World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 35, June, 2024
ISSN: 2749-3628,

UTILIZING BLOCKCHAIN TECHNOLOGY TO ENHANCE THE TRACKING OF FINANCIAL TRANSACTIONS WITHIN SUPPLY CHAINS

Mohammed Hasan Kareem Al-Thabhawee
Iran University of Urmia Accounting
gjdhffnfbbf@gmail.com

Article history:

Received: 26th April 2024
Accepted: 20th May 2024

Abstract:

The research aimed to study the impact of using blockchain technology to improve tracking the movement of funds in supply chains in Iraqi commercial banks. The research population consisted of Iraqi commercial banks, with the Baghdad Commercial Bank chosen as the research sample. Among the most important results was that the application of blockchain technology improved the financial performance of the Commercial Bank of Baghdad and worked to achieve transparency and security in completing financial transactions. One of the prominent proposals was that accountants and auditors must delve deeply into blockchain technology because the design of financial systems will require financial experts who combine financial sciences with in-depth knowledge of technology.

Keywords: Block chain technology - Blockchain - tracking the movement of money - supply chains.

THE INTRODUCTION:

Blockchain technology is set to drastically transform our online world, with Bitcoin being the first application of this technology. It has revolutionized the internet by enabling the transfer of value across the World Wide Web without the need for a central authority. The digitization and democratization of trust through blockchain technology paves the way for a new class of applications and companies to flourish.

The fundamental shift brought about by blockchain technology moves us away from the reliance on a central, trusted authority to a widely distributed network, where multiple sources of trust must agree to complete a transaction based on a certain algorithm that can be trusted.

Blockchain technology is one of the most powerful innovations in the banking sector in the Arab world. This foundational technology was created to enhance the financial services infrastructure, improving the quality of banking services provided, which impacts both local remittances and international financing services, therefore enhancing the financial performance of these banks.

The tracking of funds movement and evaluation of the financial performance of commercial banks are highly important to owners and depositors. Hence, a set of ratios and financial indicators have been developed to measure the profits achieved by these banks. Additionally, the financial statements of banks are used to draw up the banks' future plans.

THE RESEARCH PROBLEM:

In the current landscape of banking, institutions are facing numerous challenges due to the rise of modern technology and the competition with both local and international banks. To stay ahead, banks must embrace modern technologies to improve the financial services they offer and enhance their overall performance. One of the most crucial technologies in this regard is Blockchain. Research has shown that Blockchain technology is not only more secure and efficient, but it also offers significant advantages to the financial industry. Therefore, it is essential to examine the impact of implementing Blockchain technology on tracking the movement of money in banking supply chains. The study will focus on the following main question:

What is the impact of using blockchain technology to improve tracking the movement of money in banking supply chains?

This main question leads to the following sub-questions:

- How does the application of blockchain technology affect the completion of financial transactions in a secure and transparent manner?
- What is the impact of blockchain technology on reducing financial transaction costs?
- How does the implementation of blockchain technology influence the speed and accuracy of completing financial transactions?

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 35, June, 2024
ISSN: 2749-3628,

- What is the impact of applying blockchain technology to reduce fraud and electronic crimes?

THE RESEARCH IMPORTANCE:

The research is focused on the significance of Blockchain technology, which provides an immutable and permanent record of transactions that is difficult to change or modify. It emphasizes the enhanced security, privacy, and trust that Blockchain brings to the online world. The research is important as it addresses the impact of implementing blockchain technology on the financial performance of Iraqi commercial banks. It also aims to provide valuable insights for decision-makers in commercial banks.

THE RESEARCH OBJECTIVE:

The research aims to examine how the use of blockchain technology can improve the tracking of funds in supply chains within Iraqi commercial banks.

THE RESEARCH HYPOTHESES:

The main hypothesis states that **implementing blockchain technology has an impact on improving the tracking of funds in Iraqi commercial banks**. Additionally, there are sub-hypotheses formulated to verify the main hypothesis.

The impact of applying Blockchain technology in financial transactions is significant. It enhances transparency and safety, reduces transaction costs, and improves transaction speed and accuracy. Furthermore, Blockchain technology has the potential to reduce fraud and crimes.

THE THEORETICAL FRAMEWORK:

This technology has the capacity to increase trust among market participants and make financial information transparent, secure, permanent, and immutable. As a result, it is becoming an essential tool for professionals in the accounting and finance industry (Al-Qaisi, 2021).

FIRST: THE CONCEPT AND ORIGINS OF BLOCKCHAIN TECHNOLOGY:

Blockchain technology is essentially an advanced database that enables transparent information sharing within a business network. The data is stored in blocks linked together in a chain, providing consistency over time and making it nearly impossible to delete or modify without consensus from the network. As a result, Blockchain technology can be used to create an immutable ledger.

Or immutable to track orders, payments, accounts and other transactions. The system contains

Blockchain technology is a decentralized ledger system developed by a person or group of people working under the pseudonym Satoshi Nakamoto. In October 2008, Nakamoto designed Blockchain to solve the problem of duplicate spending in electronic currencies and facilitate the trading of Bitcoin. The goal was to enable exchanges in a low-trust environment without a third party, create a distributed ledger of transactions that is robust against failure, and provide an immutable audit trail. It has also been suggested that Nakamoto proposed Blockchain as a response to the 2008 global financial crisis, which threatened banks through their third-party capacity. The Oxford Dictionary defines blockchain as a system that restricts transactions made using Bitcoin and other cryptocurrencies, which are stored across a number of computers connected to a peer-to-peer network. (Daniel, Guida, 2019).

Blockchains maintain internal consistency through the consensus reached by all users regarding the current state of the network (Dhillon, Metcalf, and Hooper, 2021). In summary, blockchain can be defined as a platform through which people are allowed to conduct transactions of all kinds without the need for a central or trusted arbitrator.

Second: the Advantages of Blockchain Technology:

Compared to the traditional centralized transaction system, Blockchain technology offers several technological advantages due to its reliance on distributed decentralization. The most significant advantages include:

1. Encryption: Blockchain technology has not been hacked, despite many other cryptocurrency platforms being exposed to breaches. This emphasizes the importance of password security and strong protocols. Transactions recorded on the Blockchain are encrypted using public and private key pairs, and each block is a mathematical cryptographic code that records the most recent transaction (Appelbaum, Smith).
2. Transparency: Blockchain technology employs a distributed transaction ledger, where transactions and data are recorded identically in multiple locations. All network participants with authorized access see the same information simultaneously, offering complete transparency to network contributors and anyone dealing with it. Furthermore, all transactions recorded in blocks are immutable and timestamped, facilitating accurate chronological order and virtually eliminating the chance of fraud (Yoo, 2017).
3. Real-time tracking: Blockchain technology provides near-real-time transaction records and account reconciliation due to almost instantaneous relay of transactions as they occur. It creates an audit trail that documents the asset's provenance at every step in the recording and block creation journey, making data sharing straightforward and readily available.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 35, June, 2024
ISSN: 2749-3628,

Trace data can also reveal vulnerabilities in the chain. - Daniel, Guida,2019
4 - Automation by hosting smart contracts Blockchain technology works to accommodate smart contracts by including programming code. Once the pre-defined conditions are met, the next step in the transaction or process is triggered automatically. Smart contracts reduce human intervention as well as dependence on third parties to verify that the terms of the contract are met (Al-Qaisi, 2021).
5-Lack of trust: No participant needs to rely on the honesty of others (Yoo, 2017).

Third: The importance of applying the blockchain in the banks:

Digital transformation has become a necessity for all banks seeking to develop and improve their services and facilitate access to beneficiaries. This not only means implementing technology within the bank; it is a comprehensive and integrated program that affects the institution and mainly affects the way and method of its work internally and externally. It also provides services to the target audience to make services easier and faster (Al-Qanbari, 2020).
The use of blockchain technology contributes to linking government or private sectors together so that joint action can be carried out with high flexibility and harmony. The necessity has become urgent more than ever before for banks to implement digital transformation, mainly due to the rapid use of information technology means and tools in all aspects of life, including transactions with the government sector, the private sector, or those relating to individuals. So there is pressure.
It is evident across various sectors that institutions, organizations, and companies need to enhance their services and ensure accessibility across digital platforms (Yoo, 2017).
Blockchain technology emerges as one of the most promising modern technologies, enabling the automation of real-world auditing and accounting processes, replacing manual verification of outstanding receivables, which can be time-consuming. The advantages include reduced time spent on reconciling accounts and verifying numbers.

The Practical Framework:

Firstly, the Research Methodology:

The research utilized two approaches: the descriptive analytical approach and the standard analysis approach. The descriptive analytical method was employed during the study period, complemented by standard methods aimed at measuring the impact of using blockchain technology to enhance transaction tracking at the Commercial Bank of Baghdad.

Secondly, the Research Population and the sample:

The research focused on Iraqi commercial banks, with Baghdad Commercial Bank selected as the sample for the study. Sixty questionnaires were distributed to the bank's employees, with 51 responses (85%) deemed suitable for analysis.

Third: An overview of the Commercial Bank of Baghdad:

The Bank of Baghdad, the first licensed bank in Iraq, commenced its banking operations in 1992 with a focus on addressing the needs of the national economy. It was established after amending Article Five of the Central Bank of Iraq Law. Until September 25, 1998, the Bank of Baghdad solely engaged in commercial banking. After that date, it diversified its service portfolio to include a broader range of banking services following the Central Bank of Iraq's authorization for private banks to conduct all banking activities. The year 2005 marked a significant transformation for the Bank of Baghdad, as both the United Gulf Bank and the Iraq Holding Company collectively owned 49% of the bank's capital. The bank currently operates an estimated 23 branches within Iraq and additional branches in Syria and Jordan.

Fourth: Analyzing the Results and Testing the Hypotheses:

The first hypothesis: There is an effect of applying Blockchain technology in completing financial transactions transparently and securely.

Table (1): Frequency distributions and statistical description of the axis of the impact of implementing the banking chain technology in completing financial transactions transparently and safely

Standard Deviation	Mean	Frequency and ratio					Paragraph
		Strongly agree	Agree	Neutral	Dis agree	Strongly Disagree	
0.86	4.02	31.4/16 %	43.1/22%	23.5/12 %	0	%1/2	It has achieved the application of technology

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 35, June, 2024
ISSN: 2749-3628,

							blockchain stability Data, transparency and immutability with time passing
0.937	**3.96**	**31.4/16 %**	**41.2/21%**	**21.6/11 %**	**3.9/2%**	**2/1%**	**The application of the technology has been achieved Blockchain in the bank More trust and transparency from During so-called contracts Smart, aiming to complete Transactions without an intermediary.**
0.927	**3.98**	**33.3/17 %**	**37.3/19%**	**25.5/13 %**	**2/1%**	**2/1%**	**The application of technology Blockchain in the bank makes all transactions finance is visible to everyone and can't be changed, thus fulfilling a destiny greater security and transparency**
0.783	**3.99**	**Total axis**					

It appears from Table 1 that the average response to the paragraphs regarding the impact of applying Blockchain technology in completing financial transactions transparently and securely ranged from 3.96 to 4.02, indicating a high level of approval for all paragraphs. The results in the table also showed that the average response to the overall axis is 3.99, which indicates a high level of impact of applying blockchain technology in completing financial transactions transparently and securely. Therefore, the first hypothesis is accepted: There is an impact of applying Blockchain technology to complete financial transactions transparently and securely.
The second hypothesis is: There is an effect of applying Blockchain technology in reducing costs of financial transactions.

Table 2 presents the frequency distributions and statistical description of the impact of applying blockchain technology in reducing financial transaction costs.

Standard Deviation	**Mean**	**Frequency and Ratio**					**Paragraph**
		Strongly agree	**Agree**	**Neutral**	**Dis agree**	**Strongly Disagree**	
0.965	**3.71**	**23.5/12 %**	**33./17 %3**	**35.3/18 %**	**5.9/3%**	**2/1%**	**The application of technology has contributed**

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 35, June, 2024
ISSN: 2749-3628,

							Blockchain is reducing transfer costs and processing transactions, making them transparent and impenetrable nothing changes over time the time.
0.904	**3.94**	**25.5/13 %**	**52.9/2 7%**	**13.7/7%**	**5.9/3%**	**2/1%**	**Application of blockchain technology reduces the cost transfers to the client through processing digital wallets and deal with me to convert money without fees additional**
0.896	**3.61**	**13.7/7%**	**45.1/2 3%**	**31.4/16 %**	**7.8/4%**	**2/1%**	**Technology application contributed Blockchain in the bank to reducing expenses Operational**
1.175	**3.69**	**31.4/16 %**	**27.5/1 4%**	**23.5/12 %**	**13.7/7 %**	**3.9/2%**	**technology application contributed blockchain in reducing cost of transfers to the customer through processing digital wallets and use it to convert money without fees additional**
0.946	**3.84**	**25.5/13 %**	**43.1/2 2%**	**23.5/12 %**	**5.9/3%**	**2/1%**	**led technology application Blockchain to be cancelled Need for matching data, which leads to Cost saving**
0.813	**3.76**	**Total axis**					

Based on Table 2, it is evident that the average response regarding the impact of implementing blockchain technology to reduce financial transaction costs ranged from 3.61 to 3.94, indicating a high level of agreement across all paragraphs. The overall average response for this axis was 3076, signifying a high impact of applying Blockchain technology in

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 35, June, 2024
ISSN: 2749-3628,

finance and cost reduction. Therefore, the second hypothesis is accepted, confirming the effect of applying blockchain technology in reducing financial transaction costs.
The third hypothesis, which states the effect of applying blockchain technology in completing financial transactions with necessary speed and accuracy, is supported.

Table 3 presents the frequency distributions and statistical description of the impact of applying blockchain technology in completing financial transactions accurately and swiftly.

According to Table 3 data, the average response for the impact axis paragraphs indicates a high degree of agreement ranging from 3.71 to 3.9 when applying blockchain technology for completing financial transactions with the required speed and accuracy. The overall axis received an average response of 3.8, signifying a high level of impact. Thus, the third hypothesis is accepted: There is an impact of applying blockchain technology in completing financial transactions

Standard Deviation	Mean	Frequency and Ratio					Paragraph
		Strongly agree	Agree	Neutral	Dis agree	Strongly Disagree	
0.966	3.78	19.6/10 %	52.9/27%	17.6/9%	5.9/3%	3.9/2%	Technology application blockchain to conduct financial transactions in a way faster and more accurate
0.9	3.9	23.5/12 %	52.9/27%	15.7/8%	5.9/3%	2/1%	Application of blockchain technology to shorten paper currencies which enhances accuracy and speed in financial transfers
0.965	3.71	21.6/11 %	39.2/20%	29.4/15 %	7.8/4%	2/1%	The application of technology has contributed blockchain monetization electronic payment process for international trade operations
1	3.8	27.5/14 %	37.3/19%	25.5/13 %	7.8/4%	2/1%	Application of blockchain technology to speed up import operations and export by providing instant and fast payouts transfers
0.77	3.8	Total axis					

with the necessary speed and accuracy. The fourth hypothesis is: There is an impact of applying blockchain technology in reducing fraud and electronic crimes.

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 35, June, 2024
ISSN: 2749-3628,

Table 4 displays the frequency distributions and statistical description of the impact of applying blockchain technology on reducing fraud and electronic crimes

The data in Table 4 shows that the average response to the paragraphs regarding the impact of applying blockchain technology in reducing fraud and electronic crimes ranged from 3.9 to 4.02, indicating a high level of agreement for all paragraphs. The overall average response for the axis was 3.97, signifying a high level of impact of applying blockchain technology in reducing fraud and electronic crimes. Therefore, the hypothesis is accepted, confirming that there is an

Standard Deviation	Mean	Frequency and Ratio					Paragraph
		Strongly agree	Agree	Neutral	Dis agree	Strongly Disagree	
0.927	4.02	31.4/16	49/25 %	11.8/6%	5.9/3%	2/1%	The application of technology has contributed blockchain in the bank in reducing fraud because of Depends on brokers
0.959	4	35.3/18 %	37.3/1 9%	21.6/11 %	3.9/2%	2/1%	Technology application contributed blockchain in the bank in eliminate financial corruption by making data visible and eliminate presence an intermediary to complete transactions finance
1.063	3.9	33.3/17 %	39.2/2 0%	13.7/%7	11.8/6 %	2/1%	The application of technology has contributed blockchain in the bank in reducing fraud where it cannot be penetrated
0.824	3.97	Total axis					

impact of applying blockchain technology in reducing fraud and electronic crimes.
Furthermore, the impact of applying blockchain technology on improving the tracking movement of funds for Iraqi commercial banks was also tested.

Table 5: Statistical analysis of the impact of implementing Blockchain technology on enhancing the tracking of fund movement for Iraqi commercial banks.

Standard Deviation	Mean	
0.706	3.86	The impact of implementing the blockchain on improving track funds to commercial banks Iraqi

World Economics & Finance Bulletin (WEFB)
Available Online at: https://www.scholarexpress.net
Vol. 35, June, 2024
ISSN: 2749-3628,

In Table 5, the data demonstrates that the average response regarding the overall impact of implementing blockchain technology to improve tracking the movement of funds for Iraqi commercial banks is 3.86. This indicates a high level of impact of applying blockchain technology to enhance tracking in Iraq. Therefore, the main hypothesis is accepted.

THE RESEARCH RESULTS:

1. The application of block chain technology improves the financial performance of the Commercial Bank of Baghdad.
2.The application of blockchain technology in the bank under study works to achieve transparency and security in completing financial transactions.
3.The application of blockchain technology in the bank under study reduces the costs of financial transactions.
4- The application of blockchain technology in the bank under study works to speed up and accuracy of transactions finance.
5.The application of Blockchain technology in the bank under study works to limit the occurrence of transactions fraud and cybercrime

THE RECOMMENDATIONS:

1. The use of blockchain technology in banks has positive effects on achieving sustainability through reducing costs, improving the quality and efficiency of banking services, increasing profits, and providing ease of access to local and global markets, saving time and effort.
2. Accountants and auditors should deepen their understanding of blockchain technology as the design of financial systems will require financial experts who possess both financial expertise and in-depth knowledge of technology.
3.Additionally, more research on blockchain technology and its advantages across all sectors is recommended.

THE REFERENCES:

1. Ben Younis, Nasser Milad, and others (2021): The impact of applying the blockchain on the financial performance of Libyan Islamic banks. Journal of Economics and Business Studies, Volume 8, Issue 2, p135-155.
2. Al-Qaisi, Rawan Thaer (2021): The impact of using Blockchain technology on lists Finance in Jordanian commercial banks. Master's thesis in Accounting, Middle East University.
3. Al-Qanbari, Muhammad Qais Adel (2020): Block chain technology and its implications for the auditing profession Internal. Internal Auditing Journal, Issue 11.
4. Appelbaum, D. and S. S. Smith. (2018). Blockchain basics and hands-on guidance. Available at: https://www.cpajournal.com/2018/06/19/blockchain-basics-and-hands-on-guidance/
5. Daniel, F., & Guida, L. (2019). A service-oriented perspective on blockchain smart contracts. IEEE Internet Computing, 23(1), 46-53.
6. Dhillon V., Metcalf D., Hooper M. (2021) Blockchain in Healthcare. In: Blockchain Enabled Applications. Apress, Berkeley, CA. https://doi.org/10.1007/978-1-4842-6534-5_9.
7. Yoo, S., 2017, Blockchain based financial case analysis and its implications, Asia Pacific Journal of Innovation and Entrepreneurship 11(3).