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CRYPTOCURRENCY FROM A *SHARI'AH* PERSPECTIVE¹

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Abstract

For the past few years there has been a significant increase of people's interest in crypto-currencies. Seminars and conferences have been organized to discuss the nature and feasibility of cryptocurrencies. Some argue that it is good to have an alternative to the current fiat money system in which the predominant role is played by banks, while a cryptocurrency does not require any bank account, tax payment and auditing. Some others disagree with these arguments and claim that any mode of payment in other than traditionally known instruments such as cash payment, telegraphic-transfers, cheques and so, will open the door to avoid tax and audits, which in turn may seriously effect a government's budget and may even decrease GDP. This research uses theoretical, descriptive and analytical methods of research and therefore focuses on the following important points: a) defining the place of cryptocurrency in the financial system by determining the extent of its influence; b) reviewing the literature on the topic, which will allow us to determine the current understanding of the problem by modern science; c) unveiling the key requirements of Shari'ah for money and money circulation to formulate a standard understanding of money in Shari'ah; d) comparing the characteristics of paper money and crypto-currencies (using the bitcoins as an example). The authors believe in permissibility of using the cryptocurrencies but with strict reservations.

Key words: Cryptocurrency, Bitcoin, Digital finance, *Shari'ah* view

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Introduction

It is obvious that an increasing number of people around the globe are embracing the new world of currencies and financial transactions, the world of cryptocurrencies. Studies by consulting agencies Infosys Finacle on the topic of cryptocurrencies found that about 69% of banks in the world are experimenting with crypto-currencies, and the average amount of investment in projects related to cryptocurrencies - blockchain technology - has reached USD 1.0 million.² Another study conducted in 2017 by the Cambridge Center for Alternative Finance shows that the total cryptocurrency market capitalization (mainly because of bitcoin) has increased more than 3 times since early 2016, reaching nearly USD 25 billion in March 2017.³ As the influence of cryptocurrencies in our daily life grows, the question of their relevance, compliance with the requirements of *Shari'ah* and the permissibility of their use by ordinary Muslims and Islamic financial institutions is also becoming apparent.

Position of Cryptocurrency in the Financial System

The significance of cryptocurrencies is determined by the fact that they represent a fundamental component of a entirely new model of financial relations - Digital Finance. Needless to say, it was only until recent in the financial structure that there were three fundamentally different models of financial relations: the classical finance, corporate finance and Islamic finance. The Digital Finance now constitutes the fourth structure. The differences between these four fundamental models are illustrated in the table 1 below.

² "Blockchain Technology: From Hype to Reality," *Infosys Finacle*, accessed August 24, 2017, <https://www.infosys.com/newsroom/press-releases/Pages/accelerate-blockchain-investment-reveals.aspx>.

³ Hileman, Garrick, and Michel Rauchs. "Global cryptocurrency benchmarking study." *Cambridge Centre for Alternative Finance* 33 (2017), 16. https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2017-global-cryptocurrency-benchmarking-study.pdf

Table 1: Characteristics of the Four Fundamental Finance Models Compared

№	Parameters	Existing Models of Finance			The New finance model:
		Classical Finance	Corporate Finance	Islamic Finance	Digital Finance
1.	Era of establishment	The beginning of the currency emission	Development of financial markets	Economic growth of Islamic countries	1. Independent Internet access 2. Independent currency emission
2.	Single emission center	Yes	Yes	Yes	No
3.	State regulation of financial activities	Yes	Yes	Yes	No
4.	Interest based loans	Yes	Yes	No	Yes
5.	The cost of money over time	Constant	Future money is cheaper	Constant *	Future money is more expensive***
6.	The objective of doing business	Profit maximization	Maximizing the cost of capital	Achieving prosperity in both worlds **	Maximizing personal freedom of action ***
7.	Criteria for business efficiency	Income exceeding expenditure	profits exceeding expenses for servicing capital	Excess of incomes over expenditures considering religious restrictions	Steady growth in clients ***

* From theoretical point of view, it is constant, but since Islamic finance does not have its own (Islamic) currency and is based on conventional / traditional currency, the value of money over time can be unstable, for example, "future money could be cheaper than the money at hand" as is the case in corporate finance.

**This unscientific formulation implies the desire of Muslim businessmen to maximize their family and social wealth by observing strict religious rules and regulations.

***Presumption of the authors

Classical finance has its own way of counting from the moment of the emission of banknotes. In this system, the value of money does not change with time, that is, one ruble today will have the same value as one ruble in a year time. The model of corporate finance started conducting its own counting since the beginning of the rapid growth of financial markets. This model sees the value of money depreciating over time. Finally, the model of Islamic finance has adopted its counting technique since the beginning of rapid economic development of Muslim countries. One of the unique principles of this model of financial relations is the inadmissibility of lending on interest. Nevertheless, all three models adopt a single emission center represented by the central bank and strict state control over the sphere of financial relations. Hence, all the three models can be generally defined as “centralized finance”.

Each of these four models are associated at one point in time with the rapid development one of the spheres of economic or political life of the society. The corporate finance model is associated with the rapid development of financial markets. This created opportunities for alternative investments that evolved into new ways of doing business especially where the increasing cost of capital is maximized. Meanwhile the rapid economic development of certain Muslim countries led to the birth of the Islamic finance model. This allowed the citizens of these Muslim states to invest their savings in *Shari'ah* compliant projects. Similarly, there has rapid development of the Internet in the finance sector, notably the Big Data, Blockchain, Smart Contract, P2P, air / space distribution of the Internet and many others. This development has created incredibly huge opportunities for doing business on the network. This has also allowed the evolution of a modern financial system – the digital finance, completely different from the existing systems. One of these forms of digital finance is the cryptocurrencies, which primarily decentralize their emission process make it difficult for money circulation to be controlled and managed by a central authority. Cryptocurrencies are available everywhere and for everyone including Islamic financial institutions and ordinary users as long as there is an access to the Internet. Despite this rapid development, the

question of the compliance of cryptocurrencies with *Shari'ah* requirements remain unresolved.

Literature review

In the Russian electronic library (REL)⁴ 366 articles are displayed on request with the keyword “cryptocurrency”, but when adding one more keyword “*Shari'ah*” to the search query, the result becomes zero. Searching in the international library of the Social Science Research Network (ssrn.com) led to a similar result - 143 and 0 articles, respectively. In addition to that we found one article whose author peremptorily attempts to label bitcoins as 100% *Shari'ah* compliant. In fact, this opinion is not a result of an accurate academic research but rather a mere author’s opinion published in a popular daily newspaper called Gulf Times.⁵ However, we found few articles whose authors somehow tried to address the issue of using bitcoins in Islamic Banking and Finance (IBF). For example, Charles W. Evans,⁶ makes comparison between fiat money and bitcoins and draws conclusion that bitcoins are free from Riba and believes that bitcoins incorporate the principles of *maslahah* and risk sharing. However, Jan A Bergstra,⁷ on the other hand, who also discusses certain issues of using bitcoins in IBF, describes bitcoins as currency-like informational commodity and concludes by saying that there is a significant probability (higher than 99%) that bitcoins will disappear and the investors will get disappointed.

Thus, it can be stated here that while academicians dispute whether cryptocurrency is a reliable currency or not, Muslim scholars view it from a different perspective, i.e. the extent to which

⁴ REL, elibrary.ru

⁵ “Islamic Finance and Digital Currencies: The Halal Aspect,” accessed August 23, 2017, http://www.gulf-times.com/story/532032/Islamic-finance-and-digital-currencies-The-halal-a?utm_source=Eloqua&utm_medium=email&utm_campaign=Newsletter_IslamicFinanceWeekly&utm_content=Newsletter_IslamicFinanceWeekl_y_12Feb17

⁶ Charles W. Evans, “Bitcoin in Islamic Banking and Finance,” *Journal of Islamic Banking and Finance* 3, no. 1 (2015): 4.

⁷ Jan A Bergstra, “Bitcoin and Islamic Finance,” (2015), 19, accessed October 1, 2017, <https://pdfs.semanticscholar.org/3a7d/7f35440191f1217d7b4f49f50079c4e9708e.pdf>

cryptocurrencies comply with *Shari'ah* principles. Various opinions of famous experts of Islamic finance, both proponents and opponents of cryptocurrencies, are available on the internet. The following experts express their support for cryptocurrencies and that they believe in compliance of cryptocurrency with the *Shari'ah* law.

Sheikh Dr. Adnan Al-Zahrani, ex-chairman of the *Shari'ah* Supervisory Board of Al-Jazeera Bank says: "Crypto currency is one of the types of currencies / money that emerged as a result of the process of creating and developing money. In other words, at first it was an ordinary barter, then gold and silver coins, and then paper money and now virtual money, which are crypto-currencies. And this is normal",⁸ Dr. Monzer Kahf, an expert on Islamic economics and finance, Professor at the Qatar Faculty of Islamic Studies believes that bitcoin like any other currency is money within its community and exchanging it with other currencies is definitely subject to the same conditions of exchanging currencies which are: 1) exchange should be on the spot without leverages and futures; 2) no speculations on currencies, i.e. exchange must have a real cause to buy or to sell other than the idea of currency for currency. Even though he accepts bitcoin as money his confidence in it is minimal not until it is traded in the open market – like other currencies – the chances of manipulation are high.⁹ Mufti Abdul Qadir Barakatullah, a member of the *Shari'ah* Committee in Al-Ryan Bank, formerly the Islamic Bank of Great Britain says: "I am convinced that cryptocurrencies can be an effective tool for the further development of Islamic finance".¹⁰ In addition, he recalls the rule among Muslim scholars that any commodity that is perceived by society as a means that can play the role of means of payment must be perceived as money.

On the other hand, there are experts who oppose cryptocurrencies. For example, Sheikh Imran Hussain, one of the

⁸"Cryptocurrency," accessed August 25, 2017, <https://www.youtube.com/watch?v=OyG5YYY-4D4>.

⁹ Monzer Kahf, "Fatwa on Bitcoin," accessed August 22, 2017, <http://lightuponlight.com/blog/fatwa-on-bitcoin-by-monzer-kahf/>

¹⁰ <http://fin-future.com/category/financial-services/crypto-currencies/>. FinFuture Forum. Inc. Publications, 35.

modern and famous Muslim scholars, believes that any currency that does not have intrinsic value cannot be considered as valid money. Consequently - in his opinion - only gold or silver money can meet the criteria of the *Shari'ah*.¹¹ Professor Ahmed Kamel Midin Meera, the former dean of the Institute of Islamic Banking and Finance at the International Islamic University of Malaysia, and the author of the book *Islamic Golden Dinar*, believes that in order for the digital currency to be accepted in the Islamic financial industry, it must have a measure of value, which has to be a monetary commodity. According to him there must be a standard weight on paper notes or electronic currencies to be accepted, and it has to be redeemable with a standard weight like gold. Otherwise, it is not fair and it is fiat money.¹²

Queries, in the format of Q&A about permissibility of cryptocurrencies from *Shari'ah* perspective can also be found online in the “question-answer” section of the IslamWeb online forum.¹³ We reproduce below two pertinent questions with their corresponding answers.

- Question: What is the *Shari'ah's* view on buying bitcoins?

Answer: despite the fact that there are a lot of unintended actions around electronic money, such as volatility and speculation, we cannot unequivocally prohibit the use of this money, as the aforementioned negative indicators in most cases are already present in the markets.¹⁴

- Question: What is the opinion of the *Shari'ah* on the purchase and sale of electronic money (bitcoins) and also mining?

Answer: “Anyone who has acquired electronic money in a legitimate

¹¹ “Shaikh Imran Hussain: Bitcoin Bukan Wang Sebenar,” accessed August 26, 2017, <https://www.youtube.com/watch?v=9czV1bronto>.

¹² G. Rabbit, “A Cryptocurrency for the Islamic Financial Markets,” *Crypto Insider*, last modified, March 21, 2017, <https://cryptoinsider.com/cryptocurrency-islamic-financial-markets/>

¹³ One of the most popular and reliable Islamic websites in the world (70 million visitors in 2011). Administered by the Ministry of Waqfs and Religious Affairs of Qatar, retrieved on 22/08/2017 <http://www.islamweb.net/>

¹⁴ <http://fatwa.islamweb.net/fatwa/index.php?page=showfatwa&Option=FatwaId&Id=320230&wheretosearch=0&order=&RecID=5&srchwords=%20251170&R1=1&R2=0&hIndex=> retrieved on 26/08/2017, at 10:33.

way can use it, this is permissible. We already said in one of the previous fatwas that the digital or electronic currency is different from paper money or ordinary coins. Consequently, the purchase of these electronic moneys is regarded as an ordinary currency exchange”.¹⁵ However, despite the importance of *fatwas* and expert opinions, they cannot be considered as reliable as scientific research.

***Shari’ah* Requirements for Money and Money Circulation**

There is no clear *Shari’ah* text with a special set of requirements for the characteristics of money and the way it should circulate. And in order to examine how cryptocurrencies comply with the *Shari’ah*, we have to analyze: a) opinions of some classical as well as modern Muslim scholars with regards to the efficient cause (*illah*) of money; b) the modern mechanism of money circulation from the *Shari’ah* point.

a) opinions of Muslim scholars regarding the efficient cause (*illah*) of money.

Islamic heritage has quite a rich number of references in which scholars expressed their views regarding the essence and role of money. However, we will provide only few of them which in our opinion reflect the view of the majority.

Imam Al-Ghazali says:

“Allah created dinar and dirham for circulation and to be an equitable and just standard between different assets and for another wisdom which is make them as means to all other assets. That’s because they are precious in themselves (intrinsic value) but not desired for themselves...”¹⁶

Imam Ibn Taymiyah states:

“Whenever currencies are sold one for another on

¹⁵ <http://fatwa.islamweb.net/fatwa/index.php?page=showfatwa&Option=FatwaId&Id=251170>. Retrieved on 26/08/2017, at 10:54.

¹⁶ الغزالي، أبو حامد: إحياء علوم الدين، دار المعرفة – بيروت. ج 4، ص 91.

differed basis, it opposes the purpose of Thamaniyyah (measure of value) of money”¹⁷.

Sheikh Saleh Al-Fauzan believes that any “measure of value” commonly accepted by people should be considered as currency upon which the rules of *riba* are applicable.¹⁸

The commonality between the above two opinions is that money should be considered as measure of value or unit of account but not as ordinary commodity which can be traded on differed basis.

Generally, opinions of Muslim scholars from various *Fiqhi* schools regarding the efficient cause (*illah*) of money can be summarized in the following way:

- 1) Efficient cause is in “measurement”. Historically, *dinars* and *dirhams* were not only counted but also were weighed on scale. For example, a man selling his certain commodity could ask for bag (with a known size) full of dinars. They could have contained let’s say 95-100 dinars. Therefore, scholars from Hanafi and Hanbali schools said that if money is made of ordinary minerals such as iron, copper and they can be weighed then the rules of *riba* will be applicable to them.
- 2) Efficient cause is in “intrinsic value” from which it is made such as gold *dinars* and silver *dirhams*. In other words, the presence of precious metals such as gold and silver in those moneys made them possible to value other commodities.
- 3) Efficient cause is about “measure of value” or “unit of account”. So, money can be made of absolutely anything (gold, silver, iron, paper, plastic, etc.) as long as they serve as measure of value or unit of account.

b) the modern mechanism of money circulation from the *Shari’ah* point.

Our analysis on the mechanism of money circulation from *Shari’ah* point of view will be carried out with a reference to the key

ابن تيمية، أحمد بن عبد الحلیم: مجموع الفتاوى، مجمع الملك فهد لطباعة المصحف الشريف، المدينة النبوية، المملكة العربية السعودية، 1995. ج 29، ص 472.

الفوزان، صالح بن فوزان: الملخص الفقهي، دار العاصمة، 1423 هـ، الرياض، المملكة العربية السعودية. ج 2، ص 40.

prohibitions of the *Shari'ah* - interest (*riba*), uncertainty (*gharar*) and excessive risk and speculation (*maysir*) by focusing on the following seven aspects: a) The commodity feature of money; b) Volume of emission and the money supply; c) Procedure for money emission; d) Liquidity management of the banking sector; e) Inflation; f) Issues on *zakat* payment; g) Avoidance of *Shari'ah* prohibitions.

The commodity feature of money: There are varying opinions on the commodity feature of money. The most comprehensive definition that is extracted from scattered definitions of the early scholars is that of one of our contemporary scholars Ibn Uthaimin where he defined *maal* as follows:

المال كل عين مباحة النفع بلا حاجة.

"Any object that has halal benefit, and that benefit is meant to be halal in of itself and not because of a need or necessity". This means that the legality of the benefit extracted from that object should not be based on necessity such as the permissibility of eating pig to save life, or using a dog for the sake of protection. This does not make the said objects (pig and dog) *maal*, because if people are not in a state of need or necessity the object will remain impermissible.¹⁹

There are views that money should only be gold and silver, others opine that money is any material backed by gold. On the other hand, there are opinions that any money should have intrinsic value. Majority views recognize fiat money, yet *Shari'ah* views on cryptocurrencies remain contentious. We shall make use of the following two narrations to analyse these divergent views on the commodity feature of money. These narrations have also implications for the other subsequent two aspects under discussion.

- 1) Ahmad bin Yahya Albalazuri (d. 892) narrated the following:

"... حَدَّثَنَا يُونُسُ بْنُ عُبَيْدٍ عَنِ الْحَسَنِ، قَالَ كَانَ النَّاسُ وَهُمْ أَهْلُ كُفْرٍ قَدْ عَرَفُوا مَوْضِعَ هَذَا الدَّرَاهِمِ مِنَ النَّاسِ فَجُودُوهُ وَأَخْلَصُوهُ، فَلَمَّا صَارَ إِلَيْكُمْ غَشَّشْتُمُوهُ وَأَفْسَدْتُمُوهُ. وَلَقَدْ كَانَ عُمَرُ بْنُ الْخَطَّابِ قَالَ: هَمَمْتُ أَنْ أَجْعَلَ الدَّرَاهِمَ مِنْ جُلُودِ الْإِبِلِ فَقِيلَ لَهُ إِذَا لَا بَعِيرَ فَأَمْسِكْ"²⁰

"Yunus bin Ubaid narrated from Al-Hasan: previously when people were disbelievers they realized the position

¹⁹ محمد بن صالح بن محمد العثيمين، الشرح الممتع على زاد المستنقع، (دار ابن الجوزي: 1422 - 1428هـ) 19
²⁰ أحمد بن يحيى بن جابر بن داود البلاذري، فتوح البلدان، دار ومكتبة الهلال- بيروت، 1988، ص: 452.

of this Dirham towards people so they improved its quality and purified it, but when it came to your turn you cheated and spoiled it. Indeed Umar bin Al-Khattab once said: I wanted to make dirhams from camel hide, but then he was told by companions: then there will be no camels left. And Umar refused (from this idea)”

There could be two possible reasons behind Umar’s suggestion of making dirhams from camel hide: 1) to create a new type of money which could not be faked or forged; 2) there was insufficient money supply in the economy. The possibility of the second reason is not less than the first. The centuries-old practice of using money of other states, in particular the Roman Dinar and the Persian Dirham, suggests that the absence of the Islamic Caliphate’s own currency does not undermine its sovereignty and it was not a priority that required immediate solution. Otherwise Prophet (S.A.W) would have had taken some actions towards this issue [of a new currency] or at least he would have had left a will (*wasiyah*) asking his companions to pursue this matter after his demise.

2) Imam Malik said in his famous Al-Mudawwanah:

وَلَوْ أَنَّ النَّاسَ أَجَازُوا بَيْنَهُمُ الْجُودَ حَتَّى تَكُونَ لَهَا سِكَّةٌ وَعَيْنٌ لَكَرِهْتُهَا أَنْ
تُبَاعَ بِالذَّهَبِ وَالْوَرِقِ نَظْرَةً²¹

“And if people had permitted leather coins I would dislike them (coins) to be exchanged with gold and silver on deferred basis”.

Further analysis of the above narrations leads to the following conclusion: money emission does not necessarily have to be from gold or silver, as it is commonly believed, but rather from any material. In addition, it can be argued that, in *Shari’ah* law, the money emitter (in the hadith it is Caliph Umar) and the monetary regulator (companions) - can be different bodies. In fact, this narration shows that people, on their own, used to mint dirhams. They could polish and improve the quality of dirhams or to fake, cheat and spoil them by reducing the quality. And yet, as it is clear

مالك بن أنس: المدونة، دار الكتب العلمية، 1994، ج3، ص5.21

from the text, there was no objection on minting the dirhams but rather it was a quality issue. However, we can also argue here that based on the logical inference of the hadith, it is the central authority that is responsible for ensuring that there is no counterfeit money. In other words, Caliph Umar declined to implement the idea of the proposed currency precisely because it could create room for fake money (because every camel owner would make money) and not because it would lead to the extermination of the camels as such.

It is a commonly accepted concept that all financial liabilities such as *sukuk*, should be backed with real assets. AAOIFI (Organization of Accounting and Audit of Islamic Financial Institutions) was the first to officially announce that standard.²² By applying this approach to the concept of money, we can get an erroneous conclusion that the whole money supply should also be backed with real assets. However, this is not the case. It should be noted that money is not a financial asset, they are just a means for exchanging goods and services and therefore they do not have to be asset backed.

b) Volume of emission and the money supply: As we mentioned earlier, one of the possible reasons that Caliph Umar had proposed to emit money from the camel hide is because at that time the state economy did not have enough money in circulation. Therefore, another important point that can be deduced from the hadith is that *Shari'ah* does not specify and has remained silent on the quantity of money that should be emitted. The decision to emit money falls within the purview of the money emitter. Nevertheless, money can be emitted as much as it is necessary for the needs of the economy.

c) Procedure for money emission: There are mainly two approaches for money emission: 1) Money emitted by a central authority such as the state treasury (in some countries it is the Ministry of Finance). Money is emitted to finance government budget deficit. The money is credited to the budget and spent to cover the state's expenses. Such an emission is normally considered as one of the causes of inflation. From a *Shari'ah* perspective, this approach does not contain prohibited elements, contrary to the following second approach 2) in

²² <http://www.kantakji.com/media/7760/f173.pdf>, accessed August 29, 2017.

this second approach, the money emission is carried out by the Central Bank, which then distributes money among commercial banks on a competitive basis, in which the selection criterion is the highest interest rate offered. Since money emission approach in this conventional financial system is based on Riba it cannot be applied to the Islamic financial system.

d) Liquidity management of the banking sector: One of the functions of the Central Bank is to manage liquidity of the banking system. To do this, the Central Bank either attracts loans from the market or deposits money by itself. In both cases it is carried out on a competitive basis, where the criterion is the highest interest rate offered. Needless to say, the conventional instruments of monetary regulation - loans and deposits - do not meet the *Shari'ah* requirements. Furthermore, the Central Bank is considered an absolutely risk-free institution, which goes against the basic legal maxim of *Shari'ah* "*Liability justifies gain*". Based on this maxim, unlike in the conventional banking system, there is no legitimate justification for Islamic banks to "gain" a profit simply by depositing money in Islamic central bank. On the other hand, Islamic central bank is also not entitled to "gain" any profit from other banks for the financing it has provided. Therefore, since central banks (in general) are risk free institutions they have no right to take upon themselves any commercial risks for with no risk/liability there can be no reward/gain.

e) Inflation: Inflation is normally understood as a sustained increase in the general level of prices for goods and services in a particular county. The concept and some factors that lead to inflation are recognized by the *Shari'ah*. For example, demand pull inflation due to the expectations of the population, and genuine cost push inflation due to global factors are the kinds of inflation that do not conflict with the *Shari'ah*. However, inflation that causes a change in the purchasing power of money due to excessive emissions goes against the tenet of the *Shari'ah*. The harm from inflation caused by excessive money emission into circulation can almost be similar to the harm of *riba*. The modern system of monetary circulation is based - in theory - on strict control of volume of money emission,

which is consistent with the principles of Islam. In fact, the ban on *gharar* (uncertainty) and *maysir* (speculation/gambling) on the whole correspond to such an important characteristic of money as liquidity. However, the existence of a variety of prohibitions and restrictions on trade operations (what can and cannot be sold based on rules of pricing) imposed by the state authorities contributes to the speculation black market and, as a result, reduce the liquidity.

f) Issues on *zakat* payment: *Zakat* is compulsory on every Muslim who fulfills its conditions. If a person has savings that reach *nisab*²³ and does not invest them they will decrease by 2.5% every year due to *zakat* deduction. For proper and smooth functioning of *zakat* collection, as well implementation of law of inheritance, the person must completely own the property, whether such properties are visible such as buildings or hidden such as cash in safe custody. In the extreme case, virtual or digital money remain much hidden that the calculation of *zakat* or allocation of shares for heirs will be overlooked.–

g) Avoidance of *Shari'ah* prohibitions: An important aspect of the *Shari'ah* is that nothing should promote prohibitions including inequitable monetary circulation. One of the key issues actively discussed in Islam is the social injustice caused by the unfair (non-competitive) distribution of national wealth. Hence the circulation of money should not be among few rich hands resulting in wealth concentration among the few at the expense of marginalizing the majority of the people in the society.

In summary, the following are the salient requirements of *Shari'ah* related to money and money circulation:

- the process of money emission, its supply and withdrawal from the market should be free from *riba*;
- money can be made of any material (metal, wood, plastic etc);
- the money emitter and the monetary regulator may be two different entities/organizations;
- the money emitter is a risk-free institution;

²³ *Nisab* (85 grams of gold or cash equivalent) is the minimum amount of zakatable wealth obligatory on Muslim. Upon completion of one lunar year the owner is obliged to pay *zakat* (alms) amounting to 2.5%.

- the money emitter should not enter into transactions with financial institutions aimed at obtaining income;
- it is not forbidden to use the currency/money of other countries;
- money does not necessarily have to be backed by real assets;
- money must be emitted in a sufficient quantity to serve the needs of the economy;
- no prohibitions and or restrictions on monetary transactions, as well as exchange and transfer of money; [not clear]
- money and monetary circulation should facilitate the life of the people;
- ownership right of a person over money should be transparent.

Salient Characteristics of Cryptocurrency

Cryptocurrency is a computer file that cannot be copied or used twice. Since cryptocurrency can be used for trading transactions and savings and exchange for other currencies, they are considered similar to any existing undocumented money circulating only in the Internet.

There are three distinct levels of working with cryptocurrency (taking bitcoins as example).

Firstly: any legal or real physical person can own bitcoins and use them for transactions. The client will need to download on his computer a special software program which will enable him to open a wallet for storing his bitcoins. The client, using ordinary fiat money (USD, EURO etc), can buy bitcoins on the special cryptocurrency market and place the acquired bitcoins in his wallet.

Secondly: bitcoins can be generated or emitted: To do this, the user needs to download on his computer a special software program that solves sophisticated mathematical equations/puzzles generated by the bitcoin system. The user whose computer first solves the equation/puzzle (known as hash) gets a bitcoin as a reward. Figuratively, the process of generating or emitting bitcoins is called mining (as if it is a work in a mine where something valuable, for example, gold is mined). The process takes time and considerable amount of electricity. For a long time, especially at the initial stage, the market value of bitcoins was lower than the cost of electricity.

However, the truth is that in the current situation only those with specialized, high-powered machinery will have a greater chance to profitably extract bitcoins compared with the home miners. That's because they actually have no chance to compete in such a challenging environment, unless they have access to free or extremely low-cost electricity.

Thirdly: the user, having solved a sophisticated mathematical equation/puzzle faster than other players gets the right to execute transactions performed by bitcoins' holders at that particular time. Owners of bitcoins can perform transactions either way: with or without payment of commission. The user proposes a commission to prioritize his deal, in about 10 minutes time, while regular transaction - without commission - can take longer, up to few hours. High security of bitcoins is provided in addition to encryption by the use of blockchain technology (decentralized maintenance of registries). In other words, each owner of bitcoins has a complete database of all transactions made with all the bitcoins from the first time of their appearance. The complete database is about the transaction time of all bitcoins, the transferred amount and the approximate location of the payer (however, the database is anonymous and therefore to find the exact location of the bitcoin holders in most cases is impossible.

The transaction mechanism works as follows. A person, for example, sold something and received bitcoins in his wallet. The record of this transaction is automatically sent to all computers connected to the bitcoin system, and all bitcoin owners learn that a certain owner of an electronic wallet with a certain number has acquired a certain number of bitcoins from such a wallet under certain number. After some time, this person decides to buy something using his bitcoins. In this case he instructs his wallet to transfer a certain sum of bitcoins to such and such an address/wallet. At this point, his computer sends a request to all computers connected to the bitcoin system to confirm the validity of such a transaction. The computers of other participants check their records and send confirmation when they see that, indeed, this buyer (they see only the electronic name/code of his wallet) possesses the necessary number of bitcoins. When a certain number of confirmations are received, the participants of the second level form

a special record. Next, the claimed amount is transferred and all the computers of the system receive a message to add a new record to the database: deduct bitcoins from this person's wallet and add to his partner's wallet.

Suppose that someone decided to cheat by duplicating his bitcoins before selling the original ones. Next, he tries to sell the duplicate/copy. However, the computers of other participants will not confirm the fact of his possession of those bitcoins because at the time of the sale of the original bitcoins all participants recorded the deduction of a certain sum from person A and added it to wallet of the person B. Therefore, the hacker would not be able to conduct this type of fraud or fake transaction. Thus, to make a double payment by using the same bitcoins a person will have to hack all the computers of the system and change the whole database of the system to indicate that there was no payment from his account. And that is very unlikely if not impossible because as of the beginning of 2017, the number of participants was estimated at about 3 million people. According to various estimates, it is believed that for such a fraud, it is necessary to mobilize the computing power equivalent to half of the world's existing computers. Some experts say that even if you use more than 400 billion computers to hack the system it will not cause any serious disruption except delaying certain transactions for maximum of ten minutes.

Cryptocurrencies are not backed by real assets. However, since no one – at least so far – has been able to hack the system we can say that cryptocurrencies are quite unique and therefore, can be of interest to those users who are looking for an alternative to fiat money. From time to time we hear that there have been some attempts to back cryptocurrencies with certain assets, especially gold. But in this case the asset backed cryptocurrency will actually turn into an ordinary mechanism of attracting investments guaranteed by real collateral and will no longer be a cryptocurrency anymore.

The maximum volume of bitcoins' emission is limited to the sum of 21 million. There are also temporary and quantitative restrictions on "generating/mining". Therefore, participants of the system always know how many new bitcoins will appear in the market in a certain period of time. At present, bitcoins are mostly

exchanged for the US dollars only. At the same time, their exchange rate shows extremely high volatility (for example, the biggest drop in the rate of bitcoins in 24 hours - 80% - occurred in April 2013, and on the night of August 13th 2017, its value increased by 11.8%). This shows that bitcoins are used more for speculation and less for real transaction. In the future, when bitcoins will get a stable rate and the speculative hype around bitcoins cease, the above rules will help to minimize inflationary expectations.

It should be noted here that the operation of the cryptocurrency system is fully automated and is carried out without human intervention. The inventors of the system launched it in 2008 (the first transaction was conducted in January 2009), and since then they have not interfered with the system except for few adjustments to the program code. The fact that the system is free from interference guarantees a high degree of transparency for independent programmers. However, one of the shortcomings of this approach is the fundamental insolvability of some problems. For example, if a person has lost the password of his wallet, then neither he nor anyone else will ever get access to his money. If someone has stolen (somehow) your bitcoins then you will never get them back. There is a well-known story when the owner of bitcoins inadvertently showed the password (QR code) of his wallet, on TV during a news program and immediately lost money.

Some other cases of losing bitcoins are also documented. For example, it was reported that a person confused the fields while making a payment (field for sending amount was confused with the field of commission for payment). In the traditional banking system, the Central Bank can cancel any transfer and return the money to the victim. However, there is no regulator in the cryptocurrency system. Cryptocurrencies also carry risks to the heirs, for example, if a person died without informing his family members the password to his bitcoin wallet.

Despite the declared social justice in the bitcoin system it has shown insensitivity to social inequality. According to various estimates, bitcoins, in terms of their volume, are distributed unevenly among their owners. For example, it is claimed that just 927 people out of several millions of bitcoin owners own 50% of the total

bitcoins²⁴. This view is also supported by other studies.²⁵ Perhaps, the reason behind it is that the complexity of solving mathematical equations/puzzles by the “miners” will become even more sophisticated over time. And it is not surprising that creators of the system and the first “miners” found themselves in the most profitable situation in terms of speed and volume of earning bitcoins. As more and more users become attached to the system, the time for “mining” of one bitcoin becomes longer, and the “reward” is reduced. Undoubtedly, the creators of the bitcoins have the right for remuneration. But they should not receive it due to their exclusive position being the first “miners”. It should be stated here that bitcoins have nothing to do with the financial pyramid, where some participants receive income from attracting new ones.

One of the main drawbacks of the cryptocurrencies is that they can be used to evade tax. Indeed, a high degree of anonymity allows the owners of bitcoins to carry out operations, which make them fearlessly, avoid tax payment or even reporting to the tax authorities. At present, since bitcoin has not yet become a full-fledged means of payment (mainly due to the high volatility of the exchange rate) this problem is not so noticeable. However, in future, the state faces the risk of losing some of its tax revenues. This situation is deadlocked, in a sense that there are no technical measures to counteract the tax evasion. Obviously, the state authorities will have to develop completely new approaches to revenue collection for the maintenance of budgetary institutions, law enforcement agencies and other government needs. Perhaps they may create their own electronic money as a counterpart to the national currency.

Another serious aspect is the geography. The fact is that cyberspace does not belong to the jurisdiction of any of the countries of the world. Yes, many companies from different countries use internet but still work within the legislation of their respective countries. However, the cyberspace per se is not subordinated to

²⁴ “50 любопытных фактов о криптовалюте Bitcoin,” accessed August 24, 2017, <http://promtechrs.ru/bitcoin/50-interesting-facts-about-bitcoin.html>.

²⁵ “Сколько людей на самом деле владеют биткойнами?” accessed August 24, 2017, <https://bitnovosti.com/2015/02/14/kak-mnogo-ljudej-vladejut-bitcoinami/>

anyone. Therefore, for any country, the cryptocurrencies emitted in the Internet in a decentralized way will be perceived as a product performed outside its jurisdiction, namely, as an imported commodity, with all the obvious consequences such as customs clearance and taxation but considering the specifics of the cryptocurrencies. Cryptocurrency, after it is legalized by the state can be freely circulated in the economy and can be bought and sold as, for example, an investment product with high liquidity. But cryptocurrency – at least in current situation - should not have similar status with the existing national currency as a means of payment otherwise it will lead to negative consequences by creating unnecessary competition between the two currencies.

In summary we can deduce the following key characteristics of cryptocurrencies (using bitcoin as example)

- decentralized emission;
- absence of the regulator;
- the primary distribution of bitcoins among users is carried out based on competition whose criterion is a successful solution for sophisticated mathematical equations/puzzles;
- They are not backed by any asset;
- the maximum amount of emission is limited (21 million), the terms and volumes of current emission are known to all participants of the system;
- It is impossible to recover lost or stolen funds;
- It has high degree of anonymity of the users;
- They operate with full and transparent information for all users;
- They have relatively high transaction speed;
- There is no mandatory commission for money transfer;
- Their transactions currently are speculative in nature in most cases;
- They are unable to eliminate the social stratification.

Conformity of bitcoins with the requirements of *Shari'ah*

Table 2

The key requirements of <i>Shari'ah</i> to money:	Compliance (+), non-compliance (-), neutral (ok)
Emission process, including provision of liquidity to and its withdrawal from money market should be free from <i>Riba</i>	+
Nature of currency/money can be tangible or intangible (e.g. digital)	ok
Money emitter and monetary regulator can two different bodies	ok
Money emitter is a risk-free organization	NA (no official emitter)
Money emitter should not enter into financial relations with financial institutions aimed at obtaining income;	NA (no official emitter)
Using foreign currency/money as the state currency is permissible	+
Money does not necessarily have to be backed by real assets	+
Money must be emitted in a sufficient volume to serve the needs of the economy	ok
No prohibitions and no restrictions on monetary transactions, as well as exchange and transfer of money	+
Money and monetary circulation should help to smooth out the social stratification of society	-
People's ownership right over money/wealth should be transparent	-

Source: by authors

Conclusion

Based on the analysis above we found that in the current situation bitcoin is a novel idea to the society with many question marks around it. It is a highly demanded, well-protected and fast growing currency which is totally independent from any central regulatory body. In Table 2, the authors provided the key requirements of the

Shari'ah for money as well as the main characteristics of bitcoins. The analysis of this table allows us to state that there is no evidence that the bitcoins clearly contradict the *Shari'ah* norms. At the same time, the rapid growth of the bitcoin's price in recent months, by hitting new heights almost every day (on 17th December 2017: USD 20,000 for one bitcoin) does not necessarily indicate illegality of the bitcoins from the point of view of the *Shari'ah*. It is just an evidence of the excessive growth in demand for bitcoins. Never the less, the authors consider it necessary to focus on the following aspects with regards to the issue of conformity of bitcoins with *Shari'ah* norms:

6.1. Acquisition of bitcoins for saving purposes (investment, accumulation) is not permissible, because their high volatility in exchange rate entails excessive risk (*gharar*) and partaking in speculation (*maysir*). Therefore, in case if the volatility of the exchange rate of bitcoins gets reduced to the level of the world's leading currencies the above prohibition can be lifted.

6.2. The acquisition of bitcoins for immediate settlement of payments (for example, payment for goods or services, currency exchange) is permissible. Considering the above paragraph (6.1) the authors recommend acquiring bitcoins right before the deal to minimize the volatility risk.

6.3. It should be noted here that bitcoin mining has two indivisible functions: a) solving mathematical puzzle to obtain bitcoin; b) and commission-based confirmation for approval of transactions performed by third parties. Therefore, the permissibility for mining of bitcoins will depend on the goals pursued by the miner (see 6.1 and 6.2). If the purpose of the miner is to acquire the necessary number of bitcoins for the immediate payment for goods and services then it is allowed. In this case, commission received for approval of the third party transaction during his mining should also be considered permissible. However, mining becomes impermissible if the miner's goal is to obtain and save hoping for the further growth of its exchange value then it is nothing but excessive risk (*gharar*) and speculation (*maysir*) as stated above.

6.4. Bitcoins do not in any way constructively impede the growth of financial inequality among their owners. At the same time bitcoins reliably protect the anonymity of the participants which

makes them evade taxes with impunity. Hence, the authors believe that permissibility of using bitcoins even as stated in clauses 6.1 and 6.2 should be limited until the emergence of a new crypto-currency free from the above stated shortcomings.

6.5. It is still unclear whether bitcoin is indeed an innocent digital currency - as claimed - or it is an instrument in the hands of “certain smart people” who may have a “certain destructive plan” to achieve. That’s why, it is recommended to use bitcoins where transactions are limited only by using bitcoins.

Considering the fast spread of high technologies and the enormous interest of Internet users in crypto-currencies, the authors consider it expedient to create a specialized Islamic crypto-currency under the auspices of the Islamic Development Bank (IDB) which would play a significant role in contribution to the growth of Islamic finance industry in the world.

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