



Cryptocurrency industry in the balance of Islamic jurisprudence and prospects for creating an Islamic digital currency (A proposed model)

صناعة العملات المشفرة في ميزان الفقه الإسلامي وآفاق إنشاء عملات

رقمية إسلامية (نموذج مقترح)

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Abstract

: This Research Aims To Study The Sharia View Of Cryptocurrencies, Especially Bitcoin, And The Prospects For Creating Islamic Digital Currencies, Using The Descriptive And Analytical Approach. Where The Study Of The Fundamentals Of The Cryptocurrency, The Availability Of Conditions And Functions Of Money In It, And Reviewing The Arguments Of Supporters And Opponents To Dealing With It. It Has Been Concluded That Cryptocurrencies Have Many Problems, Especially With Regard To The Issue Of Decentralization And Intrinsic Value, So Cryptocurrencies Can Be Modified To Conform To The Provisions Of Islamic Sharia, And A Model For Dealing With The Islamic Digital Currency In The Field Of Islamic Finance Has Also Been Proposed To Increase Its Efficiency And Facilitate Its Transactions And Increase Its Transparency.

Keywords-

Cryptocurrency; Bitcoin ; Sharia View ; Islamic Digital Currency ; Islamic Finance.

الملخص-

يهدف هذا البحث إلى دراسة النظرة الشرعية للعملات المشفرة، خاصة البيتكوين، وآفاق إنشاء عملات رقمية إسلامية، وذلك باستخدام المنهج الوصفي التحليلي. حيث تمت دراسة أساسيات العملة المشفرة، ومدى توفر شروط ووظائف النقود فيها، واستعراض حجج المؤيدين والمعارضين للتعامل بها. وقد تم التوصل إلى أن العملات المشفرة تكتنفها العديد من المشاكل، خاصة ما تعلق بقضيتي اللامركزية والقيمة الذاتية، لذا يمكن تعديل العملات المشفرة لتتوافق مع أحكام الشريعة الإسلامية. كما تم اقتراح نموذج للتعامل بالعملية الرقمية الإسلامية في مجال التمويل الإسلامي لزيادة كفاءته وتسهيل معاملاته وزيادة شفافيته.

الكلمات الدالة-

عملة مشفرة، بيتكوين، نظرة شرعية، عملة رقمية إسلامية، تمويل إسلامي

1. Introduction:

The fourth industrial revolution imposed new patterns that almost encompass all aspects of life. Among the aspects that this revolution entered into the world of money and currencies, where cryptocurrencies appeared and imposed themselves in the contemporary world of economy, despite the ambiguity and risks that encompass them. It does not have a tangible physical entity and there is no central body to issue it. It is circulated via the Internet, which led to the divergence of states' positions and the opinions of contemporary jurists and economists about them. Despite the advantages of cryptocurrencies, many questions have been raised about their industry, which made modern economists and jurists doubt their effectiveness. They were divided into three teams. Some of them allowed it, some of them forbade dealing with it, and others tried to modify it in order to find alternative cryptocurrencies that comply with the rules of Islamic sharia. In order to know the sharia view of cryptocurrencies, and the prospects for creating Islamic digital

currencies, the problem was formulated in the following main question:

What is the sharia view of cryptocurrencies? What are the prospects for creating digital currencies that comply with Islamic sharia?

The main question includes the following sub-questions:

- What are the basics of cryptocurrencies?
- What are the legitimate matters related to the issuance and circulation of money?
- What are the most important fatwas and economists' opinions that dealt with the sharia view of cryptocurrencies?
- What are the sharia violations that surround the cryptocurrency industry? What is the legitimate alternative to it?

To answer the main question and the sub-questions, the following two hypotheses were adopted:

- *The lack of sharia basics related to real money made cryptocurrencies rejected by most contemporary jurists and economists.*

- *Cryptocurrency can be created that conforms to Islamic sharia by removing violations of existing cryptocurrencies and trying to Islamize them.*

- **Research Objectives:** This research seeks to achieve the following:

- Learning the basics of cryptocurrencies;
- Realizing the legitimate basics related to the issuance and circulation of money;
- Learning about the most important fatwas related to cryptocurrencies and the arguments of each team;
- Realizing the defects surrounding cryptocurrencies and trying to correct them in order to create Islamic digital currencies.

- **Research Importance:** Cryptocurrencies have become a reality. They will dominate the economic transactions, especially with the increasing pace of the digital economy, which confirms that the world is heading to increase dealing with them. So we had to find out the truth of these currencies, explain the economic and legitimate truth to them, try to correct them and remove the defects that encloses it to become a legitimate currency that may be benefit from its advantages.

- **Research Methodology:** To study this topic, a descriptive and analytical method was adopted, which relies on collecting data to study and analyze it, with the aim of studying the topic in all its

aspects. And for that, many references that are closely related to the topic have been adopted in the interest of scientific objectivity.

- **Literature Review:** Among the previous studies we mention:

1- *The study of Amin Ouissi & others (2019)*, in their research entitled:

“مستقبل النقود في العالم الإسلامي -الدينار الإسلامي المشفر-“. The researchers dealt with the study of money for Arabs and Muslims in the first axis, and the cryptocurrency (bitcoin) was discussed in the second axis. As for the third axis, it dealt with the study of the encrypted Islamic dinar, where the researchers proposed a concept of a form of money that combines the advantages of money in the Islamic economy with cryptocurrency under the name of the encrypted Islamic dinar. (عويسي، معتوق، والعيقة،
مستقبل النقود في العالم الإسلامي "الدينار الإسلامي المشفر"، (2019)

2- *Islamic Economic Forum Statement on the Legitimacy of Bitcoin, N° 1/2018*: This statement addressed the answer to several questions in order to identify Bitcoin in terms of what it is, its characteristics, the extent to which it performs the functions of money, and the legitimate opinions it is concerned about. Two opinions on Bitcoin have been mentioned. It is understood from the presentation of the statement that it tends to the statements of the authorized, as he rejected the opinions of those who say it is forbidden without objecting to the opinions of the authorized persons, even though some of them are apparent weak. _ (الإسلامي، (2018)

3- *The study of Ibrahim Bassam Alzubaidi & Adam Abdullah (2017)*, in their paper entitled: “Developing a Digital Currency from an Islamic Perspective: Case of Blockchain Technology”, this research examines blockchain applications in the Islamic finance, specifically the possibility of implementing a digital currency as an alternative to compulsory paper money in accordance with Islamic sharia. It has been concluded that the current virtual digital currency involves many sharia violations, with the possibility of adopting a virtual digital currency compatible with Islamic sharia, and understanding the field of digital currencies and blockchain requires further research. (Alzubaidi & Abdullah, 2017)

• **Our study differs from previous studies in:**

- Presenting various contemporary fatwas and economists' opinions about cryptocurrencies as an emerging issue, based on economic considerations related to the properties and functions of money;
- Offer some suggestions for modifying cryptocurrencies;

- Attempting to build a model for the mechanism of Islamic digital currency to increase the effectiveness of Islamic finance.

2.- Cryptocurrencies: a theoretical background:

2.1. Location, definition and characteristics of cryptocurrencies:

2.1.1. The location of cryptocurrencies from the financial system and their role in contemporary economies: The emergence of cryptocurrencies led to the emergence of a new model in finance, the digital finance model. Before there were only three basic models: the classical model, the corporate finance and Islamic finance. The differences between the four models are in the following table.

Table 1. Differences between financing models

Standard	Existing Models of Finance			Digital Finance (new model)
	Classical Finance	Corporate Finance	Islamic Finance	
Era of establishment	The beginning of the currency emission	Development of financial markets	Economic growth of Islamic countries	- Independent Internet access -Independent currency emission
Single emission center	Yes	Yes	Yes	No
State regulation of financial activities	Yes	Yes	Yes	No
Interest based loans	Yes	Yes	No	Yes
The cost of money over time	Constant	Future money is cheaper	Constant	Future money is more expensive
The objective of doing business	Profit maximization	Maximizing the cost of capital	Achieving prosperity in both worlds	Maximizing personal freedom of action
Criteria for business efficiency	Income exceeding expenditure	profits exceeding expenses for servicing capital	Excess of incomes over expenditures (religious restrictions)	Steady growth in clients

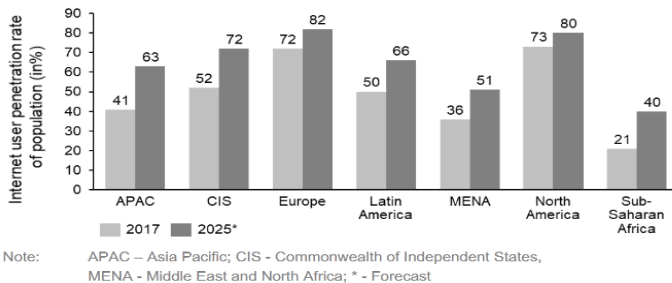
Source: Gapur Oziev & Magomet Yandiev, Cryptocurrency from sharia'ah perspective, pp.2-3. From the site:

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3101981 (21/12/2020)

The development of these models was linked at some time to the rapid development in one of the economic or political fields of society. Cryptocurrencies are considered one of the forms of digital finance. These currencies are available everywhere and to everyone, including Islamic financial institutions and ordinary users as long as there is access to the Internet. (Ozиеv & Magomet, Cryptocurrency from sharia'ah perspective).

So the importance of digital and cryptocurrencies is reflected in the fact that they represent an essential component of a new financing model - digital finance - this financing and these currencies, have become an important role in contemporary economies, especially with the increase in Internet users. It is expected that the use of the internet will increase in all the world by the year 2025, especially in sub-Saharan Africa, which will lead to increased use of these currencies. The following figure illustrates this.

Fig.1. Internet user penetration rate in 2017 and 2025



Source: Moritz Holtmeier & Philipp Sandner (December 2019), The impact of crypto currencies on developing countries, FSBC Working Paper, p.8.

Based on the foregoing, the importance of digital and cryptocurrencies in contemporary economies can be summarized in the following points: (Holtmeie & Sandne, December 2019)

- **Increasing participation in electronic commerce, especially the international one:** cryptocurrency enables merchants to sell products in exchange for cryptocurrencies, thus avoiding traditional electronic commerce that requires creating a bank account;
- **Improving market liquidity:** local paper currency is usually replaced with widely used paper currencies such as the US dollar, then converted back to the target currency, but since there is often no liquidity for fiat currency exchange, this process can be improved through cryptocurrency;

- **Increasing financial inclusion:** Anyone can own a digital wallet, with the potential to increase SME financing due to lower costs and procedures. Cryptocurrencies also facilitate the procedures for remittances to developing countries, which leads to an increase in international financing;
- **Enhancing social trust and fighting corruption:** The use of state funds can be monitored, and it allows governments to better track their spending and improve the allocation of their budgets.

2.1.2. Definition of cryptocurrency:

First and before the cryptocurrency is defined, it is necessary to know the types of digital currencies. The following table illustrates this.

Table 2. Types of digital currencies

Digital currency: Money in the digital space		
Digital currency (not virtual)	Virtual currency	Cryptocurrency
- Denominated in real currency as US Dollar - Digital payment mechanism, e.g. e-money, Pay Pal, digital bank wallet	- A digital currency that is controlled by its creators, used and accepted in a specific virtual community	- Use only cryptography to validate value and transaction like bitcoin
So: Virtual currencies are considered digital currencies, but not all digital currencies are virtual because they are outside a specific virtual environment, and cryptocurrencies are considered virtual currencies, the most famous of which is Bitcoin.		

Source: look: - Souhail Abboushi (2017), Global Virtual Currency-Bref Interview, Journal of applied business and economies, vol 19, p.11;

- جمال خطاب (5 ديسمبر 2019)، ما الفرق بين العملات المشفرة والاقتراضية والرقمية؟، مجلة المجتمع. من الموقع: <https://mugtama.com/translations/item/95815-2019-12-05-> (23/8/2021) [07-21-25.html](https://mugtama.com/translations/item/95815-2019-12-05-)

So, among the various definitions of cryptocurrencies the following were chosen:

- **The European Central Bank** defines cryptocurrencies as: "*a virtual currency is a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community.*" (ECB, 2012)

- **The World Bank** defined it as: *Cryptocurrencies are a subset of digital currencies that rely on cryptographic techniques to achieve consensus, for example Bitcoin and ether.*" (WB, 2017)

A cryptocurrency can be defined as: A digital currency that has no physical presence, issued in a decentralized manner by an unknown unit. It is dealt with through the internet, and its production is controlled by specific people known as minners, in order to do so, they need very sophisticated programs that consume very significant electrical energy.

2.1.3. Characteristics of cryptocurrencies:

The characteristics of the cryptocurrency can be summarized in the following: (اليحي، 2019)

- **Encrypted digital unit:** The cryptocurrency is a currency that does not have any physical presence such as paper money, but it is just numbers that its electronic wallets show. It is encrypted, meaning that penetrating its electronic wallets and stealing its contents is almost impossible due to the cryptographic power in it;

- **Irregular currency:** The cryptocurrency is not subject to any control by a financial or monetary authority and there is no central body for it to control its issuance, value and movement. Due to its decentralized nature, the supervisory authorities cannot track the commercial operations carried out by it;

- **Issued by means of mining:** The mining process is available to all dealers according to technical capabilities. The term mining is metaphorical intended to extract virtual currency from its applications based on blockchain technology or a block system;

- **Protection of privacy and direct interaction between individuals:** The trade process takes place directly through electronic media only, as there is no intermediary that organizes exchanges. It is a peer-to-peer currency, which means that currencies are transferred from one person to another without any intermediary or central authority interferes.

In this regard, it should be noted that there are differences between the cryptocurrency and the digital currency (not virtual), these differences can be summarized in the following table.

Table 3. The difference between digital currency and cryptocurrency

The differences	digital currency	cryptocurrency
Concept	Refers to the electronic form of paper money issued by governments, as it is a real monetary value that is stored electronically.	It is a store of value secured by encryption, it has no physical presence, it is more like a Word or Excel file
Usage	No encryption required, users need to secure their digital wallets and credit cards with strong passwords to reduce the risk of theft or hacking.	Protected by strong encryption, and traded on the stock exchange online.
Supervision	backed by a central authority	It is based on a decentralized system and independent of any central organization, but all transactions are recorded in a ledger accessible to everyone.
stability and acceptance	They are stable in value, easy to manage and generally accepted.	High volatility in value, not generally accepted.
Transparency	Transactions are only available to the sender, receiver and banking authorities.	The transactions are open to everyone (ledger) but they cannot be controlled by the authorities.

Source: look: - Souhail Abboushi (2017), Global Virtual Currency-Bref Interview, Journal of applied business and economies, vol 19, p.11; NDTV Business Desk (August 9,2021), No, Digital Currency Is Not Same As Cryptocurrency. From the site: <https://www.ndtv.com/business/digital-currency-vs-cryptocurrency-how-are-they-different-2503481>(23/08/2021)

2.2. History, advantages and risks of cryptocurrencies:

2.2.1. History of cryptocurrencies:

The history of cryptocurrencies goes back to 1982. *David Chaum* was considered the first to invent what are known as *Protected Virtual Currencies*. He published a study on *Blind Signatures* through which information and funds can be sent without disclosure about the identity of the sender; (Chaum, 1998)

- During the 1990s, *David Shaum* founded an American-Dutch company known as *DigiCash*, using his blind signature invention, accordingly the user could use his money in the bank in virtual currency through his special program, what is known as *DigiCash Mint* is digitally documented for each unit of the virtual currency. The money created in this way can be sent to another user, exchanged and placed in the bank account. These transactions can also be made through the *DigiCash Wallet Program*. The system guarantees anonymity of its users, but the company failed in 1998 and was acquired by *Ecash Technologies* due to insufficient user interest in it and difficulties related to establishing cooperation with banks and companies providing financial services; (Wisniewska, 2016, p. 12)
- The idea of creating cryptocurrency did not disappear with the bankruptcy of its pioneer *David Shaum*. In 1996 the so-called *E-gold* system was established by the *Gold Silver Reserve Company*, as electronic gold relied on precious metals (gold, silver, platinum and palladium). Based on the reserves of these minerals, the company issued its own currency on the Internet. This system enjoyed great popularity, as it had more than 5 million users in 2009, but after the signing and issuance of the USA Patriot Act in 2015, which stipulated that it is necessary to obtain a license especially for managing businesses that deal with financial transactions, which made the company faced problems and accused its founders, which led to the suspension of the electronic gold system; (Wisniewska, 2016, p. 12)
- In 1996, the National Security Agency published a working paper titled "*How to make mint: the cryptography of anonymous electronic cash.*" This article describes the electronic money system (Lawand, 1997). This research will be published later by the Massachusetts Institute of Technology (MIT) in 1997 (السقا، 2019);
- In 1998 *Wai Dai* published a description of the digital currency system (b-money) as a distributed and anonymous electronic money system, after which *Nick Szabo* presented a description of another electronic money system called *bit gold*, after which *Hal Finney* followed up the work of *Dai and Szabo* and established a virtual currency system based on their work. (السقا، 2019)
- In 1999 *Flooz* was established in the United States of America (السقا، 2019).
- In 2007, a new virtual currency called *Ven* appeared, used only by users of the social network Hub Culture. It is available to anyone who has an e-mail, the exchange rate of this currency depends on a basket

containing other currencies, commodities and future contracts for coal, making it a stable currency but with a floating exchange rate; (Wisniewska, 2016, pp. 12-13)

- *Bitcoin* was created in 2009 by its anonymous inventor with the pseudonym *Satoshi Nakamoto*, a virtual cryptocurrency based on encryption (Nakamoto, no date). After the creation of *Litcoin* in 2011, many cryptocurrencies were created.

2.2.2. The advantages of cryptocurrencies:

The advantages of dealing with cryptocurrencies can be summarized in the following points: (الباحوت، 2017، الصفحات 33-32)

- **Low fees:** Transactions are carried out in the framework of cryptocurrencies peer-to-peer without any intermediary between the parties, which does not call for the payment of any kind of fees or charges on the transfer like the commissions charged by banks;

- **Speed, privacy and confidentiality:** Cryptocurrencies are characterized by the inability to monitor the sale and purchase process, that is, to be characterized by privacy, so the identity of the dealers cannot be known. It can be dealt at any time without any governmental or supervisory restrictions.

- **Global:** Cryptocurrencies are not linked to a specific place or a specific entity, but are a global currency available worldwide. There is no party that can attend or control it;

- **Transparency:** People who deal in Bitcoin can know the number of Bitcoin units that each individual owns a wallet and the number of transactions that took place through it, as everyone watches with full transparency the movement of currency between the wallets without knowing the identity of their owners;

- **Security:** The Bitcoin protocol and the encryption technologies are among the largest distributed computing projects in the world, making it difficult to forge or reproduce. The users can operate security practices to protect their money, so it has a strong security record;

2.2.3. Risks of dealing in cryptocurrencies:

Cryptocurrencies trading leads to many risks and disadvantages, which are: (الباحوت، 2017، الصفحات 36-33)

- **Currency secrecy and its encryption:** The cryptocurrency can be used in suspicious and illegal operations like money laundering, the sale of drugs and prohibited products, as it is difficult for the security authorities to trace the identity of the dealers;

- **Mining:** Among the most important obstacles to the spread of Bitcoin use is the difficulty of mining it by ordinary users, due to the complexity of access programs and the complexity of the mathematical operations necessary to solve the mathematical equations necessary for the mining process;
- **Price fluctuations:** The price of Bitcoin has witnessed large and clear fluctuations in recent years due to the series of speculation on this currency, which encouraged fraudsters to exploit this through fake currency exchange sites, which may cause great losses for dealers;
- **Piracy:** Since Bitcoin is a digital currency stored in a digital electronic wallet, it is vulnerable to piracy, theft and manipulation and money cannot be recovered and legal measures cannot be taken to prosecute the thieves;
- **Control and tax evasion:** Cryptocurrencies are not generally subject to the control of monetary authorities or any authority. It will be difficult for government agencies in charge of tax collection to collect the latter, because the transactions are hidden through the internet. It is also one of the means of smuggling money abroad.

3. The sharia view of cryptocurrencies -Bitcoin –

3.1. The conditions and functions of money and the extent to which it is achieved in the cryptocurrency (Bitcoin):

There are a set of conditions that must be observed in order for the issuing and circulating money in the economy. These conditions can be summarized in the following: (عودة، 2019)

a- Popularity and general acceptance: Money is acceptable in circulation among individuals and has a general popularity, **but the cryptocurrency** is not as popular as other fiat money. The custom has not been established that the cryptocurrency is money and is still subject to hesitation, especially with the prohibition of many countries dealing with virtual currencies in their monetary and banking system.

b- Stability of value: It is a fundamental requirement in money to carry out its functions so as not to lead to a breach of the legal and economic aspects and obligations among people, to fulfill the condition of fairness in transactions. **As for the cryptocurrency**, there is no stability in its purchasing power, due to the large fluctuations in its value, as it rises and falls several times. The motive to deal with it is speculation and not performing the monetary function.

c- Issued by the state: Finding money and issuing it is related to taking into account the public interest, so it was necessary to arrange for each society what is commensurate with the size of the gross national product, which leads to stability in the value of money, so that it performs its functions in order to save people's money. Countries do not supervise the issuance of the cryptocurrency, and there is no financial authority that controls it, monitors its prices, works to protect and supports it, but it is produced with programmatic methods available to everyone.

d- Medium of exchange: It is a means of transferring the ownership of goods and services from one party to another without the need for an intermediary, as it is the means to assess the values of things. Cryptocurrency does not currently perform this function, i.e. as a means of transferring ownership of goods and services from one party to another, but rather, its current function is trading and speculation.

e- A measure of values: Money is used to measure the values of goods and services. A cryptocurrency is not a measure of goods and services, as goods and services are not measured directly by them, but by another currency and then exchanged. If it is said that some stores price goods with them, they are told that this trade accepts cryptocurrency in payment (a method of payment) because in fact the pricing is done in another currency such as the dollar, and payment is accepted in the cryptocurrency, because if its value increases, customers will refrain from buying and vice versa in the case of decline.

f-Standard of deferred payment: Money is a means of discharging debts, by paying debts and repaying loans, as debts are expressed in money, because money is a public purchasing power that is expressed in specific units that are identical in its characteristics. Cryptocurrency cannot be a means of spending debt and repaying loans, because it is a function related to money being a keeper of its value.

3.2. Licensed to deal with Bitcoin:

Among those who authorized - they are few - to deal with Bitcoin in terms of issuance and circulation, we mention:

- *Dr. Abdullah bin Abdul-Wahhab Al-Aqeel* in his paper entitled: "

العقيل، بدون تاريخ) (Bitcoin) الأحكام الفقهية المتعلقة بالعملات الالكترونية

- *Dr. Nayef Al-Ajmi* from Kuwait in his online lecture entitled: " التكييف

(العجمي، 2018). "الفقهي والحكم الشرعي للعملات الرقمية"

Those authorized to deal with Bitcoin infer the following:
(الإسلامي، 2018، الصفحات 23- 25)

- Stay on the permissibility basis;

- Bitcoin is a legally established money by virtue of what has become in reality in that it owns other currencies, goods and services;

- Bitcoin has performed the functions of money or currencies even though it has not been issued by the government;
- There is no objection to authentication, prospecting, or mining for the purpose of obtaining the Bitcoin currency, whether it is by directly owning hardware and software or leasing through the purchase of cards that authorize the use of third-party devices;
- There is no objection for buying Bitcoin in other government currencies, accepting it in commodity exchanges, or exchanging it for other cryptocurrencies that have the same ruling;
- Exchanges on bitcoin and other currencies, or gold and silver, are subject to exchange provisions, and every digital currency is viewed as a category, the same as the case in government currencies, and the provisions for zakat on cash are applied to the balances owned by them;
- Exchanges on bitcoin and other currencies or gold and silver are subject to exchange rules, and the rulings on zakat on gold and silver are applied.

3.3. Inhibitors to deal in Bitcoin:

Among the most famous of these fatwas we mention:

- Fatwa of the Presidency of Religious Affairs in Turkey: This fatwa states: Trading either (buying or selling) in virtual currencies does not correspond to religion because the state does not recognize it. It is open to speculation, it can be used easily in illegal activities such as money laundering because it is not subject to state control. (هل التعامل) بعملة البيتكوين حرام
- Fatwa of the Palestinian Dar Al Iftaa: The fatwa included the following: The Palestinian Dar Al Iftaa issued a fatwa prohibiting dealing with virtual electronic currency, including Bitcoin. Dar Al Iftaa attributed the prohibition of virtual currencies in Palestine, to its association with "gambling" and its containment of *garar*, according to what was stated in its statement. Dar Al Iftaa said that the cryptocurrency "Bitcoin" and other currencies, it is not permissible to sell it or to buy it. They are highly volatile and provide an area for fraud. (دار الافتاء تحرم التعامل مع العملات الافتراضية في فلسطين، 2017)
- Fatwa of the Egyptian Dar Al Iftaa: It reads as follows: It is not permissible according to Sharia to trade in the currency of "Bitcoin" and deal in it by buying, selling, leasing, etc., rather, it is prohibited to participate in it, because it is not considered as an acceptable medium for exchange by the competent authorities, and because of the harm it

entails resulting from deception, ignorance and fraud in its exchange, standard and value, in addition to the high risks that its practice leads to individuals and states. (المصرية، 2018)

Also acknowledge the illegality of Bitcoin in its current form by:

- *Dr. Ali Mohiuddin Al-Qaradaghi*: Fatwa on the Sharia ruling for electronic digital currencies (فتوى حول الحكم الشرعي للعملة الرقمية) (داغي، بدون تاريخ); (الالكترونية)

- *Dr. Abdul Majeed Obaid Hassan Salah & Dr. Aman Ahmed Abdullah Qasim Al-Nahari* in their paper entitled: "Virtual Currencies: its History and Islamic Rule"; (Saleh & Qasem Al-Nahar, 2019)

Among the reasons that many jurists and economists have agreed upon, which prevent the permissibility of this type of currency, we mention: (الحمود، 2019)

- It includes a high risk due to the fluctuation of its prices;
- Contemporary currencies do not derive their value from themselves, but rather from the guarantor of them, represented by their central banks. As for bitcoin, there is no one to guarantee it;
- It is used to escape from the security services to implement illegal purposes. Furthermore, they are used by terrorist, drug and money laundering gangs to evade justice;
- The dominant image in the issuance of this currency is that it is extracted through a process called Bitcoin mining, which it relies in its stages on electronic computers with fast processors, by using specific programs linked to the International Information Network on the Internet. The mining needs a superior ability to solve complex problems to reach the blocks, which made it the preserve of a certain group of people.

4. Results and discussion (The prospects for establishing Islamic digital currency)

4.1. The possibility of developing a digital currency compatible with Islamic sharia

4.1.1. Amending the issue of decentralization in the cryptocurrency:

The issue of decentralization in cryptocurrency is among the most important issues that made many jurists refuse to deal with it, as no one can control it in terms of supply or verification. Many current

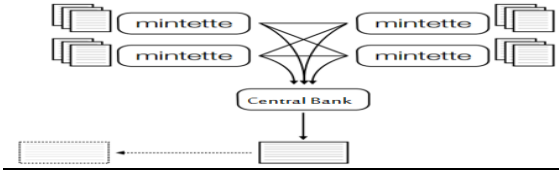
governments seek to suggest some ideas to include cryptocurrencies in specific regulations to enhance their development, because the risk of dealing in these currencies lies in the following:

The current governments control the supply of paper money in the economy through monetary policy that injects and withdraws money into the economy to affect spending and investment, which leads to the creation of many jobs and the stability of inflation rates. For cryptocurrencies, all transactions are carried out through miners who consist of computers that solve complex mathematical algorithms to verify transactions and avoid double spending, as the supply of cryptocurrencies cannot be controlled. As *Zahudi & Amir* says: “*Virtual currency is still a largely uncharted and unsupervised area, and so far, no protections are likely available to the consumers that become involved with virtual currency if something goes wrong*”. (Alzubaidi & Abdullah, 2017, p. 84)

Among the proposals that have been put forward to address the problem of decentralization in cryptocurrencies is the proposal presented by *Danizis & Meiklejohn* in 2015. They proposed the creation of a central cryptocurrency known as *RSCoin*, aimed at introducing some centrality in generating money and verifying transactions to achieve the best goals that combine the advantage of cryptocurrencies with the stability of government control. RSCoin is created by the central bank, delegating the verification of transactions to a certain number of institutions known to everyone known as “*mintettes*”. They are held accountable for any misconduct to ensure the safety of the ledger and the system as a whole. (Danezis & Meiklejohn, 2015)

The RSCoin system consists of two main entities: the central bank that has full control over the money supply, and a distributed group of mintettes that are responsible for maintaining the ledger and transactions. The following figure shows the mechanism of this system.

Fig .2. How the RSCoin system works



Source: George Danezis & Sarah Meiklejohn (2015), Centrally Banked Cryptocurrencies, p4. From the site: <https://eprint.iacr.org/2015/502.pdf> (1/3/2020)

It is noted from the figure that the central bank is in control, as all transactions with mintettes belong to it. Each mintette maintains a set of lower-level blocks, and can communicate with other mintettes directly or indirectly. At some point the mintettes send these blocks to the central bank that produces the high-level block, and the mintettes are collectively responsible for producing a consistent ledger. To facilitate this they communicate with each other permanently. The higher-level blocks are the ones that make up the blockchain that is visible to external users, as the top-level block at the central bank level is integrated into the main blockchain, which means that every RSCoin user can track the main-level blocks. He can also track lower-level blocks if he wanted to. (Danezis & Meiklejohn, 2015, p. 84)

4.1.2. Modifying the issue of intrinsic value:

One of the criticisms of cryptocurrency is that it has no intrinsic value like commodity money (gold and silver), although some jurists have said that the mining process creates the intrinsic value of the cryptocurrency, as there is an effort to issue and prospect for the currency, but despite that, we still cannot feel the physical existence of this currency that supports it and maintains its value in the real world, which remains a problem in defining money from an Islamic perspective. (Alzubaidi & Abdullah, 2017, p. 84)

One of the proposed solutions is to attach a physical commodity to cryptocurrencies in the real world to solve the problem of intrinsic value and currency fluctuation. Gold is a suitable commodity for physical existence and a reserve of cryptocurrency, which allows for: (Alzubaidi & Abdullah, 2017, pp. 84-85)

- Solve the problem of price volatility because gold prices are stable;
- Establishing a clear physical presence of the currency to support it, which does not allow price manipulation, and other objectives such as increasing confidence in the currency will be achieved, especially as it is covered with gold that is the most reliable among people.

In May 2017, a technology company in Dubai issued a cryptocurrency known as "OneGram", which is considered the first cryptocurrency in the world to be backed by gold. It is a currency similar to Bitcoin and is used using blockchain technology. Each currency is backed by one gram of gold, according to their website (<https://onegram.org/>) they

cooperated with the Gold Guard Corporation and started an initial coin offering of 12.40.786 coins. A prominent feature of this coin is its stability because it is linked to gold (1 gram), which determines the reference for the currency's price. (Read the OneGram, no date)

4.1.3. Achieving the objectives of Islamic sharia:

Islamic sharia has listed five main goals that must be protected and preserved, one of them being the preservation of wealth (money). There are several ways to preserve wealth by pursuing work and earning in the field of permissible transactions and commercial activities, prohibiting harmful activities such as theft, gambling, etc., and adopting a currency that loses its value over time, which leads to the destruction of wealth. By adopting the modified cryptocurrency, it is assumed that it achieves the goal of preserving wealth, as its creation is not based on the debt or partial reserve system that protects it from losing its value, especially if it is linked to a stable physical commodity such as gold, it is also safe and transparent, which leads to eliminate ambiguous and harmful activities. Transparency will make the central bank more clear about its policies in creating more currencies, and it will be limited by its actual intrinsic value. (Alzubaidi & Abdullah, 2017, p. 85)

4.2. A proposed model for the mechanism of the Islamic digital currency:

The proposed model is based on the creation of a representative Islamic digital currency - so that the community gets used to it, trusts it and has the characteristic of general acceptance - issued by the central bank along with the paper money - and to facilitate and increase its transparency, the ledger, smart contracts and blockchain technology are used. The model consists of the following actors: * (See figure n° 3)

4.2.1. The Central Bank:

The central bank is the supreme monetary authority in any country. In this proposed model, it issues digital money in place of the paper money, with the formation of the main blocks consisting of the partial blocks that Islamic banks send to publish on the blockchain, and become available to all members of society;

In this model, the central bank exercises its traditional function as:

- A lender of last resort;

- A monetary policy manager;
- A bank for banks;
- Issuance of paper and digital currencies (granted to Islamic banks).

Its tasks are greatly facilitated by using blockchain technology, as it can track the currency and the work of Islamic banks clearly and with full transparency, making it easier for it to track the monetary situation in the country;

4.2.2. Islamic banks:

It is the second important dealer in the model, as it is the second distributor of paper and digital currency representing the economy, because economic dealers do not deal with the central bank directly. The Islamic banks in this model do the following:

- **Organizing** a virtual exchange of currency with the Central Bank under the principle of Islamic finance (as musharakah);
- **Intervening** in the money market as a financier or applicant for financing (according to Islamic financing formulas);
- **Organizing** a virtual exchange of currency with customers in order to enable them to buy and sell currency efficiently. If these banks maintain the profit margin (bid/ask) within narrow limits and do not impose any other fees, this will encourage increased dealings for Muslims and non-Muslims; (W.Evans, 2015)
- **Attracting** deposits of various kinds;
- **Granting** loans and financing in various forms, especially in the digital currency, because this would facilitate the process of tracking the funding path, especially for the formulas based on participation modes, by using smart contracts to facilitate transactions and increase their transparency;
- **Intervention** in the Islamic capital market as a trader, broker or financier of transactions, where partial blocks are formed at the level of the Islamic capital market;
- **Verify** financial transactions made using the ledger and blockchain technology;
- **Registration** of the various partial blocks that were made with each Islamic bank, to be sent later to the central bank to form the total blocks.

4.2.3. The Sharia Supervisory Board:

It is a body of banking and legal specialists, in order to coordinate among them, and to unify fatwas, so as not to weaken its presence and prominence in the global banking business, and this body:

- **Issuing** fatwas regarding the legality of transactions carried out by the Central Bank and Islamic banks;
- **Tracking** the compliance of the banking system with these fatwas in an easy, clear and transparent way through the blockchain;
- **Determining** the value of the Islamic digital currency by linking it to a specific index that is economically agreed upon and that has legal approval, in order to limit the risky operations that take place on the currency, and thus maintain the stability of its value.

4.2.4. The Islamic Capital Market and its Supervisory Board:

The issuance and circulation of financial instruments compliant with Islamic sharia, such as ordinary shares and sukuks, according to smart contracts between various economic dealers, and the operations and tools of the Islamic capital market are monitored by legal supervision by the SEC and sharia supervision by the sharia Board. At the level of this market, partial blocks are registered by brokers (Islamic banks) to be sent to the Islamic Capital Market Supervision Authority to form the total blocks and publish them in the blockchain network.

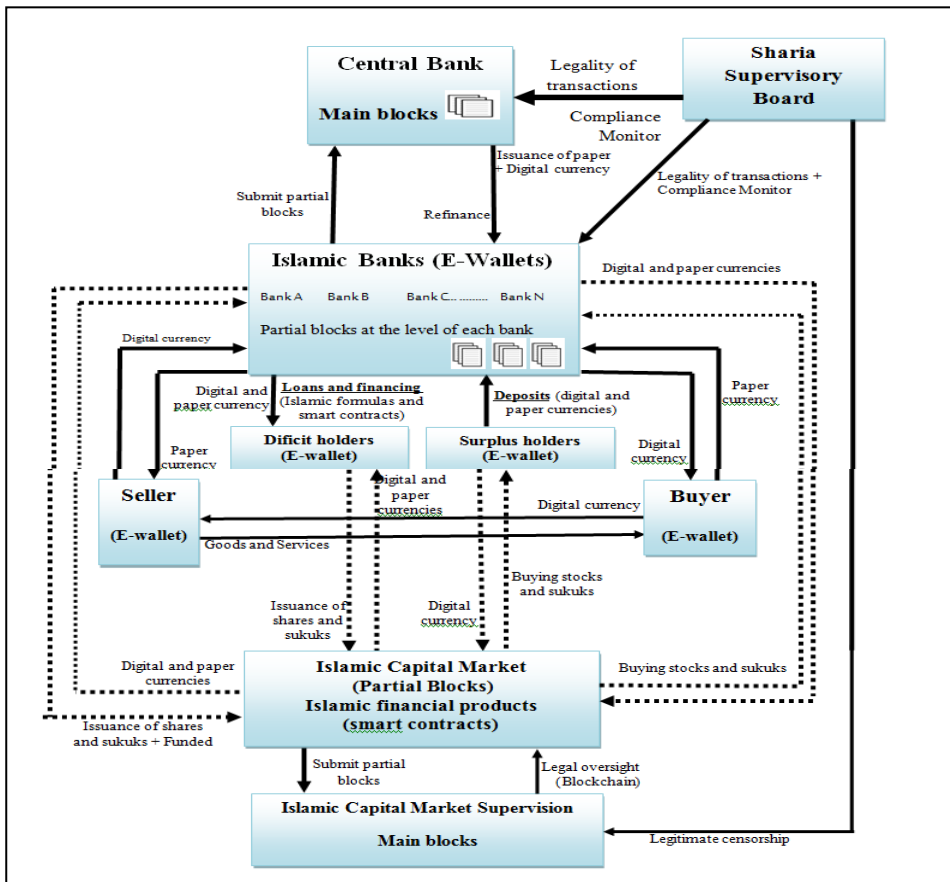
4.2.5. Economic Dealers:

Economic dealers vary between sellers and buyers, surplus agents and deficit agents. These can deal in paper or digital currency according to their needs and desires using smart contracts. They have electronic wallets with specific addresses (a public key known to everyone and a private key that only the owner of the wallet knows) to receive and send the digital currency and the various necessary documents electronically. The identity of dealers remains confidential on the blockchain network, but it is known at the level of Islamic banks, the central bank and the Islamic Capital Market Operations Supervision Authority, in order to avoid suspicious operations and thus the possibility of legal follow-up.

4.2.6. Society:

All members of society can track the various transactions that have taken place with full transparency, and thus know the source of the products and the extent of their compliance with Islamic law, how they are distributed and the method of payment.

Fig.3. How the Islamic digital currency works (Proposed model)



5. Conclusion:

cryptocurrencies are considered a revolution in the world of money and finance because of their advantages, but despite this, these currencies were subjected to so many criticisms, that they had to be modified. Through this research, the following results were reached:

- There are many conditions and characteristics of money that are not fulfilled in cryptocurrencies, which made it rejected by many jurists and economists.

- There are many opinions about the legality of cryptocurrencies (Bitcoin), but most of them are forbidden to deal with them due to their distinctive characteristics that involve many risks.
- Islamic digital currencies can be created by modifying traditional cryptocurrencies such as amending the problem of decentralization and the lack of a body controlling the issuance and modifying the issue of intrinsic value and linking it to a commodity, especially gold, making it compatible with the provisions of Islamic Sharia.
- A model based on the Islamic digital currency in the field of Islamic finance can be created as a representative currency for paper money by using blockchain technology, the ledger and smart contracts. A group of dealers (Central Bank, Islamic banks, Sharia Supervisory Authority, Islamic capital market, sellers and buyers) and all members of society participate in this model to verify the transparency of transactions.
- **Research proposals:** Cryptocurrencies have many advantages, and with the increasing volume of electronic commerce and digital transactions, it is necessary to take advantage of the characteristics of these currencies and try to modify them, so it must be:
 - Increasing specialized research in this field to understand everything related to cryptocurrencies, as it involves many complex operations;
 - Coordination between the various specialists who have a relationship in the field of cryptocurrencies (computer science - mathematics - economics - law - sharia) so that all aspects related to cryptocurrencies are understood and thus reach the correct fatwa;
 - Trying to find an independent Islamic digital currency, spreading the culture of dealing with it, and creating the necessary infrastructure for its work, in order to increase the effectiveness of Islamic finance, not just Islamizing traditional digital currencies.

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*The model was inspired by the model proposed by Ouissi Amin and others (adapted).