EFFECT OF BLOCKCHAIN TECHNOLOGY ON THE BANKING SECTOR: LAW'S POINT OF VIEW

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ABSTRACT

This study addressed the concept of Blockchain technology, its characteristics, advantages, and most important applications. It also presents the various forms of this technology. More precisely, it determines its role played in the banking services sector and in raising the level of protection required to provide these services. It, furthermore, identifies its role in raising the level of efficiency and speed when providing such services. Additionally, it determines its role in reducing the fees that banks charge from customers for providing the services. Accordingly, the main objective of this study is to determine the extent to which Blockchain technology can be relied upon in the banking services sector, and to discuss its potential impact on the future of this vital sector from law's point of view. This comes from the belief that the legal aspect will be one of the most important issues on which the use of this modern technology in the banking services sector depends.

Keywords: Block chain, Bit coin, Banks, Banking services, Technology, Internet.

INTRODUCTION

Blockchain technology is one of the modern revolutionary technologies that may have a tremendous impact on human in the coming future. In fact, Blockchain technology is a newcomer carrying many essential variables/changes for many economic, financial, legal, and administrative sectors. Blockchain is currently linked to more than (19) financial, administrative and service fields, which requires experts and professionals in these sectors in order to study the nature of such technology, and its impact on the level of services provided, and then, evaluate the opportunities which this technology holds, and anticipating risks and challenges.

Currently, the impact of the "Block chain" technology is seen to be more visible and effective in many vital sectors e.g., banking and financial services sectors, insurance sector, health care sectors, cyber security, and real estate sectors (Malinger, 2017), the transportation sector, education and government services (Bayram, 2018). The use of this technology did not stop there, but its impact and contributions are evident in all sectors of society in some developed countries e.g., the United States, European countries and some developing countries in the Middle East (AlSafri, 2019).

According to the World Economic Forum (2016) in its report, entitled: The Future of Financial Infrastructure", this kind of technology leads to lower bank fees and reduce human errors, which may lead to immunizing the global economy against financial bubbles. As a result, banks are expected to make drastic adjustments to their operating system and data management, with the aim of increasing efficiency and reducing costs.

In this regard, it is stated by Global Fintech Report (2017) that 77% of financial institutions expect that this technology will be adopted in the provision of electronic banking services and money transfers - partially or completely by the end of 2020. In this regard, the

United States tops the list of the largest number of companies working in the field of "Block chain" development globally with (39.8%) of the total companies around the world, and a group of the largest banks ever in the United States use this technology including these banks: Goldman Sachs, Santander Bank and Bank of America (AlSafri, 2019).

The International Monetary Fund (IMF) recommends member banks to invest in this technology and urges them to take advantage of it, especially in the field of monetary issuance, because of its effective role in enhancing the elements of confidence, security, privacy and efficiency in the provision of banks to their banking services to customers with an emphasis on the need for international cooperation to face all the risks and challenges posed by this technology on the ground .

In Singapore, the Monetary Authority (MAS) has already begun experimenting with the Blockchain alliance and in cooperation with the Association of Banks of Singapore (ABS) with the aim of conducting bank settlement operations via Block chain technology, and the Central Bank of Singapore has launched three prototypes for fulfillment using Blockchain technology .

This study lies primarily in the legal aspect of Block chain technology and attempts at determining the appropriateness of using this modern technology in providing banking services to commercial banks with creating challenges to the legal provisions regulating the banking services sector. It also defines the role played by Block chain in raising the level of banking services, whether in terms of the level of protection and reliability, in terms of the level of effectiveness and speed, and/or in terms of the level of cost and fees. Accordingly, the following questions are presented as follows:

1) What is Block chain Technology?
2) How can Block chain technology contribute to raising the level of banking services provision?
3) How appropriate is the use of Block chain technology in the banking services sector from a legal point of view?

Block chain Technology

Block chain technology is described as a revolutionary technology or a genius technology. Block chain is seen to be a special type of database, different from previous databases, as it relies on a decentralized system to store, process and save data. Indeed, the primary task of this technology is to get rid of the existing mediation model through previous databases. Block chain technology became famous with the emergence of virtual currencies, such as Bit coin, which is simply an open record of information, which can be used to record and track transactions through a peer-to-peer system with the aim of ensuring the transparency and reliability of the record, through collective control of all parties participating in the process, without requiring a central authority (Clark, 2018).

Block chain is a term that means: "block chain", "chain of trust" or "chained data", where the reason for such name is due to its mechanism of work and the method of recording and saving transactions, it records every transaction that takes place within the network in a block. The blocks are connected to each other to form a chain of blocks that is difficult to penetrate and manipulate (Alrahili & Aldahawi, 2020).

Block chain technology is defined as: a long chain of encrypted data distributed to millions of computers and people around the world allowing all parties to enter information after verifying its authenticity and each "block" of this chain containing base data, numeric sequence, timestamp, encryption key using (hash function) and encryption key for the previous unit in the chain (Adnan & Al-Marhabi, 2018).

It is also defined to be a distributed and open digital record that allows the transfer of ownership assets from one party to another party at the same time (real time) without the need for a third party, ensuring maximum security. They are multiple global ledgers, shared

by all people around the world, that enable them to do all kinds of transactions in real time, without falling prey to fraud or manipulation. Besides, they are known to be the largest databases of data that anyone can access verify, and securely exchange.

Furthermore, Block chain is also defined as a distributed database of records or a general ledger of all digital transactions or events that are executed and shared between the participating parties, so that each transaction is verified separately by the consensus of the majority of participants in the system, and once the information is entered into the database it becomes absolutely indelible (Crosby, 2015).

Some studies define Blockchain as a database collecting data that relies mainly on the encryption mechanism (Cryptography) to build a decentralized electronic ledger record of such data, distributed in a spread that is not adjustable or tampered, characterized by transparency, speed and ease in conducting operations, and it also provides the possibility for the parties involved in its construction and this by validating the data entered in it in an autonomous manner (Sarmah, 2018).

It is also known as a distributed database that has the ability to manage a constantly growing list of records called (blocks) so that each block contains the timestamp, with a link to a previous block, so that a series of interconnected blocks is formed, and the goal of creating this chain is to make it available these data are for all users while maintaining their security, without the ability to modify those blocks (Ashraf & El Demerdashi & Mustafa, 2018). Based on these definitions, the following three main results are highlighted as follows:

Firstly, (technically) Block chain technology is a modern information network that relies on the participation of all parties in its preservation, storage and exchange, without the intervention of a third "intermediary" party, which gives this technology an additional value that makes it more secure and private than previous technologies, and makes hacking this technology is impossible.

Secondly, (functionally) it is clear to us from these definitions that the Block chain technology is an exchange network that performs a dual function. The role of the Block chain is not limited to transmitting data and information only, but this technology can also exchange value and assets.

Thirdly, (legally) according to the previous definitions, it is clear to us that this technology is capable of verifying the validity of data and ensuring the integrity of transactions. This means that there is no need to the presence of a third "intermediary" either to transfer data, or to exchange value, which is the role that has become all parties involved in this technology take care of it.

Blockchain Characteristics

First: Block chain technology, which is a decentralized information system, depends in its mechanism of action on decentralization in data storage, auditing, processing and transmission. This technology allows all parties to enter information after verifying its validity. This chain is connected to each other and all of its links cannot be excluded, as each unit or block of this chain contains base data, numeric sequence and timestamp (AlSafri, 2019).

Second: Block chain technology, which is also a direct peer-to-peer value exchange system, adopts the idea of smart contracts, which are computerized protocols for transactions that can be verified automatically, instead of traditional methods and without the need for an intermediary such as banks (Bayram, 2018). Smart contracts aim to provide information security that is superior to traditional contracts and reduce the costs of coordination and execution transactions, as they can be used in multiple areas bad for simple economic transactions such as sending money from X - Y or registering any type of property such as land records, intellectual property, or intelligent asset control management. Currently,

however, the smart contract should not be confused with the legal contract (AlSafri, 2019). Block chain technology also relies mainly on Bitcoin to complete transactions between parties (Ishmaev, 2017), and thus through this technology, ownership assets can be transferred from one party to another at the same time (Real Time) without the need for a party third party.

Third: Block chain technology is an established Information system and once information is recorded, it cannot be changed, and this feature multiplies over time whenever one or more blocks are added to the ledger (AlSafri, 2019), where the information becomes immutable, unalterable, irreversible, or Impenetrable. Blockchain technology for data protection relies on cryptography (AlSafri, 2019), chain of signatures, and consensus algorithms (Paillissé & Cabellos & Ermagan & Maino, 2017) in order to ensure that the data chain structure contains only valid blocks (Drescher, 2007), in the event of any attempt to destroy the system, hack it, or enter any incorrect data, the self-executing commands in the Blockchain technology are according to the idea of Majority Consensus tracing the longer chain resulting from verification made by the parties in the network as a result of their consent (Alshateer, 2019).

Fourth: Block chain technology is an open system for everyone where anyone can enter the network and add or verify information, where all the information inside the network is available to everyone, anyone inside the network can see any data stored within the network with maintaining a certain amount of confidentiality related to the real identity of the parties (Khalifa, 2019).

Types of Block chain

Although the traditional general concept of a Block chain is a network that is open to anyone, in reality, there is another type of Block chain, where there are "private" Block chain platforms that entitle only some members to manage the registry (Clark, 2018). Accordingly, this study can distinguish between two main types of Block chain, namely:

Public Block chain: database open to everyone, through which anyone can participate in it by validating the data, or adding new data at any time and from anywhere (AlSafri, 2019). In this type of Block chain, anyone can enter the network, and create a new "block" after the rest of the participants approve and certify it after validating it, after which the block is not removable or modified. The open or public Block chain does not depend on any intermediary or third party, which is consistent with the foundations on which this technology is based, which is to eliminate the idea of centralization in data preservation (Bayram, 2018).

Finally, since this type of network allows everyone to access information within the network, if this technology was used to transfer money, for example, everyone would be able to see this process, and know the amount of money owned by the parties to the process, and if the block was launched, it allows participants to keep their real identity, and use Nick Names to appear to users of this network (Khalifa, 2019).

The private Block chain: A database that operates according to the same mechanism and principles that the public or open Block chain technology operates on conditions, rules and instructions for accepting a new member's entry to the network, so that the new member becomes equal with the founding members with the powers granted to them, and thus becomes able to participate in the network, verify the validity of the data, and add new data. The private Block chain has a higher degree of control and privacy compared to the public Block chain, due to the mechanism used in this type of network (Alshateer, 2019).

An example of this type of network is the (Hyperledger Fabric) network sponsored by (Linux) as a platform for transferring intangible assets (voices, patents), and physical assets (real estate, cars, commodities) through smart contracts, and in cooperation with more than 250 leading companies in the field of supply, finance and banking, manufacturing and

technology . The working system of this network is designed to meet the main requirements of permission-based blocks with information privacy (Hardesty, 2017).

The Role of Block chain in the Banking Services Sector

The management of the Block chain technology believes that this genius technology can perform two basic functions:

The first function is related to exchanging data, information and electronic records and ensuring their safety and non-tampering. As for the second function, it is represented in the exchange of value and assets between the parties.

In a report issued by the UK government on the uses of Block chain technology, it stated: "It is a technology that can help governments collect taxes, issue passports, register land and property, as well as ensure the integrity of records, and government services in general (Goldenfein & Hunter, 2017).

Electronic Data Exchange and Ensuring its Integrity

Block chain aims primarily to find a radical solution to the problem of mistrust of individual dealers, institutions, and commercial companies as well public and governmental bodies, in electronic dealing and exchanging information in an electronic way, and overcoming their fears of network penetration and manipulation or theft of electronic data and records. Those in charge of this technology seek to rely on the decentralized storage system for data, in a way that is completely different from the previously known databases, which all depend on the central storage system through servers, with the aim of providing accuracy, security and organization for electronic transactions, and smart contracts and ensuring the integrity of electronic records.

Those in charge of Blockchain technology have relied on forming blocks and building their networks on a basic idea known as Majority Consensus, where data are stored and exchanged with the participation of all parties where data are stored and exchanged with the participation of all parties, thus building a decentralized electronic ledger distributed over many points spread on the network called (Nodes), making network hacking and electronic data manipulation almost impossible (Alshateer, 2019). Block chain allows the various parties in any transaction to ascertain what will be recorded in advance, and that no party is able to change that content after registering it. Each transaction or "block" is sent to all network participants, and every "node" in the network (i.e. each participant's computer) must verify it by solving a complex mathematical transaction, and once the block is verified, it is added to the log or chain (Clark, 2018).

This "decentralized" and "open" mechanism on which the Block chain technology depends in saving data, storing it, and circulating it between the parties, has prompted many technology experts to appreciate the level of efficiency achieved by its use in many areas, both in terms of speed in data transfer. Compared with previous "centralized" technologies that require manual auditing and human intervention in many cases, especially with regard to transferring money and transferring assets and values, or in terms of reliability and security for which no penetration has yet been proven, compared to cases of piracy, which banks and their operating systems are exposed to, or in terms of the low cost resulting from the absence of a third party "intermediary" in money transfers or asset transfers (Alshateer, 2019).

Perhaps one of the most important legal problems raised by the way this technology works is the distributive decentralization on which the technology depends in saving and circulating data, without relying on any central body to save, audit and store data, which is very dangerous because of the loss of control of governments and official bodies in managing the data transactions and organization of data circulation.

Also, a big question arises in this regard about the responsible party in the event of hacking or manipulation operations during the implementation of any data or money transfer process, or in the event that transactions are subjected to a piracy process, or in the event of technical errors during the exchange of value or assets in the absence of a central body in charge of managing operations and controlling the system.

Whereas part of the jurisprudence goes to say that one of the most prominent defects of this technology is the absence of accounting systems or the absence of a central body that controls and manages this system, and therefore, it can be held accountable in the event of a defect or exposure to piracy, fraud or forgery (Khalifa, 2019). .

Based on the law's point of view, it is believed that the use of this technology in dealing, no matter how accurate, safe and reliable is from a technical point of view, however, this technology remains subject to errors or technical malfunctions, although the incidence of such errors is a small percentage, compared to with previous technologies.

On the other hand, Blockchain technology is criticized for not respecting the privacy of the parties because it is open to everyone. In addition, this matter may cause the seizure of personal data of individuals after they enter the chain, and this may be a sufficient reason to use such data to deceive them and steal their money, or harm their jobs. This is in contradiction with the right to privacy, which is one of the rights inherent to human beings, as the principle of "the sanctity of private life" is considered one of the established principles in religion, law and international covenants (Clark, 2018).

This technology is also seen as a blatant contradiction to the legal obligation placed on banks and financial institutions to maintain banking secrecy. This obligation arose at the beginning as a moral obligation from the banking literature (Qarman, 2019), and the source of this commitment was the banking custom, before it took the form of legal obligation under explicit legislative texts in the various legal legislations regulating banking services (Al-Ajami, 2010). An example of this is the Egyptian legislator who singled out a separate chapter on the secrecy of accounts, which is the ninth chapter of the Central Bank and the New Banking System Law , where it stated the following: (All customer data, accounts, deposits, safes and lockers are in banks, as well as transactions related to them are confidential, and it may not be accessed or data given about them, directly or indirectly, except with the written permission of the account holder, the depository, the trust, the treasury, one of his/her heirs or one of the legatees of all or some of these funds, or his/her legal representative or agent. or based on a court ruling or arbitration award, ...).

The Jordanian legislator also affirmed the bank's commitment to banking secrecy, in accordance with Articles (72-73) of the Jordanian Banking Law that : (The bank shall observe the complete confidentiality of all customers' accounts, deposits, safes and trusts with it, and it is prohibited to give any data about them directly or indirectly, except with the written consent of the account holder, deposit, trust or treasury or one of his heirs or by a decision of a competent administrative authority in existing judicial litigation or because of one of the cases permitted under the provisions of this law, and the ban remains in place even if the relationship between the customer and the bank ends for any reason).

In light of this, it becomes clear that there are many legal obstacles that stand as a real obstacle at the present time to the spread of this technology and its popularity in use, especially in the banking and money transfer sector, which is characterized by being one of the vital and sensitive sectors in society, and requires dealing with it with great care and caution, accompanied by a high level of banking privacy. This is despite the unique advantages and contributions this technology achieves in some other sectors, as it makes the process of data and information circulation faster compared to previous technologies, and raises the level of security and reliability to ensure the safety of electronic transactions and reduces the possibility of penetration.

Value Exchange and Fund Transfer

The managers of Block chain technology seeks to make it the ideal medium through which it is possible to exchange value between two parties without relying on the third party, completely abandoning the central system in carrying out banking and financial transactions, transferring money, transferring ownership of things, paying taxes and fees, through the peer system Peer-to-Peer without the need for a financial intermediary, which exempts customers from paying fees or commission charged by banks and financial institutions (Alrahili & Aldahawi, 2020).

Those in charge of this technology have relied on it to achieve their goals of exchanging value and transferring assets on virtual currencies, primarily on the "Bitcoin" currency, as relying on these currencies enabled users of this technology to transfer cash and transfer property, such as real estate ownership, car ownership, Intellectual, or anything else of value between two parties.

They attempt to prompt that this technology will enable any two parties to exchange money without the need for a financial intermediary, which means getting rid of fees and speeding up money transfers to a few minutes, after the transfer process took approximately (3-7) days. (Bayram, 2018). Blockchain has already begun to be used in some countries to carry out banking and financial services, transfer ownership of real estate, and intellectual property rights, and this technology has become the record in which all financial movements, assets, expenses, and the like are kept being the public accounting record in the financial sector (Bayram, 2018).

The present study indicates that even though this technology is appreciated of such function of transferring money, trading assets and values, depending on the Bitcoin currency, it is seen that the Bitcoin is still an unacceptable currency in financial dealings, as it does not meet the conditions for the success of any currency, whether in terms of general acceptance, or in terms of the issuance officer, or in terms of stability value. Based on the economics' point of view, the Bitcoin currency cannot perform the basic functions of money, as Bitcoin cannot be a measure of value, nor is it suitable as a storehouse for it, or a storehouse of wealth, in addition to that it has no intrinsic value, but rather just numbers that have no any cash, commodity or legal cover that supports it.

Legally, the Egyptian legislator emphasized that: (The Central Bank has the exclusive right to issue and cancel the currency, and the Board of Directors determines the categories of cash and its specifications, and the controls and procedures for issuing and canceling it, and the paper or banknotes must bear the signature of the Governor). In turn, the Jordanian legislator emphasized that: (a) every sale or payment in the Kingdom must be made in Jordanian dinars, and every bond, contract, bill of exchange, or document of any kind, if it includes a payment or a financial obligation, must be written with it.

According to the general rules of the law, the debtor is not realized and the debtor is not discharged from the debt except by the creditor's receipt of the money that is completely equal to the price credited to it by the debtor, and therefore, the money through which the debtor is discharged is required to be legal money, otherwise it is meaningless to fulfill and do not have its own value (Al-Sanhouri, 1998). The legal money is defined as a unit of commercial exchange that the law authorizes with the power of release within the borders of the issuing country, so it derives its power in the release and fulfillment of debts and obligations from the legal authority in each country, and that this issuance has its rules and controls that regulate it, and from that the issuance of money is a matter that belongs to the state alone) (Central Bank of Jordan, 2020). Accordingly, the Saudi legislator states, "The riyal banknote, its multiples and its parts, issued by the Saudi Arabian Monetary Agency, shall have the capacity of legal circulation and an unspecified acquittal power, to pay all

debts and private and public obligations… ". Hence, legal money requires the availability of two main components;

First: the legal validity of money as a means of repaying the debt, and this is achieved through the legislator's recognition of it as a legal means of payment.

Second: the obligation to accept this means of repaying the debt by individuals in accordance with legal texts that obligate them to stick to such regulations.

On the other hand, monetary policy (e.g., Yusuf, 2012) in the management of means of payment aims to achieve monetary stability through the central bank's control over money creation processes, and tight control over the volume of liquidity (Guillaumat, 1983). As a result, the commercial banks are affected with the technological revolution, it must be accompanied by activating the role of the central bank in supervising the process of issuing any new currencies, including virtual currencies. This may not be possible in the absence of laws regulating dealing with virtual currencies until this time, which may prompt the Central Bank to limit the process of issuing money at the present time to the national currency only. Accordingly, the Saudi legislator states, "The minting, printing and issuing of Saudi currency is a privilege that is restricted to the Saudi Arabian Monetary Agency alone, and no one may exercise this right."

Dealing with Bitcoin also contradicts the legal rules for consumer protection, since the dealers in this currency do not know the source of the currency, and are ignorant of the service provider, and dealing with Bitcoin is often done between anonymous people or under pseudonyms and not real, which may encourage scams, and therefore, if it assumed that the customer has been robbed or defrauded, he/she does not have a clear and accurate legal basis with which to file his/her claim (Al-Bahouth, 2017). The European Banking Authority (EBA) has emphasized that virtual currency dealers must be aware of the fact that exchange platforms are not banks that hold virtual currencies as deposits, and if any of the dealers lose any virtual money through these platforms, there is no specific legal protection, such as the traditional deposit guarantee system (EBA, 2013).

In addition, in many virtual currency systems, users' electronic wallet is stored without encryption, which makes them an easier target for hacking or theft, moreover, according to these systems, users in this case are not entitled to recover funds after fraud because there are no guarantees, unlike the protection system deposits for conventional accounts (EBA, 2014). Therefore, dealing with this currency does not support the requirements of cybersecurity, which is one of the most important operational challenges that impede dealing with Bitcoin, as the risks surrounding dealing with this currency within an open network are high (CPMI, 2018). As a result, on December 13, 2013, the European Banking Authority (EBA) issued a warning about the risks associated with transactions of buying, holding, or trading virtual currencies e.g., Bitcoin and consumers may still be liable for taxes when using virtual currencies (EBA, 2013).

Moreover, political decision-makers' main argument put forward, virtual currencies are now widely used for money laundering purposes, or even financing illegal activities, such as drugs, mafia, terrorism, etc. (Frédéric, 2021). Bitcoin trading is also often associated with the online black market, a market known as "Silk Road" (Katherine, Salil & Catriona). Accordingly, dealing with Bitcoin is considered in violation of the laws of money laundering, laws of tax evasion, and laws against terrorism and preventing its financing, in many countries around the world.

This study concludes that the Bitcoin currency cannot be relied upon to transfer funds or transfer assets and values, because it is not issued by any official bodies, is not subject to the control of central banks, and is not issued in the national currency, a currency sometimes associated with the black market and used in money laundering, supporting terrorism, concluding suspicious deals, as well as it cannot be determined to specify the source of the currency, verify the identity of the parties dealing with it, or determine their eligibility.

CONCLUSION

Despite the tremendous prospects and contributions that those in charge of Blockchain technology expect to achieve if it is used and relied on in many vital sectors, especially the banking sector, money transfer and trading of values and assets, this technology - in fact - is still limited in spread, and it has not been implemented globally. It is not used in many sectors due to the presence of many obstacles that stand - at least for the time being - for the spread of it and dependence on it. Perhaps, the most prominent of which are the obstacles related to the legal aspect of this technology, as well as the practical obstacles related to the replacement and switching of stable systems working out for too long, poor public acceptance, and trust challenges. However, this statement does not mean - at all - the impossibility of spreading this technology in the near future, and relying on it in many sectors, and perhaps the banking sector is one of the most prominent of these sectors but the achievement of this matter remains dependent – based on this study - on finding appropriate solutions to the problems and obstacles that hinder their spread, and trying to overcome them.

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