

Analysis of cryptocurrency's characteristics in four perspectives

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Abstract

Purpose – The innovation of cryptography technique and blockchain has made cryptocurrency an alternative medium of exchange due to its safety, transparency and cost effectiveness. But its main feature cannot be separated from the users who use cryptocurrency for their illegal transactions. There are several arguments related to the legality of cryptocurrency. The purpose of this paper is to analyze the nature of cryptocurrency based on characteristics of money, legal perspective, economic perspective and Sharia perspective.

Design/methodology/approach – In this study, the methodology used is descriptive with a qualitative approach. The object of this research is cryptocurrency. The data are secondary data obtained from peer-reviewed journal articles, conference papers review, working paper and Sharia consultant reports addressing the legality of cryptocurrency. The literature review analysis includes the following steps: material collection, descriptive analysis, discussion with people in Sharia competency and intuitive-subjective material evaluation.

Findings – Regarding the characteristic of money, cryptocurrency is acceptable. But in terms of the legal perspectives, cryptocurrency does not meet the criteria as currency. From the economic perspective, cryptocurrency does not fully meet the characteristic currency due to high price volatility, and from the Sharia perspective, cryptocurrency can be considered property (mal) but not as a monetary value (thamanniyah).

Research limitations/implications – The research findings are based on the journal articles, working paper and Sharia consultant report, and it may lack Sharia's opinion. Any further discussion related to Sharia perspectives will be a great input to enrich the study.

Practical implications – This study also includes the implications related to the opportunities and the risks of cryptocurrency that can be discussed for the development of the cryptocurrency in the future.

Social implications – This study includes the implication cryptocurrency is using as nature of money and not as speculative instrument.

Originality/value – This study argued the legality of cryptocurrency in four perspectives such as the nature of money, legal, economy and Sharia perspective.

Keywords Cryptocurrency, Money, Currency, Legal perspective, Economic perspective, Sharia perspective

Paper type Conceptual paper

Introduction

Since its launch in 2009, the existence of cryptocurrency is becoming increasingly popular throughout the world. It has attracted so much attention, due to its unique characteristics. It is a digital currency that is not issued by any central authorities. It is also highly secured because it uses cryptography technique by using encryption protocol to identify and verify transactions. It is also transparent, storing publicly every transaction details in distributed ledger, but the identity of the users involved remains anonymous. The price of cryptocurrencies is based on the supply and demand law. Due to high interest, the price of cryptocurrencies, namely Bitcoin, rose highly. As recorded in July 2010, the price of Bitcoin



was USD 0.04951, and it reached highest in December 2017, which was USD 19,870, or increased by 40,133,206 percent from the first price recorded.

The high interest in cryptocurrencies creates threats to the banking and finance industries. As a digital currency that is not issued by any central authorities, its values are not influenced by monetary policy. Without any intermediaries, it can decrease the cost of a transaction. Furthermore, the cost that related to remittance also can be decreased, so the financial transaction across the border can be more efficient.

Despite cryptocurrency's advantage, many countries reject cryptocurrency as a legal currency due to its negative publicity, namely Silk Road Case in July 2013. Silk Road is a hidden internet marketplace for drugs and illegal services that has been closed by the FBI. Buyers used Bitcoin for transaction and its main feature is that it makes the buyers anonymous (www.bbc.com/indonesia/bahasa_inggris/2013/10/131007_witn_silk_road_website.shtml).

In December 2013, China Central Bank officially said that virtual currency has no value and the use of virtual currency has minimum legal protection. The warning is followed by banning all the transactions that used virtual currency. Malaysia Central Bank adds a long list of institutions that prohibit the use of virtual currency as a digital currency. In January 2014, Malaysia Central Bank released a statement that Bitcoin is not a legitimate payment instrument in Malaysia and the central bank does not admit the use of Bitcoin. They also issued the warning of the Bitcoin's risks (www.bbc.com/indonesia/majalah/2014/01/140106_bisnis_Bitcoin_malaysia).

In November 2016, Bank Indonesia or Indonesia Central Bank officially issued a regulation to ban the virtual currency in PBI 18/40/PBI/2016 regarding Implementation of Payment Transaction Process. The negative publicity such as illegal drugs transaction, blackmail and terrorist financing, become one of the consideration. Another risk that may happen is the price volatility that may lead to the bubble and may impact the stabilization of the financial system.

All of the negative publicity, the speculative issue, and other risks that may be facedenable cryptocurrency, in this case Bitcoin, to be considered as an investment than a currency. As a result, there are discussions surrounding the nature of Bitcoin and whether it can qualify as money in Sharia economy. In Sharia perspective, there are some debates regarding the existence of the virtual currency. Turkish Government's religious authority and the Grand Mufti of Egypt have declared that virtual currency is *haram* or forbidden. But fatwa center of South African Islamic Seminary has taken the position that virtual currency is permissible for trading.

Thus, this study aims to analyze the nature of cryptocurrency based on characteristics of money, legal perspective, economic perspective and Sharia perspectives. Furthermore, this study also considers the opportunities and risks of cryptocurrency that may happen.

Literature review

The nature of money

Money is invented to solve mankind problem of barter system to exchange goods and services among them. Referring to Lietaer (2001), money is agreement, within a community or society, to use something as a medium of exchange. Historically, mankind has used money in the different forms, from commodities such as salt, cattle, wheat; metallic material such as gold and silver; then mankind use fiat currency such as national currency and electronic money. Currently, by the rapid development of technology, virtual currencies are invented. The most popular virtual currency that used cryptography technique in a decentralized network was found by an entity named Satoshi Nakamoto in 2009.

Referring to Meera (2018), over the time, societies discovered that money can play an efficient and effective role if it meets the requirements, such as accepted, divisible,

homogenous, durable, mobile, rare and stable value. Accepted means that the money must have an intrinsic value, so it must be desired by its own sake. The requirement of accepted is complicated since current fiat money is not having an intrinsic value. It is forced by the government to be accepted through the legal tender law.

The second requirement is divisible means that money must be easily divided into small parts that people can purchase goods and services at any price. In order to be easily divided, the money must be uniform or homogenous. The next requirement is durable means that money has to be long lasting and not easily destroyed. It also must be easy to carry around. It must be rare means that the money must be relatively hard or scarce to obtain and its value must remain relatively constant over the time.

Historical development of money and fiat currency

Referring to Abu-Bakar (2018), the historical development of money has taken place through many stages over time. The first stage is barter system, when people exchanged and traded goods and services for other goods and services. The second stage is commodity money system, when people used commodities such as wheat, seeds, or cattle as a medium of exchange. The third stage is a metallic money system, when people used gold and silver as a medium of exchange. The metallic money system evolved over time, from weight-based, coins-based until paper-based, which was 100 percent backed by gold.

The next stage is fiat money, which then evolved into fiat currency. Fiat money has been used during the wars, when the governments needed money to pay for wars or the shortage of money. But the using of fiat money created another problem, which was hyperinflation and devaluation. Referring to Davies and Connors (2016), in 1971 when President Nixon canceled the direct convertibility of US dollars to gold, it was the end of fiat money that was backed by gold. The Central bank began issuing non-convertible fiat money and by legal tender law, people obliged to accept it as payment for goods or services and settlement of debts.

The Bank of England (2014) described legal tender as following:

Legal tender has a very narrow and technical meaning, which relates to settling debts. It means that if you are in debt to someone then you can't be sued for non-payment if you offer full payment of your debts in legal tender. Throughout the UK, there are some restrictions when using the lower value coins as legal tender. For example, 1p and 2p coins only count as legal tender for any amount up to 20p.

There are many acceptable payment methods which aren't technically legal tender. This is why the term "legal tender" has little use in ordinary everyday transactions. Most shops accept payment by debit or credit card, and some accept cheques and contactless payments. These are safe and convenient ways to pay, despite not being classed as legal tender.

Whether you pay with banknotes, coins, debit cards or anything else as payment is a decision between you and the other person involved in the transaction.

In addition, shops are not obliged to accept legal tender. If you hand over a £50 note to pay for a banana in your local grocery store, the staff are within their rights to choose not to accept it. Likewise for all other banknotes – it's a matter of discretion.

Thus, we can distinguish between money and currency. Money is a medium of exchange and a store of value. Gold and silver are the optimum forms of money, because they maintain purchasing power over a long time period with limited quantity. Gold and silver also have an intrinsic value. Currency normally is the notes (or paper) and coins that are issued by government or central bank as a medium of exchange. Since fiat currency is not backed by gold, it has no intrinsic value. The value is determined by supply and demand. More currency in circulation will make it less valuable.

History and development of virtual currency

The rapid deployment of internet-based commerce and mobile technology are driving changes in the global economy. Many companies such as retails industry are falling down because they cannot compete with e-commerce companies such as Alibaba. The online payments systems are changing the way goods and services are paid. One of important development of economic changes is digital currencies.

Referring to He *et al.* (2016), digital currencies are digital representation of value that can be redeemed for goods and services. He *et al.* (2016) categorized that digital currencies based on the value can be denominated in legal tender. For example, PayPal and e-money are digital currencies that can be denominated based on fiat currency and can be exchanged in the real economy, and digital currencies that cannot be denominated in the legal tender are called virtual currencies.

Furthermore, He *et al.* (2016) explained that virtual currencies, on the contrary, primarily are used in the virtual world. They have their own unit of account and cannot be denominated in fiat currency. Virtual currencies have different levels of convertibility. Game coins, for example, is only used in their virtual domain. The exchange to fiat currency outside their virtual domain is restricted. On the contrary, the convertible virtual currency allows the exchange into fiat currency and also can be used for good and services payment in the real economy.

When the convertible virtual currencies use decentralized systems, they need cryptography technique to identify and verify transactions. It is called cryptocurrencies. By using decentralized systems, they allow the peer-to-peer transaction, so they do not need the central authority for administering the systems, and the clearing process can be eliminated. The innovation of cryptocurrencies created a challenge for the concept of fiat currency.

Money in Sharia perspective

Referring to Lietaer (2001) regarding the definition of money, most Islamic and Sharia scholars (Meera, 2018) agree that whatever a society takes a money based on the concept of *maslahah* (general welfare that can be interpreted all things that give benefit to the community for the common good and), it is allowed (*halal*). Hence, the rules of purchase agreement of a currency with another currency or foreign exchange (*as-sarf*) and the determination of interest of the loan upon repayment based on a certain percentage of the principal amount borrowed to the borrower (*riba*) are applied upon it.

Referring to Uthamni, money in Sharia law is a medium for exchange. It is forbidden to make a profit by dealing with money and make interest from the papers that represent the money. The only profit that is allowed is generated from the exchange of intrinsic utility that is sold for money or when different currencies are exchanged.

Imam Ibn Taymiyah stated:

When currencies and money are inter-traded with the intention of investment and profit, it opposes the very purposes of money and *Thamaniyyah*.

Referring to Sharia law, someone who has money must spend it or put effort and put labor to derive benefit from the money. Money is only a medium of exchange or a unit of measurement. It does not have an intrinsic value. It depends on the production activity that generates surplus value.

The Quran (4:5) interprets the role of money as following:

Do not entrust your properties – which Allah has made a means of support for you – to the weak of understanding, but maintain and clothe them out of it, and say to them a kind word of admonition. (www.islamicstudies.info/tafheem.php?sura=4)

This verse has a broad meaning. The word properties refers to wealth as one of the main supports of human life. Furthermore, the verse refers to the fact that Allah has created a

medium to upkeep the entire worldly system. The Quran has not defined the form of money but in (3:75) and (12:20), the Quran shows that the previous society used gold (*dinar*) and silver (*dirham*). Thus, referring to Abdullah, some classical Islamic scholars like Al-Mawardi, Abu Ubayd, Al-Ghazali, Ibn Khaldun, and Al-Maqrizi noted that the medium of exchange (*wasilat at-tabadul*) refers to the definition of *dinar* and *dirham* as Islamic money (*an-Nuqud al-Islamiyyah*). Furthermore, Meera (2018) argued that Islamic money is something that contributes to the attainment of meaning and purpose desired in presenting a law for the benefit of mankind (*maqasid al-shariah*).

In order to examine the characteristics of cryptocurrency, whether it is suitable for Islamic law, first of all, we need to take a look at the components of currency based on Islamic law. There are three components such as property (*mal*), lawful due to its value (*taqawwum*) and monetary value (*thamaniyyah*).

The Quran and the Sunnah of the Prophet Muhammad do not make a clear statement regarding property (*mal*). Referring to Islam (1999), since there are many definition interpretations of *mal* among Sharia scholars, the definition due to the different ways of expression is closely examined. The following are some definitions:

- (1) *Mal* is a human tendency that is able to be stored over time.
- (2) *Mal* is something that has been created for the goodness of human being.
- (3) *Mal* is usually desirable and can be stored over time.

From the definition above, there are two keywords that describe *mal*, which is something that is desirable and something that can be stored over time. Furthermore, Islam (1999) argued that *mal* is something for which there is a lawful benefit. Hence, something that does not give benefit, for example, insects, and is unlawful in Islam, for example, alcohol drink, is not considered as *mal*.

The requirement for the *mal* to be exchanged is *mutaqawwim*. *Mutaqawwim* refers to lawful item or subject for use in Sharia. There two criteria for any item that can be traded and exchanged, which is *tamawwul* and *taqawwum*. Referring Hayder (2003), *tamawwul* refers to anything used as *mal*. *Taqawwum* refers to anything that is lawful according to Islamic Law, as a result of being considered valuable.

Thamaniyyah is a monetary value or the key element in an asset that is eligible to serve as currency and money. *Thamaniyyah* has two functions, which are as an independent standard of value and as a unit of account. Referring to Adam (2017), *thamaniyyah*'s first function enables money to independently evaluate prices and rate goods. Since it is an independent standard value, it must have stability and should be worldwide acceptable. *Thamaniyyah*'s second function is as account unit. This refers to being the main reference point and it is a benchmark for people to send prices and record debt.

Methodology

In this study, the methodology used is descriptive with a qualitative approach. The object of this research is cryptocurrency. The data are secondary data obtained from peer-reviewed journal articles, conference papers review, working paper, and Sharia consultant report addressing the legality of cryptocurrency. The literature review analysis includes the following steps: material collection, descriptive analysis, discussion with people in Sharia competency, and intuitive-subjective material evaluation.

Results

Cryptocurrency as the nature of money

As mentioned above, referring to Meera (2018), money can play an efficient and effective role if it meets the seven requirements. First of all, this paper will examine whether

cryptocurrency represented by Bitcoin has fulfilled the seven requirements compared with other currencies (Table I).

From Table I, it can be observed that Bitcoin has the same characteristics with fiat currency that fulfills six of the seven requirements. Both of them do not have intrinsic value. The stable value requirements refer to the store of value function. All of the currency can be used as a store of value, but the value may decrease due to risk that may happen. For the durable requirements, in commodity currency is stated mixed depends on the commodity type. For example, commodities like wheat or salt are perishable through fungal, pest, water, fire, bacterial activity and are also destroyed by the process of consumption.

Despite its highly volatile price, the value of Bitcoin exists when its users have trust to use it and accept it as payment. Furthermore, DeVries (2016) stated that the Bitcoin can be adopted widely because of what DeVries described as “fire triangle”. It needs vendor acceptance, user acceptance and innovation. Hence, in terms of the nature of money, Bitcoin is accepted as money, with notes: it is trusted, accepted as payment and becomes an alternative in this current internet-fueled global market.

Cryptocurrency in legal perspectives

Referring to He *et al.* (2016), in the law perspective, currency is referred to a unit of account and medium of exchange that is issued and denominated exclusively by monetary authorities (or central bank). It is associated with the power of sovereignty wherein the value and the credibility of a country's currency are linked with the country's ability to support the currency. Referring to Proctor (2012), the legal concept of money is broader than the concept of currency. Money can be created by a private party (not only paper and coin money but also demand deposit), but it should be denominated in currencies that are issued by the central bank and should be accepted as a medium of exchange within the country. Hence, referring to the legal concept, Bitcoin is not acceptable as money.

Although Bitcoin is accepted as a medium of exchange by thousands of merchants throughout the world, some countries have issued the regulation to ban Bitcoin and other cryptocurrencies due to bypassing of the central bank authorities. Bangladesh, Bolivia, Ecuador and Kyrgyzstan have made a clear decision that Bitcoin is illegal. In the meanwhile, other countries that do not state that Bitcoin is illegal still review regulatory implications. Table II shows the regulation implication of Bitcoin acceptance.

The UK has commissioned the Treasury to conduct studies on cryptocurrencies regarding their role in the UK economy. Palestinians and Russians have also started to develop their own cryptocurrencies. In the case of Palestine, cryptocurrency will be the answer for the scarce of money printing. The cryptocurrency will decrease their dependence on Israel's government.

Seven requirements	Fiat currency	Gold (commodity)	Commodity currency	Bitcoin (cryptocurrency)
Intrinsic value	None	Yes	Yes	None
Divisible	Yes	Yes	Yes	Yes
Homogenous	Yes	Yes	Yes	Yes
Durable	Yes	Yes	Mixed	Yes
Mobile	Yes	Yes	Yes	Yes
Rare	Yes	Yes	No	Yes
Stable value*	Yes*	Yes*	Yes*	Yes*

Table I.
The seven
requirements of
money: a comparison

Country	Legality	Regulations	Tax treatment
USA	Legal as commodity	Controlled by government and KYC must be applied	Subject to self-employment tax
China	Legal as private property	Illegal for financial institutions and the Bitcoin exchange is shut, but China has developed its own cryptocurrency	Not mentioned
Australia	Legal as regular money	Bitcoin business are obliged to submit detailed customer reporting	Subject to GST (goods and services tax)
Japan	Legal as money	Bitcoin exchanges must register to FSA, have minimum requirement capital, submit annual report, and undergo auditing	Subject to consumption tax
Iceland	Illegal for bitcoin	The regulation has amended by the central bank due to the innovation of local cryptocurrency named aurocoin.	Not mentioned
Singapore	Not regulated	Not regulated but issued warning for Bitcoin risk	Bitcoin currency exchanged will be subject to taxes on the basis of Bitcoin sales

Table II.

Regulation implication of bitcoin acceptance

Source: <https://news/reviews/6163-total-control-top-5-countries-withstrictest-bitcoin-regulation> (accessed June 27, 2018)

In Indonesia, the legality of cryptocurrencies as a currency will be defined on the basis of the President of the Republic of Indonesia (2011). In Article Number 1 and 2, the following is stated:

- (1) The currency shall be the money of which issued by the Unitary State Republic of Indonesia of which hereinafter referred to as Rupiah.
- (2) Money shall be the legal payment instrument.

Furthermore, under Article 21 on the Use of Rupiah Paragraph 1, it is stated that Rupiah shall be used in the following cases:

- (1) each transaction whose objective is for the payment purpose;
- (2) settlement of the other obligation that has to be settled using money; and
- (3) other transactions that are performed in the territory of the unitary state of the Republic of Indonesia.

Related to Article 21 paragraph (1) above, Article 33 paragraph (1) on Criminal Provision stated that anyone who does not use the Rupiah:

- (1) each transaction whose objective is for the payment purpose;
- (2) settlement of the other obligation that should be fulfilled using the money; and
- (3) other financial transaction as set forth in Article 21 section (1) shall be subjected to sentence with imprisonment for not less than 1 (one) year and subjected to sentence with fine not less than Rp. 200,000,000.00 (200m rupiah).

Referring to the Law on Currency Act above, the Government of the Republic of Indonesia strictly stated that the only legal payment in the territory of the unitary state of the Republic of Indonesia is only Rupiah. Furthermore, related to Bitcoin, Bank Indonesia held the Press Release regarding Bitcoin and other virtual currencies, referring to Law Number 7 the Year 2011 on Currency Act, and stated that Bitcoin and other virtual currencies are not valid currencies or payment instruments in Indonesia. Bank Indonesia also released warning for the Bitcoin and other virtual currencies' risk, since any risk of ownership and the use of

Bitcoin and other virtual currencies would be borne solely by Bitcoin and other virtual currencies' owners/users.

Since the Currency Act did not strictly state the legality of Bitcoin, the popularity of Bitcoin was booming in Indonesia. The users of Bitcoin in Indonesia were around one million. Surprisingly, the number surpassed the investor numbers in the capital market, which was around 600,000 investors.

Hence, Bank Indonesia released BI Regulation Number 18/40/PBI/2016 on the Implementation of Payment Transaction Process and BI Regulation Number 19/12/PBI/2017 on the Implementation of Financial Technology. In BI Regulation Number 18/40/PBI/2016 Article 34, it is clearly stated that Bank Indonesia prohibits the Provider of Payment System Services to conduct payment transaction processing using virtual currencies. Virtual currencies mentioned in BI Regulation above are the digital currencies that are not issued by any monetary authority and are obtained by the way of mining. Among others are Bitcoin, BlackCoin, Dash, Degecoin, Litecoin, Namecoin, Nxt, Peercoin, Primecoin, Ripple and Ven.

The Governor of Bank Indonesia stated that the main reason for prohibiting the virtual currencies is to implement prudential principles, safeguard business competition, risk control, consumer protection, and also to prevent crime, such as money laundering, terrorism financing, and maintain the sovereignty of the rupiah as a means of legitimate payment in Indonesia. The result of the BI regulation enforcement is a decrease in Bitcoin users, which is around 300,000 users nowadays.

Cryptocurrency in economic perspectives

From an economic perspective, this paper analyzes whether cryptocurrency will fulfill the characteristic of a successful currency. It should have the functions as a medium of exchange, an account unit, and a store of value. Table III consists of the comparison among the currencies.

Currently, the cryptocurrency does not fully meet the three characteristics of a successful currency. A function as a store of value is limited by high price volatility. The cryptocurrency's price, in this case Bitcoin's price, is very unstable, which is much higher than the national currency. The picture below is the chart of Bitcoin's price for 2 years. In July 2017, the Bitcoin's price reached USD 1,975 per bitcoin. After five months, the price rocketed to USD 19,345 per Bitcoin. In five months, it reached 880 percent growth or 176 percent per month. After reaching the peak, the Bitcoin's price continued to sour down. In six months, the price declined to USD 6,503 per bitcoin or dropped to 11 percent per month. In Figure 3, the high volatility of Bitcoin price compared to gold is shown. Therefore, it is clear that Bitcoin does not meet the store of the value function.

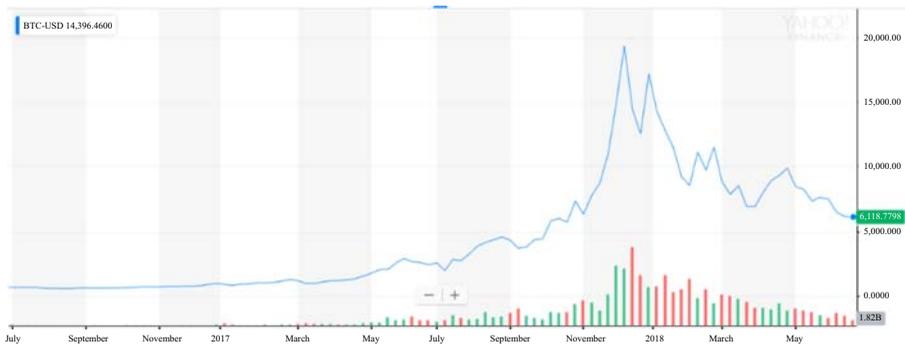
Phillip *et al.* examined the nature of cryptocurrency to evaluate the investability of the five largest cryptocurrencies based on the market capitalization such as Bitcoin, Ethereum, Ripples, NEM and Dash. Phillip *et al.* stated that all the cryptocurrency characteristics are negatively correlated between one-day ahead volatility and return (Figures 1 and 2).

The second characteristic is as unit of account functions. Referring to Yermack (2013), Bitcoin does not seem to establish itself as an account unit or a store of value.

Currency characters	Fiat currency	Gold (commodity)	Commodity currency	Bitcoin (cryptocurrency)
As medium of exchange	Yes	Yes	Yes	Yes*
As unit of account	Yes	Yes	Yes	Yes*
As store of value	Yes (subject to inflation risk)	Yes (subject to commodity price risk)	Yes (subject to dilution of quality)	No (subject to high exchange risk)

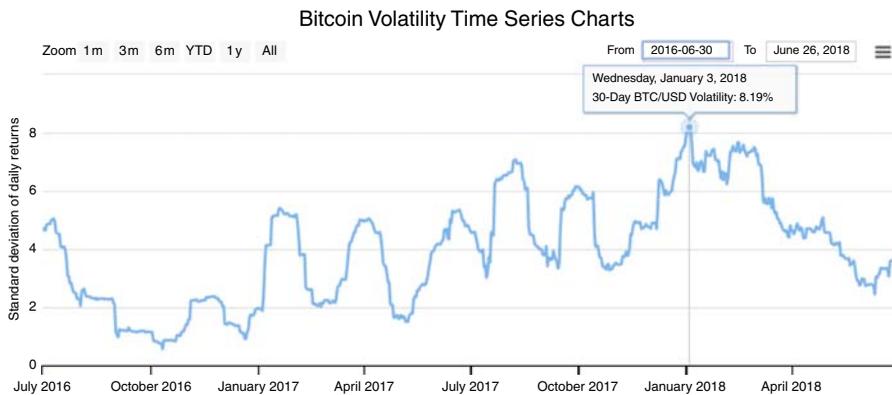
Table III.
Currency character:
a comparison

Figure 1.
The Bitcoin price
period July
2016–June 2018



Source: <https://finance.yahoo.com>

Figure 2.
The Bitcoin standard
deviation of daily
return period July
2016–June 2018



Source: www.buybitcoinworldwide.com/volatility-index/

But currently, there is a piece of evidence that cryptocurrencies are used as a unit of account. The mechanism is by valuing the goods and services based on cryptocurrency exchange rate. For example, sellers who accept the cryptocurrency payment will quote a price in fiat currency, with prices in cryptocurrency based on exchange rates at a given point in time.

The third characteristic is as medium of exchange functions. Since cryptocurrency is not a legal tender, the transactions that accept cryptocurrency must involve two parties that have an agreement regarding the acceptance of cryptocurrency. Referring to He *et al.* (2016), although the growth of cryptocurrency-based payments is very fast, the number and volume of transactions in cryptocurrency remain small. Indeed, the current total market value of cryptocurrency is about USD 7bn, compared with the US currency in circulation, which is around USD 1.4 trillion.

Cryptocurrency in Sharia perspectives

In general, Sharia scholars have two different opinions. The first group argues that cryptocurrency is prohibited by Islamic Law (*haram*). Another group has opinion that it is permissible in Islamic Law (*halal*).

Referring to Abu-Bakar (2018), Sharia scholars, such as the Grand Mufti of Egypt, the Turkish Government, Palestinian Fatwa Center, and Syeikh Haitam for the UK, have stated that cryptocurrencies are forbidden. The main reason of their statements are as follows:

- (1) The negative publicity that cryptocurrency is easy to use for illegal activities; hence, they buy it in order to avoid and hide from government or authorities.
- (2) Cryptocurrency is intangible and only available on the internet.
- (3) Cryptocurrency has no central authority to monitor and audit its systems; hence, it is not a legal tender.
- (4) Cryptocurrency transaction is open to speculation (excessive *gharar*). The miners of cryptocurrency are based on zero sum game. If the miners succeed to solve mathematical puzzles, they gain cryptocurrency, otherwise they get nothing.
- (5) Cryptocurrency is not backed by anything. Even Bitcoin is invented by an entity or a real person.

The Fatwa Center of the South African Islamic seminary, Darul Uloom Zakariyya, has taken the position that Bitcoin is permissible in principle. The consideration is that cryptocurrency meets the criteria and definition of property (*mal*) and money because of the following reasons:

- (1) treated as valuable thing among people;
- (2) accepted as a medium of exchange by a group of people;
- (3) it measures a value; and
- (4) has a unit account functions.

Referring to the consideration of Sharia scholars, there are some subjects that can be analyzed in terms of Sharia Law. Basically, the Sharia scholars argued regarding cryptocurrency for following items:

- (1) Whether cryptocurrency is a property (*mal*)?
- (2) Whether cryptocurrency is a currency?
- (3) Whether the price instability has an impact on cryptocurrencies on Sharia's complaint?
- (4) Whether illegal use has an impact on cryptocurrencies on Sharia's complaint?

Cryptocurrency as property

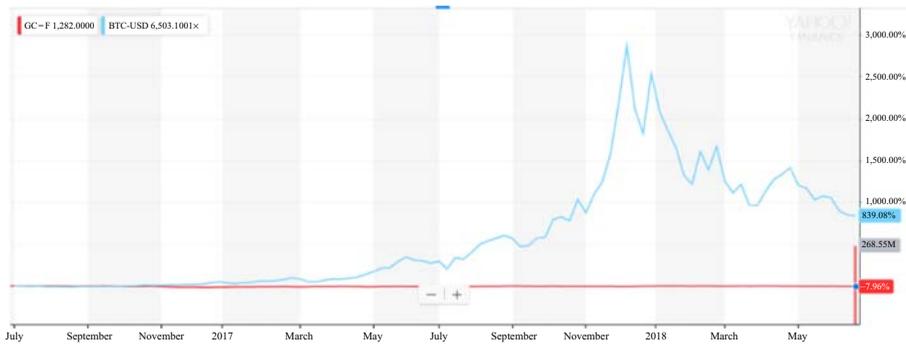
Referring to Hanafi scholars, there are two attributes to consider something as *mal* or property:

- (1) It would be desirable for a human being.
- (2) It would be capable to be stored over time.

Based on the attributes above, this paper examines whether the cryptocurrency can meet those criterion based on Bitcoin's case in economic demand (desirability). In Figure 3, it is shown that the Bitcoin's price surpassed the price of a troy ounce of gold. The current market capitalization of Bitcoin is around USD16bn, with average volume transaction per day being 281,04m. The high demand of Bitcoin indicates that Bitcoin can meet the desirability criterion.

In terms of storability, Bitcoin is encoded within the blockchain and is entered on the distributed ledger system. For example, when Client A makes payment to Client B.

Figure 3.
Price volatility
comparison between
gold and Bitcoin
period July
2016–June 2018



Source: <https://finance.yahoo.com>

The transaction is settled by the miners who solve the cryptographic puzzle as a part of the validation process. The miners who find the solution faster will receive Bitcoin as a reward. The copies of transaction records will be kept in the distributed ledger that can be accessed in the network. Hence, Bitcoin can be considered as property (*mal*).

Cryptocurrency as currency

As a currency, we have to examine whether cryptocurrency has *Thamaniyyah* criterion, as previously mentioned above:

- (1) an independent standard of value; and
- (2) a unit of account.

Thamaniyyah demands that the currency should give a clear reference to its value. The cryptocurrency's value is not an independent standard value. We need the value of fiat currency to determine the value of cryptocurrency. Even though the cryptocurrency does not meet the first criterion, since it is a digital currency, it can be used as a unit of account. As mentioned previously, the mechanism is by valuing the goods and services based on cryptocurrency exchange rate. Thus, the cryptocurrency still can be used as a medium of exchange. Referring to Adam (2017), something that does have *thamaniyyah* can still be traded as a medium of exchange in a transaction. In cryptocurrency's case, it will be regarded as price (*thaman*) in a particular transaction.

But the use of cryptocurrency as a medium of exchange meets challenges regarding its status as a legal tender. Regarding the legal tender issue, the government makes something as a legitimate means of payment and it must be issued by the central authority. But in Islamic Law, the main criterion for a medium of exchange is its acceptance by people – whether it arises by imposing it on the people through law or through voluntary acceptance of the people.

The speculative issue

One of the considerations mentioned by Sharia scholar argued that cryptocurrency is forbidden (*haram*), as it has a high price volatility. It is referring to the terms of speculation. Speculation is an external factor that has no concern for determining something like money and a valid currency. Prices are always based on supply and demand rules, as in all other assets including, gold, silver and fiat currencies as well.

The exchange rate of cryptocurrency as we know is more unstable than any fiat currency. Thus, it is not recommended to trade cryptocurrency. It is forbidden to make a

profit by dealing in the money of the same currency. However, cryptocurrency cannot be declared forbidden (*haram*) based on the fact of speculation experience. Even if this principle is valid and enforced, then trading of gold, silver, and foreign exchange will all be ruled as *haram* because they also experience the extreme levels of speculation.

The illegal use issue

As mentioned above, the cryptocurrency is usually identical with negative publicity. Many users of cryptocurrency exploit the feature for illegal purposes. Actually, the issue of illegal use is an external factor, and it does not directly affect the legal criterion in Islamic Law. Referring to Abu-Bakar (2018), the use of something lawful for unlawful purposes does not make it unlawful. For example, wine is prohibited (*haram*) in Islamic Law. But Islamic law does not prohibit people to eat grapes. Fiat currency, as well, can be used for illegal purposes but it does not make the fiat currency unlawful.

Risk and opportunities of cryptocurrency

From the explanation above, we can examine the risk and opportunities of cryptocurrency. As mentioned above, being invented by using cryptography technique and using distributed ledger has made cryptocurrency as a popular alternative as a medium of exchange due to its safety, transparency, and cost effectiveness. But its main feature cannot be separated from the activities of users who use cryptocurrency for their illegal transaction. Since the cryptocurrency is bypassing the central authority, it is not admitted as a legal tender. The following are some opportunities and risks of cryptocurrency:

(1) Opportunities:

- strengthening global financial efficiency, by reducing transaction and costs by facilitating peer-to-peer exchange;
- in the long term, the technologies have potential in deepening financial inclusion by offering secure and low-cost payment options; and
- the implications can affect financial market infrastructures for the secure, accurate and fast settlement transaction process.

(2) Risks:

- misused for illegal activities;
- risky for financial stability because it is not backed with any assets; and
- lack of consumer protection because there are no central authorities behind it.

Conclusions

From the foregoing discussion, the following are conclusions regarding the analysis of cryptocurrencies:

- (1) There are seven requirements related to the nature of money, which are intrinsic value, divisible, homogeneous, durable, mobile, rare and stable value; cryptocurrency has the same characteristics as fiat currency that fulfills six of the seven requirements. Both of them do not have intrinsic value. Thus, in the terms nature of money, Bitcoin is acceptable as money.
- (2) From a legal perspective, terms of currency are referred to unit of account and medium of exchange that are issued and dominated exclusively by monetary authorities (or central bank) and associated with the power of sovereignty wherein the value and the credibility of a country's currency are linked with the country's

ability to support the currency. In terms of the legal perspectives, cryptocurrency does not meet the criteria as currency.

- (3) From an economic perspective, terms of currency should have the functions as a medium of exchange, an account unit, and a store of value. The cryptocurrency does not fully meet the three characteristic of successful currency due to high price volatility.
- (4) From Sharia perspective, cryptocurrency can be considered as *mal* (property) due to desirability and storability, but it cannot be considered as *thamaniyyah* (monetary value), since it still needs the value of fiat currency to determine the value of cryptocurrency.
- (5) The negative publicity, such as high price volatility and illegal use of cryptocurrency, is advisable to become an external factor that has no concern for determining whether it is prohibited or permissible by Islamic Law.

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