0.518	88.10%	Very High
X4	Block chain technology provides sufficient flexibility for auditors to use in financial audits.	4.262	0.518	85.24%	High
X5	Block chain technology positively affects transparency in financial data presentation.	4.429	0.555	88.57%	Very High
X6	Block chain technology affects the speed and accuracy of audit work.	4.488	0.526	89.76%	Very High
X7	Block chain technology enhances the protection of accounting information systems from potential security risks.	4.107	0.728	82.14%	High
X8	Using block chain technology improves data security and prevents unauthorized access.	4.071	0.788	81.43%	High
X9	Block chain technology reduces the possibility of fraudulent accounting information.	4.429	0.521	88.57%	Very High
X10	Block chain technology supports long-term data storage with minimal risks.	4.488	0.526	89.76%	Very High
X11	Block chain technology provides accuracy in financial data representation and prevents errors.	4.321	0.519	86.43%	Very High
X12	Block chain technology ensures completeness in customer data verification and supports informed decision-making.	4.500	0.570	90.00%	Very High
X13	Block chain technology limits human intervention and reduces fraud in financial processes.	4.369	0.485	87.38%	High
X14	Block chain technology increases auditors' confidence in data accuracy and completeness.	4.298	0.597	85.95%	High
X15	Using block chain technology ensures transparency in financial reports.	4.298	0.617	85.95%	High
X16	Block chain technology allows for complete data access and provides updated and recent information.	4.298	0.629	89.00%	Very High
X17	Block chain technology protects financial data from unauthorized changes or modifications.	4.230	0.717	84.60%	High
X18	Block chain technology in financial reports supports fast and efficient information retrieval.	4.200	0.788	84.00%	High
X19	Block chain technology helps in verifying customer data comprehensively.	4.500	0.570	90.00%	Very High
X20	Block chain technology supports impartiality and neutrality in financial decision-making.	4.476	0.502	89.52%	Very High
Y1	Block chain technology strengthens trust in financial data representation and reliability.	4.370	0.510	87.40%	High
Y2	Block chain technology positively impacts data neutrality in financial reporting.	4.420	0.496	88.40%	High
Y3	Block chain technology limits human intervention and enhances objectivity in financial reporting.	4.360	0.530	87.20%	High

***Source*:** The researcher prepared the table using SPSS software.

It is observed from Table (4) that there is a high level of importance associated with the use of block chain for auditing accounts, as perceived by the sample of employees in the banks surveyed for all (20) statements. The mean values for these statements exceeded the assumed mean value of (3), further emphasized by the high relative

importance for all statements and a high or very high level of agreement. This reflects the perceived importance of using block chain for auditing in the surveyed banks. The statement (X12), "Block chain enables the auditor to handle both sometimes-variable and conflicting data and sometimes-regular and irregular data," recorded the highest level of agreement with a mean value of (4.500). In contrast, statement (X8), "Block chain helps the auditor use better methods for gathering evidence," recorded the lowest level of agreement with a mean value of (4.107).

Regarding the variable of accounting information credibility, the responses indicate a high level of agreement for the availability of all (9) statements for this variable. The calculated mean values for these statements exceeded the assumed mean value of (3) and high relative importance values for all statements. This affirms the high level of agreement, as perceived by the sample of employees in the surveyed banks, regarding the availability of credible accounting information. The statement (Y9), "There are specific bank policies ensuring financial system neutrality and lack of bias in the information presented in financial statements," recorded the highest level of agreement with a mean value of (4.450). Meanwhile, statement (Y5), "There are specific bank policies ensuring the integrity of its financial system, affecting the accuracy and honesty in presenting information in financial statements," recorded the lowest level of agreement with a mean value of (4.180).

The low standard deviation values and the low coefficient of variation (below the assumed value of 50%) indicate consistency and lack of dispersion in the sample's responses. This enhances the reliability of the mean values, reflecting high agreement on the significance of using blockchain for auditing accounts and the credibility of accounting information statements.

Descriptive Analysis

The researcher relied on the mean, standard deviation, and minimum and maximum values to conduct a descriptive analysis of the blockchain for auditing variable and the accounting information credibility variable with its two dimensions (A. Information Integrity, B. Information Neutrality). Table (5) presents the results of this analysis.

Table 5: Descriptive Analysis of Research Variables

Variables & Dimensions	Symbol	Mean	Std. Deviation	Min Value	Max Value	Relative Importance %	Coefficient of Variation	Intensity of Agreement	Skewness
Block chain for Auditing	BC	4.353	0.255	3.650	4.90	87.06%	5.85%	Very High	0.195
Information Integrity	II	4.319	0.405	3.00	5.00	86.38%	9.38%	Very High	0.358
Information Neutrality	IN	4.484	0.353	2.750	5.00	86.67%	11.16%	Very High	-0.937
Accounting Information Credibility	RAI	4.325	0.353	3.333	5.00	86.51%	8.15%	Very High	-0.188

***Source*:** Table prepared by the researcher using SPSS software.

Table (5) indicates a high level of awareness among the surveyed individuals in the studied banks regarding the benefits and importance of using blockchain technology for auditing. This is evidenced by the mean score of 4.353, which exceeds the hypothetical mean of 3, alongside a high relative importance of 87.06%. The low standard deviation and coefficient of variation indicate minimal dispersion in the responses, enhancing the reliability of the mean results.

Additionally, the table shows a high availability of accounting information credibility in its two dimensions (A. Information Integrity, B. Information Neutrality), as the mean scores exceed the hypothetical value of 3. This high agreement on the availability of accounting information credibility is further supported by the mean of 4.325 and the relative importance value of 86.51%. At the dimensional level, it is noted that the "B. Information Neutrality" dimension achieved the highest level of agreement, with a mean of 4.333, followed by "A. Information Integrity," with a mean of 4.319. The low values of standard deviation and coefficient of variation, below the hypothetical threshold of 50%, indicate consistency and lack of dispersion in the responses, further enhancing the reliability of the mean results.

Test of Normal Distribution

The researcher used the Skewness coefficient to verify the data distribution's normality and ensure that the data were normally distributed. Data are considered generally distributed for the variables and dimensions of the study when the Skewness coefficient falls within the range of (+1 to -1). Referring to Table (5), it is observed that the calculated Skewness values for the variables and dimensions of the study are within the specified range, indicating that the data are typically distributed and meet the normality requirement. Therefore, the researcher can use parametric statistical methods to test the research hypotheses.

Relationship Testing

The Pearson correlation coefficient was calculated to determine the significance, strength, and direction of the relationship between the blockchain auditing variable and the accounting information credibility variable, with its two dimensions (A. Information Integrity, B. Information Neutrality). Table (6) presents the correlation matrix.

Table 6: Correlation Matrix between Block chain and Accounting Information Credibility

Variable	Accounting Information Credibility	A. Information Integrity	B. Information Neutrality
	Block chain for Auditing	0.825**	0.710**
0.609**	(Pearson)	0.000	0.000
0.000			

(**) Significant at 1% level, (*) Significant at 5% level

***Source*:** Table prepared by the researcher using SPSS

The analysis in Table (6) reveals a statistically significant positive (Direct) correlation at a significance level of less than 5% between the block chain audit variable and the credibility of the accounting information variable, with its

two dimensions (A. Information Integrity and B. Information Neutrality). This indicates that an increased tendency among the surveyed banks to leverage the advantages of block chain auditing will also be accompanied by an increase in the credibility of accounting information. Additionally, it is observed that the most vital relationship exists between the use of block chain for auditing and the credibility of accounting information, followed by its relationship with the dimension (A. Information Integrity) and lastly with the dimension (B. Information Neutrality), as indicated by the correlation coefficient values.

Hypothesis Testing

This section includes one central hypothesis, as follows:

(H1) Main Hypothesis: Using block chain technology for auditing impacts the overall credibility of accounting information, with its dimensions, in the surveyed banks.

This main hypothesis branches into three sub-hypotheses as follows:

(H1.1) First Sub-Hypothesis: Using block chain technology for auditing impacts the dimension of Information Integrity in the surveyed banks.

To test this hypothesis, a simple linear regression equation was prepared to estimate the dimension of Information Integrity through the block chain audit variable, to determine the level of impact of the latter on the dimension of Information Integrity within the accounting information in the surveyed banks. Table (7) displays the results of this test.

Table 7: Results of the Effect of Block chain Auditing on the Information Integrity Dimension

Variables	(R^2)	(Sig.)
Block chain Auditing	0.504	0.000
F	83.416	(Sig.)
T	9.133	(β)
Block chain Auditing Effect	0.710	SPSS

***Source*:** The researcher prepared the table using SPSS software.

The findings in Table (7) confirm the validity of the regression model, as indicated by the F-value of 83.416 at a significance level below 5%. This suggests that the block chain auditing variable can estimate the information integrity dimension. Additionally, the T-value of 9.133 at a significance level below 5% points to a significant effect. The positive Beta (β) regression coefficient value of 0.710 indicates a positive impact, meaning that a higher level of block chain usage for auditing in the banks under study will positively affect the integrity of accounting information within these banks by increasing the level of this dimension. Meanwhile, the R-squared (R^2) value of 0.504 shows that block chain auditing explains 50.4% of the variations in the information integrity dimension. Therefore, the first sub-hypothesis is accepted.

(H1.2). The second sub-hypothesis: The impact of using block chain for auditing on information neutrality in the banks under study is significant. To test this hypothesis, a simple linear regression equation was formulated to estimate the neutrality of the information dimension using the block chain auditing variable, aiming to determine the latter's impact on the neutrality of accounting information in the banks under study. Table (8) presents the test results.

Table 8: Results of the Impact of Block chain Auditing on the Dimension of Information Neutrality

Variables	(R^2) Determination Coefficient	(Sig.) Significance Level
Block chain Auditing	0.371	0.000
(F) Value	48.363	0.000
(T) Value	6.954	0.000
Beta (β) Coefficient	0.609	N/A

***Source*:** Prepared by the researcher based on the output from (SPSS).

It is observed from Table (8) that the validity of the regression model is confirmed by the value of (F), which is (48.363) at a significance level of less than 5%. This indicates the possibility of estimating the "Neutrality of Information" dimension through the "Block chain Auditing" variable. The (T) value of (6.954) at a significance level of less than 5% suggests a significant effect. In contrast, the positive value of the Beta (β) regression coefficient, amounting to (0.609), points to a positive influence. This means that increased block chain auditing usage in the surveyed banks will positively impact the neutrality of accounting information within these banks, enhancing this dimension. Furthermore, the determination coefficient (R^2) of (0.371) indicates that block chain auditing accounts for (37.1%) of the variance in the neutrality of information. Therefore, the second sub-hypothesis is accepted.

Table 9: Results of Block chain Auditing Impact on Accounting Information Credibility

Variables	(R^2)	(F)	(Sig.)
Block chain Auditing	0.680	174.138	0.000
	(β)	(T)	(Sig.)
	0.825	13.196	0.000

***Source*:** Prepared by the researcher based on the output from (SPSS)

Source: The researcher prepared the table based on the SPSS program.

Table (9) demonstrates the validity of the regression model, as indicated by the (F) value of 174.138 at a significance level below 5%, suggesting that it is possible to estimate the credibility of accounting information through the block chain auditing variable. Additionally, the (T) value of 13.196 at a significance level below 5% indicates a significant effect, while the positive regression coefficient beta (β) of 0.825 reflects a positive impact. This implies that the increased use of block chain technology for auditing in the surveyed banks would positively influence the credibility of accounting information by enhancing this credibility level. The coefficient of determination (R^2) value of 0.680 suggests that block chain auditing accounts for 68% of the observed changes in accounting information credibility. Therefore, the third sub-hypothesis is accepted, and based on the results of the sub-hypotheses, the study's main hypothesis can be confirmed.

Conclusions and Recommendations

A. Results

The researcher aimed to examine the impact of using block chain technology for auditing on the credibility of accounting information and reached a set of conclusions and

recommendations as follows:

1. A statistically significant positive correlation was found between block chain technology for auditing and the credibility of accounting information, with a correlation coefficient of 0.680, indicating a strong positive association between block chain technology for auditing and accounting information credibility.
2. Block chain technology transforms the role of the internal auditor by enhancing the audit process and enabling electronic auditing. This advancement presents various opportunities and updates for auditors, mainly when auditing accounting systems incorporating block chain technology.
3. Block chain technology allows for transparent and continuous distribution of accounting information to stakeholders within an economic unit. It safeguards the unit's information against unauthorized access and promotes the principle of consensus among block chain participants for adding or modifying specific transactions.

B. Recommendations

1. Through lectures, conferences, seminars, and training sessions, emphasize the importance of block chain technology for auditing and its role in enhancing the credibility of accounting information.
2. Accountants and auditors should deepen their understanding of block chain technology. Designing financial accounting systems that use block chain requires financial experts with substantial knowledge of finance and a deep understanding of this technology.

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